

# Core Knowledge Sequence

Content and Skill Guidelines for Grades K–8



**Core Knowledge<sup>®</sup>**



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# Core Knowledge<sup>®</sup>

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Requests for permission and license should be directed to:

**Core Knowledge Foundation**  
**801 East High Street**  
**Charlottesville, VA 22902**  
telephone: (434) 977-7550  
fax: (434) 977-0021  
e-mail: [coreknow@coreknowledge.org](mailto:coreknow@coreknowledge.org)  
home page: [www.coreknowledge.org](http://www.coreknowledge.org)

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A Letter from  
the Founder

## A Letter from the Founder of the Core Knowledge Foundation, E. D. Hirsch, Jr.

March, 2010

Dear Friend of Core Knowledge,

The Board of Trustees of the Core Knowledge Foundation has long desired to make the *Core Knowledge Sequence* freely available for all non-commercial use. Frankly, what has held us back is simple economics. Even nonprofits need to pay bills, and the *Sequence*, our guide to the specific knowledge that forms the foundation of a sound, well-rounded education, has long been our biggest seller. Income from its sale allows us to break even so we can continue to advocate for a solid elementary curriculum and support a growing network of Core Knowledge schools.

While Core Knowledge is still worried about breaking even, times have changed. Today, more people recognize that a core curriculum is critical to significant educational improvement. Growing acceptance of our fundamental proposition is now being evidenced in the promising decision of several states to get behind a common core of K–12 standards in language arts and math. It would be contrary to our basic mission if we did not try to help this promising new effort prosper and succeed.

From its founding in 1986, Core Knowledge has worked to help teachers and parents understand that all of our most important goals in education—reading comprehension, language competence, and critical thinking—depend on broad knowledge, and cannot be successfully attained through language-arts instruction alone. To their credit, the authors of our emerging common core state standards understand this concept. However, standards alone are not sufficient to guarantee success. The effectiveness of the new language-arts standards will depend on the implementation of coherent, cumulative, and content-specific grade-by-grade curricula infused into language arts *and* the other subjects.

So the question has become not how can we give away our most valuable publication and foundational piece of intellectual property, but *how can we not?*

In the old sailing days you had to wait for the flood tide before setting forth, so you didn't miss the tide. That, according to Shakespeare, was true for more than sea voyages:

*There is a tide in the affairs of men,  
Which, taken at the flood, leads on to fortune;  
Omitted, all the voyage of their life  
Is bound in shallows and in miseries.*

Or as Will Rogers put it: "Even though you are on the right track, you will get run over if you just sit there."

For those of you who are old hands on this voyage, thank you for your support throughout the years. If you are new to Core Knowledge, welcome aboard. I have never been more optimistic about the prospect for deep, meaningful, and lasting change in our schools.

Sincerely,



E. D. Hirsch, Jr.



## Preface to the 2010 Edition of the *Core Knowledge Sequence*

With the prospect that many states will soon embrace a common core of K–12 standards in language arts and math, the future of the American public education system has never looked brighter than right now.

We at the Core Knowledge Foundation fervently believe that our experience over the past twenty years in championing the use of a coherent, cumulative, content-specific curriculum in schools throughout the United States can be of significant value to states and school districts nationwide looking to take the next step forward at this historic moment. The integration of common core standards in language arts and math with a coherent, cumulative, and content rich curriculum holds enormous promise. The Core Knowledge Foundation stands ready to assist states, school districts, and individual schools in taking this step and it is for that very reason that we have decided to disseminate the *Core Knowledge Sequence* as widely as possible at no cost.

We offer then this updated, 2010 online version of the *Core Knowledge Sequence*. Our original mission—Excellence and Equity for All Children—and the simple, yet powerful underlying premise of Core Knowledge, that knowledge builds on knowledge, remain unchanged. Nearly all of our most important goals for education—greater reading comprehension, the ability to think critically and solve problems, even higher test scores—are a function of the depth and breadth of our knowledge. Although current events and technology are constantly changing, there is a body of lasting knowledge and skills that form the core of a strong Preschool through Grade 8 curriculum. Explicit identification of what children should learn at each grade level ensures a coherent approach to building knowledge across all grade levels, making efficient and effective use of instructional time. Every child should learn the fundamentals of science, basic principles of government, important events in history, essential elements of mathematics, widely acknowledged masterpieces of art and music from around the world, and stories and poems passed down from generation to generation.

Over the past 20 years, we have been able to refine and fine tune the implementation of Core Knowledge, thanks to the effort and feedback of thousands of teachers and schools who have put the *Core Knowledge Sequence* into practice *in real classrooms with real students*. We have attempted to reflect our increased wisdom with regard to effective implementation in this 2010 edition of the *Sequence*.

### What's New in the 2010 Edition?

We call your attention specifically to the following revisions.

- **Preschool and K–8 Guidelines in a Single Document**

The *Core Knowledge Sequence* for grades 1–5 was first released in 1988. The addition of kindergarten and the middle school grades soon followed, resulting in a single document known as the *Core Knowledge Sequence for K–8*, which is now in its ninth printing. In 1997, the Foundation published the *Core Knowledge Preschool Sequence* as a separate document that offered a coherent approach to teaching 3- to 5-year olds the specific content and skills that lay the foundation for future learning. The Core Knowledge Preschool program has flourished in its own right since that time.

By combining the *Preschool Sequence* with the K–8 guidelines, the Foundation is reasserting its firm commitment to a fully coherent approach to education that we believe is most effective when started at the earliest possible age.

The two-page spread “Core Knowledge at a Glance” in this document graphically displays an overview of this coherence across the grade levels.

- **Explicit Integration of Content and Skills**

In the early years, in order to distinguish ourselves from other education reform efforts and approaches that focused on process over subject-specific content, we identified the *Core Knowledge Sequence* as a “set of content guidelines.” Core Knowledge and the Core Knowledge Foundation became synonymous with content among knowledgeable educators. However, as sometimes happens, some began to portray Core Knowledge as an “either/or” proposition, i.e., if you were using Core Knowledge, you were focused only on content, not skills. Of course, nothing could be further from the truth. As successful Core Knowledge schools have always known, Core Knowledge is more accurately described as a “both/and” proposition: effective Core Knowledge teachers know that both content and skills are essential; they embed the teaching of critical skills within the content they share with their students. The skill objectives are most effectively targeted when they are anchored to the content in the context of a domain of knowledge. To that end, you will notice that we are now explicitly referring to the *Core Knowledge Sequence* as “Content and Skill Guidelines” for preschool–grade 8.

- **Increased Elaboration of the K–2 Language Arts Section of the *Sequence***

After many years of hoping that commercial textbook publishers would heed the cognitive science findings and insights about the link between reading comprehension and background knowledge and create new instructional materials for the teaching of reading, the Core Knowledge Foundation made the decision five years ago to raise the funds necessary to develop its own set of language arts materials. To date, we have created and field-tested comprehensive materials for grades K–2 that represent a revolutionary new approach to language arts instruction.

While these materials, the *Core Knowledge Language Arts (CKLA)* program, are not yet available for widespread sale, we have included the *CKLA* goals and objectives for kindergarten–grade 2 in this 2010 edition of the *Core Knowledge Sequence* (see Appendix C, “Domains and Core Content Objectives for the *Core Knowledge Language Arts* Program, K–2”). These goals and objectives represent our best insights into what effective language arts instruction should encompass—a broader view of “language” within the language arts block, the coherent integration of rich content, i.e., nonfiction, within the language arts block, and explicit, systematic instruction in phonics. Each of these points is further elaborated below and on the following page because we believe they are critical to realizing the full potential of the Core Knowledge program.

See the *Core Knowledge Language Arts* Program on our website for more complete information.

- **A Broader View of Language—Listening, Speaking, Reading, and Writing**

Shortly after a baby is born, an amazingly complex, interactive communication process begins between the infant and others in the child’s environment. Listening and speaking are the primary means of communication during the early years of a child’s development. It is important to understand that future reading and writing competencies are predicated on competencies in listening and speaking. Traditional language arts instruction has typically paid little attention to listening and speaking. This failure to focus on the development of oral language in language arts instruction is a serious oversight. The ability to read and write written language is highly correlated with students’ oral language proficiency and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. By listening to written text read aloud, children can experience the complexities of written language without expending cognitive energy on decoding. By then participating in rich, structured conversations with an adult following the read aloud, children are able to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in later grades. The decided advantage of this approach is that children are building these competencies in the

very early grades, instead of waiting for their own reading skills to evolve. This is especially true for those children who start school, for whatever reasons, with less experience with printed text. (See *Hart & Risley, The Early Catastrophe: The 30 Million Word Gap by Age 3* on our website.)

We are long past due the need to recognize that early language disadvantage persists and manifests itself as illiteracy when educational practices in elementary education fail to recognize the importance of oral language. It is essential that children build listening and speaking competency while also developing reading and writing skills.

See Appendix A, “Why Listening and Learning are Critical to Reading Comprehension,” for a further elaboration of why oral language is important and how the language arts block can be reconceptualized to develop listening and learning skills.

- **Coherent Integration of Content Within the Language Arts Block**

While various reading approaches are increasingly including nonfiction selections within the language arts block and textbook publishers are paying greater attention to reading in the content areas, they have typically failed to grasp the importance of developing a coherent approach to building knowledge within grades and across grade levels. Children hear and/or read about dinosaurs one day, the five senses the next time a nonfiction selection is presented, and Native Americans in the next unit. The selected texts have nothing in common except that they are nonfiction. This random approach to content area reading fails to recognize how domain knowledge builds either within a grade or cumulatively across grade levels. Incorporating nonfiction into language arts in this way is a missed opportunity and a waste of precious instructional time.

Nonfiction selections that are integrated into the language arts block must be presented in a coherent, nonfragmented way. In developing the *CKLA* materials, we have used the grade specific topics in history, science, music, and the arts from the *Core Knowledge Sequence* as the basis of our selections, thereby maintaining the content coherence that has been an integral part of Core Knowledge for the past 20 years. It has also been our experience in field testing *CKLA*, that nonfiction selections should focus on a single topic or domain over a sustained period of time—about two weeks—rather than intermingle selections on unrelated topics.

See Appendix A, “Why Listening and Learning are Critical to Reading Comprehension,” Appendix B, “Using Trade Books to Achieve College and Career Readiness: The Principles of Democracy,” and Appendix C, “Domains and Core Content Objectives for the *Core Knowledge Language Arts* Program, K–2,” for a detailed explanation of how to effectively and coherently incorporate content in the language arts block.

- **Explicit and Systematic Phonics Instruction**

The Core Knowledge Foundation has long advocated the importance of explicitly and systematically teaching young children the phonemic awareness and phonics skills necessary to decipher the written code. It is important that as teachers work to more intentionally include content within the language arts block, they not lose sight of the importance of teaching specific decoding skills, especially in the early grades. The *CKLA* materials use a synthetic phonics approach that has proven to be very effective in early field testing. The 2010 edition of the *Sequence* includes the grade specific decoding skills that are the focus of the *CKLA* materials for K–2. We plan to start development of *CKLA* materials for grades 3–5 in the near future and will post revised language arts goals for these grades as part of the online *Sequence* as soon as they are available.

The specific sequence of consonant and vowel sounds and spellings included in the *Sequence* at each grade level, K–2, represents what is taught in *CKLA* and is unique to

the *CKLA* materials. Until such time as these materials are available for sale, it may be difficult for schools to reproduce the teaching of this exact sequence of phonics skills at the designated grade levels. In the interim, we urge schools to use other materials that explicitly and systematically teach the same consonant and vowel sounds and spellings over the course of K–2, although when certain sounds and spellings are introduced may differ. See “Reading Program Recommendations” on our website for our suggestions as to which existing, commercially available materials do use a systematic and explicit approach to teaching phonics; despite the claims to include phonics, many, many basal reading programs do not do so in a systematic way.

### **What Support is Available for Implementation of Core Knowledge?**

The Core Knowledge Foundation is ready and able to assist states, districts, and individual schools who want to join the ranks of those who are successfully implementing Core Knowledge. The newly revised Core Knowledge website ([www.coreknowledge.org](http://www.coreknowledge.org)) offers a wealth of information on how to get started, support materials and professional development (also, see Appendix D, “Core Knowledge Grade-by-Grade Resource Recommendations” in this document) as well as many free online resources. Be sure to check out the new [online search engine](#) that will allow you to search for lesson plans on Core Knowledge topics!

**Please do not hesitate to also contact us directly by phone (434-977-7550) or by e-mail: ([coreknow@coreknowledge.org](mailto:coreknow@coreknowledge.org)).**

# Introduction

## WHAT IS THE *CORE KNOWLEDGE SEQUENCE*?

The *Core Knowledge Sequence* is a detailed outline of specific content and skills to be taught in language arts, history, geography, mathematics, science, and the fine arts. As the core of a school's curriculum, it is intended to provide a coherent, content specific foundation of learning, while allowing flexibility to meet local needs.

The *Sequence* represents an effort to describe and state the *specific* core of shared knowledge that all children should learn in U.S. schools, and that speakers and writers assume their audience knows. It should be emphasized that the *Core Knowledge Sequence* is not a list of facts to be memorized. Rather, it is a guide to *coherent content* from grade to grade, designed to encourage *cumulative* academic progress as children build their *knowledge and skills* from one year to the next.

The *Core Knowledge Sequence* is distinguished by its specificity. While other standards provide general guidelines concerning what students should be able to do, they typically offer little help to teachers in detailing specific content or skills. The *Sequence* provides a solid foundation on which to build instruction. Moreover, because the *Sequence* offers a coherent plan that builds year by year, it helps prevent the many repetitions and gaps in instruction that often result from vague curricular guidelines.

## TEACHING THE *CORE KNOWLEDGE SEQUENCE*

*“Students will comprehend, evaluate, and respond to works of literature and other kinds of writing which reflect their own cultures and developing viewpoints as well as those of others, using prior knowledge to extend reading ability and comprehension.”*

This language arts standard is fairly typical of many performance standards. It is broad enough that disagreement is difficult—students *should* be able to comprehend, evaluate and respond to works of literature—but offers little help to teachers in planning units and lessons.

Standards typically describe what students should be able to do, but not what students should know. The content-rich, thoughtfully designed *Core Knowledge Sequence* complements state standards by offering a concrete curriculum to guide teaching and learning. Instead of spending hours researching and planning what to teach, teachers are freed to think more creatively about how to teach. They know what children have learned in previous grades and what they will need in succeeding grades. They can avoid useless repetition. They are less likely to be confronted by big gaps in what students have learned.

## THE *SEQUENCE* AS THE CORE OF THE CURRICULUM

The *Core Knowledge Sequence* is not meant to outline the whole of a school's curriculum, but rather to provide a coherently organized plan for content and skills instruction, while remaining flexible enough to not exclude locally determined or other required content and skills.

Effective Core Knowledge teachers recognize that topics from the *Sequence* must not be eliminated or changed from one grade level to another. The topics in the *Sequence* have been carefully chosen to ensure educational equity. We want all students, advantaged and disadvantaged alike, to share in the common knowledge that can lead to success. “Picking and choosing” elements of the *Sequence*

or taking out topics can lead to the very inequities we wish to avoid. Core Knowledge is an integrated and sequenced curriculum that builds over time. Leaving out some of the building blocks will inevitably weaken the foundation for future learning. The Core Knowledge *Day-by-Day Planner* was designed to assist teachers in pacing and planning all topics on a given grade level, while providing a format in which you can add locally determined or other required content and skills. See Appendix D, “Core Knowledge Grade-by-Grade Resource Recommendations.”

## THE CONSENSUS BEHIND THE *CORE KNOWLEDGE SEQUENCE*

The *Core Knowledge Sequence* is the result of a lengthy and rigorous process of research and consensus-building undertaken by the Core Knowledge Foundation, an independent, nonpartisan, nonprofit organization dedicated to excellence and fairness in early education.

To achieve a consensus on the topics to be included in the *Core Knowledge Sequence*, in 1986, the Foundation first analyzed the many reports issued by state departments of education and by professional organizations, such as the National Council of Teachers of Mathematics and the American Association for the Advancement of Science, which recommend general outcomes for elementary and secondary education. We also examined the knowledge and skills specified in the successful educational systems of several other countries, including France, Japan, Sweden, and Germany.

In addition, we formed an advisory board on multiculturalism that proposed the inclusion of diverse cultural traditions that American children should all share as part of their school-based common culture. We sent the resulting materials to three independent groups of teachers, scholars, and scientists around the country, asking them to create a master list of the core knowledge children should have learned by the end of the grade 6. About 150 teachers, including college professors, scientists, and administrators, were involved in this initial step.

These items were combined into a draft *Sequence*, and additional groups of teachers and specialists were asked to agree on a grade-by-grade sequence of the items. That draft sequence was then sent to some 100 educators and specialists who participated in a national conference that was called to hammer out a working agreement on core knowledge for the first six grades; kindergarten, grades 7 and 8, and preschool were subsequently added to the *Sequence*.

This important meeting took place in March 1990. The conferees were elementary school teachers, curriculum specialists, scientists, science writers, officers of national organizations, representatives of ethnic groups, district superintendents, and school principals from across the country. A total of 24 working groups decided on revisions to the draft sequence. The resulting provisional *Core Knowledge Sequence* was fine-tuned during a year of implementation at a pioneering school, Three Oaks Elementary in Lee County, Florida. Also, the Visual Arts and Music sections of the *Sequence* were further developed based on the research of the Core Knowledge Foundation, with the assistance of advisors and teachers.

Because the *Sequence* is intended to be a living document that provides a foundation of knowledge that speakers and writers assume their audiences know, it has been—and will continue to be periodically updated and revised. In general, however, there is more stability than change in the *Sequence*. (See E. D. Hirsch Jr.’s *Cultural Literacy* for a discussion of the inherent stability of the content of literate culture.)

## EQUAL ACCESS TO KNOWLEDGE PROMOTES EXCELLENCE AND FAIRNESS

Only by specifying the knowledge that all children should share can we guarantee equal access to that knowledge. In our current system, disadvantaged children especially suffer from low expectations that translate into watered-down curricula. In schools teaching the *Core Knowledge Sequence*, however, disadvantaged children, like all children, are exposed to a coherent core of challenging, interesting knowledge. This provides a foundation for later learning, but also makes up the common ground for communication in our diverse society.

All the most successful educational systems in the world teach a core of knowledge in the early grades. As both research and common sense demonstrate, we learn new knowledge by building on what we already know. It is important to begin building foundations of knowledge in the early grades because that is when children are most receptive, and because academic deficiencies in the first eight grades can permanently impair the quality of later schooling.

## MULTICULTURALISM IN THE SEQUENCE

Respect for the diversity in our population is fostered by the subjects specified in the *Core Knowledge Sequence*, which has been reviewed by distinguished scholars in the field of multicultural studies. Some people have urged the Foundation to make a separate listing of multicultural entries in this *Sequence*, but to do so would contradict our embrace of an inclusive, rather than divisive, multiculturalism. As Professor James Comer of Yale University has written in a review of E. D. Hirsch's *Cultural Literacy*,

*... respect for cultural diversity is important but is best achieved when young people have adequate background knowledge of mainstream culture. In order for a truly democratic and economically sound society to be maintained, young people must have access to the best knowledge available so that they can understand the issues, express their viewpoints, and act accordingly.*

The *Core Knowledge Sequence* is designed to provide “access to the best knowledge available,” including significant knowledge of diverse peoples and cultures. For a more detailed discussion of these issues, see E. D. Hirsch's essay, “Toward a Centrist Curriculum: Two Kinds of Multiculturalism in Elementary School” on our website.

## THE ARTS IN THE CURRICULUM

The Core Knowledge Foundation sees the arts not as a peripheral part of the curriculum, but as an essential part of the knowledge all children should learn in the early grades.

Early instruction in the arts should be noncompetitive, and provide many opportunities to sing, dance, listen to music, play act, read and write poetry, draw, paint, and make objects. Equally important, children should be exposed to fine paintings, great music, and other inspiring examples of art. As children progress in their knowledge and competencies, they can begin to learn more about the methods and terminology of the different arts, and become familiar with an ever wider range of great artists and acknowledged masterworks.

Through attaining a basic knowledge of the arts, children are not only better prepared to understand and appreciate works of art, but also to communicate their ideas, feelings, and judgments to others. A good understanding of the arts grows out of at least three modes of knowledge—creative (i.e., directly making artworks), historical, and analytical. Early study of the arts should embrace all three modes with special emphasis on creativity and active participation.

The arts guidelines in the *Core Knowledge Sequence* are organized into two main sections: the Visual Arts and Music. While the *Sequence* does not present other arts such as dance or drama as separate disciplines, we acknowledge their importance and have incorporated them in other disciplines (for example, dance is in Music; drama, in Language Arts).

## CORE KNOWLEDGE SCHOOLS

The Core Knowledge Foundation serves as the hub of a nationwide network of hundreds of Core Knowledge schools. Presentations and workshops are available to introduce Core Knowledge and to assist schools in the implementation of the *Core Knowledge Sequence*. Core Knowledge schools are dedicated to teaching solid academic content and skills to all children. To implement Core Knowledge, many people involved with the school's operations, including both staff and parents, need to engage in a great deal of thoughtful discussion and cooperative planning. Teachers make a commitment to teach all the topics in the *Sequence* at the assigned grade levels. This commitment ensures consistency, and helps avoid serious gaps in knowledge, and repetitions in instruction, as students progress through the grades.

The *Sequence* serves as the planning document in each classroom. Its high level of specificity proves useful not only when planning but also when communicating among staff members and with parents. Core Knowledge schools develop a school-wide plan to teach all of the topics in the *Sequence*. Typically this plan is developed over a period of two to three years, either by phasing in topics and subjects, or by adding additional grade levels each year. The Foundation holds national conferences to provide opportunities for networking with other Core Knowledge schools and obtaining new ideas for teaching the topics in the *Sequence*.

For more information on adopting or implementing the *Core Knowledge Sequence*, including recommended professional development, contact the Core Knowledge Foundation at 434-977-7550 or at [coreknow@coreknowledge.org](mailto:coreknow@coreknowledge.org).

## RESOURCES FOR TEACHING THE CORE KNOWLEDGE SEQUENCE

As an initial introduction to Core Knowledge, teachers and parents may wish to consult the books in the Core Knowledge series, titled *What Your Preschooler–Sixth Grader Needs to Know*, edited by E. D. Hirsch, Jr. The books are available at bookstores nationwide, or they may be ordered from the Core Knowledge Foundation by calling 1-800-238-3233.

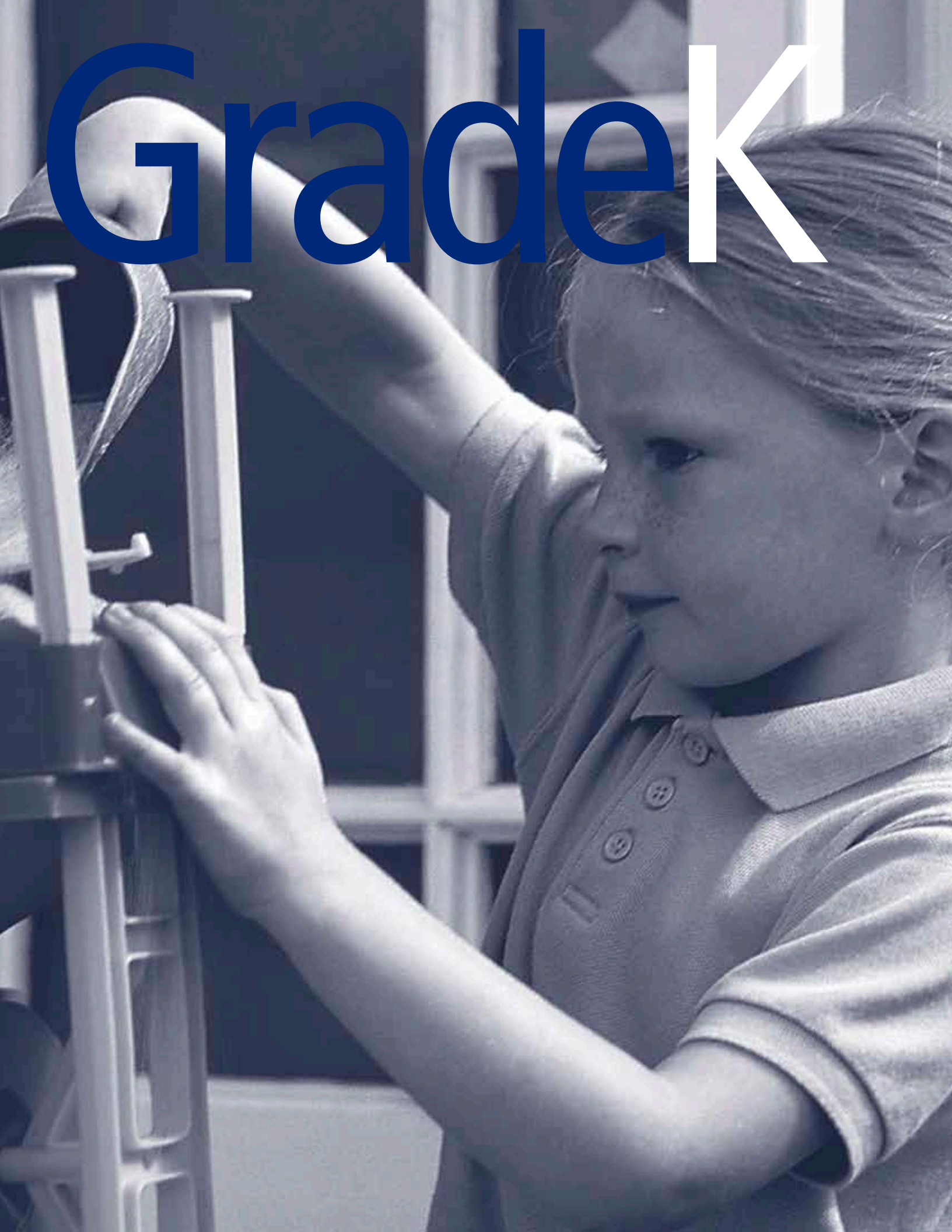
Once a decision has been made to implement Core Knowledge, we strongly recommend the purchase of the grade specific *Core Knowledge Teacher Handbook* and the *Day-by-Day Planner*. A grade-by-grade listing of recommended resources for both teachers and students is included in Appendix D.

For a list of current resources and prices, visit the Core Knowledge website at [www.coreknowledge.org](http://www.coreknowledge.org) or contact us directly at:

Core Knowledge Foundation  
801 East High Street  
Charlottesville, VA 22902  
telephone: (434) 977-7550  
fax: (434) 977-0021

e-mail: [coreknow@coreknowledge.org](mailto:coreknow@coreknowledge.org)  
home page: [www.coreknowledge.org](http://www.coreknowledge.org)





# Grade K

# Overview of Topics

## Kindergarten

### Language Arts

- I. Listening and Speaking
  - A. Classroom Discussion
  - B. Presentation of Ideas and Information
  - C. Comprehension and Discussion of Read-Alouds—All Texts
  - D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry
  - E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Text
- II. Reading
  - A. Print Awareness
  - B. Phonological and Phonemic Awareness
  - C. Phonics: Decoding and Encoding
  - D. Oral Reading and Fluency
  - E. Reading Comprehension—All Texts
- III. Writing
- IV. Language Conventions
  - A. Handwriting and Spelling
  - B. Parts of Speech and Sentence Structure
  - C. Capitalization and Punctuation
- V. Poetry
  - A. Mother Goose and Other Traditional Poems
  - B. Other Poems, Old and New
- VI. Fiction
  - A. Stories
  - B. Aesop’s Fables
  - C. American Folk Heroes and Tall Tales
  - D. Literary Terms
- VII. Sayings and Phrases

### History and Geography

#### World:

- I. Geography: Spatial Sense
- II. An Overview of the Seven Continents

#### American:

- I. Geography
- II. Native American Peoples, Past and Present

- III. Early Exploration and Settlement
  - A. The Voyage of Columbus in 1492
  - B. The Pilgrims
  - C. July 4, “Independence Day”
- IV. Presidents, Past and Present
- V. Symbols and Figures

### Visual Arts

- I. Elements of Art
  - A. Color
  - B. Line
- II. Sculpture
- III. Looking at and Talking about Works of Art

### Music

- I. Elements of Music
- II. Listening and Understanding
- III. Songs

### Mathematics

- I. Patterns and Classification
- II. Numbers and Number Sense
- III. Money
- IV. Computation
- V. Measurement
- VI. Geometry

### Science

- I. Plants and Plant Growth
- II. Animals and Their Needs
- III. The Human Body
- IV. Introduction to Magnetism
- V. Seasons and Weather
- VI. Taking Care of the Earth
- VII. Science Biographies

## Language Arts: Kindergarten

The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Kindergarten, domains include:** An Overview of the Seven Continents; Native American Peoples, Past and Present; Early Exploration and Settlement; Presidents, Past and Present; Plants and Plant Growth; Animals and Their Needs; The Human Body; Introduction to Magnetism; Seasons and Weather; Taking Care of the Earth.

**NOTE:** The objectives listed in sections I–IV of Language Arts below are consistent with the *Core Knowledge Language Arts* program and embed all of the skills and concepts within the *Common Core State Standards for English Language Arts*.

### I. Listening and Speaking

**Teachers:** Shortly after a baby is born, an amazingly complex, interactive communication process begins between the infant and others in his/her environment. While it may seem like an obvious statement, it is nonetheless worth making the point that listening and speaking are the primary means of communication throughout the early years of a young child’s development. It should be equally obvious that reading and writing competencies are predicated on competencies in listening and speaking. When a child enters kindergarten, however, traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children’s listening and speaking ability. We have acted as if listening and speaking competencies are fully and firmly established and can be left behind, as reading and writing instruction begins. Nothing could be further from the truth. This omission in language arts instruction has been a serious oversight. We must remedy this oversight, deliberately elaborating and extending listening and speaking skills, while we simultaneously begin to introduce reading, and then writing. Children who are fortunate enough to participate in language arts instruction that recognizes the importance of continuing to build listening and speaking competency while also beginning reading and writing instruction will, in the end, be far more literate adults.

#### A. CLASSROOM DISCUSSION

- Participate in age appropriate activities involving listening and speaking.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
- Carry on and participate in a conversation over four to five turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age.
- Identify and express physical sensations, mental states, and emotions of self and others.
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after, etc.*).
- Understand and use narrative language to describe people, places, things, locations, events, actions.
- Understand and use common sayings and phrases such as “Better safe than sorry” and “Look before you leap” (see page 11).

**B. PRESENTATION OF IDEAS AND INFORMATION**

- Follow multi-step, oral directions.
- Give simple directions.
- Provide simple explanations.
- Recite a nursery rhyme, poem or song independently.

**C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS**

**Teachers:** Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

At the kindergarten level, a child's ability to understand what he hears far outpaces his ability to independently read and understand written text. By listening to stories or nonfiction selections read aloud, children can experience the complexities of written language without expending cognitive energy on decoding; they can likewise access deeper and more complex content knowledge than they are presently able to read independently.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Grade appropriate read-aloud selections for poetry and fiction are included on pages 9–11. Nonfiction read-alouds should be selected on the basis of the history, science, music and visual art topics identified for kindergartners in the *Core Knowledge Sequence*, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, children should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems.

**Grasping Specific Details and Key Ideas**

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read-aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
- Retell key details.
- Ask questions to clarify information in a read-aloud.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud.

**Observing Craft and Structure**

- Understand and use words and phrases heard in read-alouds.
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds.

### Integrating Information and Evaluating Evidence

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
- Identify who is telling a story or providing information in a text.

#### D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Change some story events and provide a different story ending.
- Create and tell an original story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Distinguish fantasy from realistic text in a story.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.

#### E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT

**Teachers:** Select nonfiction read-aloud topics from the kindergarten history, science, music, and visual arts topics listed on pages 12–21, with emphasis on history and science.

- Retell important facts and information from a nonfiction read-aloud.
- With assistance, categorize and organize facts and information within a given topic.
- With assistance, create and interpret timelines and lifelines related to read-alouds.
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

## II. Reading

### A. PRINT AWARENESS

- Demonstrate understanding that what is said can be written and that the writing system is a way of writing down sounds.
- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back).
- Identify the parts of books and function of each part (front cover, back cover, title page, table of contents).
- Demonstrate correct book orientation by holding book correctly and turning pages.
- Recognize that sentences in print are made up of separate words.
- Understand that words are separated by spaces.
- Distinguish letters, words, sentences, and stories.
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud.
- Demonstrate understanding that the sequence of letters in a written word represents the sequence of sounds in the spoken word.
- Recognize and name the 26 letters of the alphabet in both their upper-case and lower-case forms.

- Say the letters of the alphabet in order, either in song or recitation.

## B. PHONOLOGICAL AND PHONEMIC AWARENESS

- Identify environmental sounds, e.g., keys jingling, scissors cutting, clapping.
- Identify whether pairs of environmental sounds are the same or different.
- Count the number of environmental sounds heard, e.g., clapping, rhythm band instruments.
- Orally segment sentences into discrete words.
- Demonstrate understanding that words are made up of sequences of sounds.
- Demonstrate understanding that vowel sounds are produced with the mouth open and airflow unobstructed, whereas consonant sounds involve closing parts of the mouth and blocking the air flow.
- Given a pair of spoken words, select the one that is longer (i.e., contains more phonemes).
- In riddle games, supply words that begin with a target phoneme.
- Indicate whether a target phoneme is or is not present in the initial/medial/final position of a spoken word, e.g., hear /m/ at the beginning of *mat* and /g/ at the end of *bag*.
- Listen to one-syllable words and tell the beginning or ending sounds, e.g., given *dog*, identify initial /d/ or final /g/.
- Recognize the same phoneme in different spoken words, e.g., /b/ in *ball*, *bug*, and *big*.
- Identify whether pairs of phonemes are the same or different, including pairs that differ only in voicing, e.g., /b/ and /p/.
- Orally blend two to three sounds to form a word, e.g., given the sounds /k/.../a/... /t/, blend to make *cat*.
- Segment a spoken word into phonemes, e.g., given *bat*, produce the segments/b//a//t/.
- Given a spoken word, produce another word that rhymes, e.g., given *hit*, supply *bit* or *mitt*.
- Identify the number of syllables in a spoken word.

## C. PHONICS: DECODING AND ENCODING

**Teachers: Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific letter-sound relationships are taught and reinforced by having children both read and write the letter-sound correspondence being studied. Reading and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.**

- Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
- Blend individual phonemes to pronounce printed words.
- Understand that sometimes two or more printed letters stand for a single sound.
- Read and write any CVC word, e.g., *sit* or *cat*.
- Read and write one-syllable words containing common initial consonant clusters such as tr-, fl-, dr- and sp- and consonant digraphs such as ch-, sh-, th-, etc.
- Read and write words containing separated vowel graphemes, such as, *late*, *bite*, *note*, *cute*.
- Read tricky spellings that can be sounded two ways, e.g., the letter ‘s’ sounded /s/ as in *cats* and /z/ as in *dogs*.
- Read and write chains of one-syllable words in which one sound is added, substituted, or omitted, e.g., read at > cat > bat > bad > bid.
- Read at least 15 words generally identified as very high frequency words.

## CONSONANT SOUNDS AND SPELLINGS TAUGHT IN KINDERGARTEN

/b/ spelled 'b' as in *boy*, 'bb' as in *tubby*  
 /d/ spelled 'd' as in *dog*, 'dd' as in *madder*  
 /f/ spelled 'f' as in *fun*, 'ff' as in *stuff*  
 /g/ spelled 'g' as in *get*, 'gg' as in *egg*  
 /h/ spelled 'h' as in *him*  
 /j/ spelled 'j' as in *jump*  
 /k/ spelled 'c' as in *cat*, 'k' as in *kitten*, 'ck' as in *sick*, 'cc' as in *moccasin*  
 /l/ spelled 'l' as in *lip*, 'll' as in *sell*  
 /m/ spelled 'm' as in *mad*, 'mm' as in *hammer*  
 /n/ spelled 'n' as in *net*, 'nn' as in *funny*  
 /p/ spelled 'p' as in *pet*, 'pp' as in *happy*  
 /r/ spelled 'r' as in *red*, 'rr' as in *earring*  
 /s/ spelled 's' as in *sit*, 'ss' as in *dress*  
 /t/ spelled 't' as in *top*, 'tt' as in *butter*  
 /v/ spelled 'v' as in *vet*  
 /w/ spelled 'w' as in *wet*  
 /x/ spelled 'x' as in *tax*  
 /y/ spelled 'y' as in *yes*  
 /z/ spelled 'z' as in *zip*, 'zz' as in *buzz*, 's' as in *dogs*  
 /ch/ spelled 'ch' as in *chop*  
 /sh/ spelled 'sh' as in *ship*  
 /th/ spelled 'th' as in *thin*  
 /th/ spelled 'th' as in *then*  
 /qu/ spelled 'qu' as in *quick*  
 /ng/ spelled 'ng' as in *sing*, 'n' as in *pink*

## VOWEL SOUNDS AND SPELLINGS TAUGHT IN KINDERGARTEN

/a/ spelled 'a' as in *cat*  
 /e/ spelled 'e' as in *get*  
 /i/ spelled 'i' as in *hit*  
 /o/ spelled 'o' as in *hot*  
 /u/ spelled 'u' as in *but*  
 /ae/ spelled 'a\_e' as in *cake*  
 /ee/ spelled 'ee' as in *bee*  
 /ie/ spelled 'i\_e' as in *bike*  
 /oe/ spelled 'o\_e' as in *note*  
 /ue/ spelled 'u\_e' as in *cute*  
 /er/ spelled 'er' as in *her*  
 /ar/ spelled 'ar' as in *car*  
 /or/ spelled 'or' as in *for*

### D. ORAL READING AND FLUENCY

- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
- Demonstrate understanding of and use commas and end punctuation while reading orally.
- Read aloud, alone, or with a partner at least 15 minutes each day.

**E. READING COMPREHENSION—ALL TEXTS**

**Teachers:** It is important to recognize that kindergartners are taught only some of the many letter-sound correspondences a reader needs to know to read a wide range of printed material. As a result, many kindergartners will be able to read independently only the simplest written text. At this grade level, mental energy will be primarily directed to the act of reading, i.e., decoding. A focus on the mechanics of decoding is appropriate and desirable at this early stage in the reading process. In kindergarten, attention to reading comprehension should be directed to ensuring a fundamental understanding of what has been read. At this grade level, it will generally be more effective and efficient to devote time to higher level thinking and comprehension skills at the listening and speaking level in response to written texts that are read aloud.

- Demonstrate understanding of simple decodable text after reading independently.

**Grasping Specific Details and Key Ideas**

- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently.

**Observing Craft and Structure**

- Understand and use words and phrases from a text that has been read independently.

**Integrating Information and Evaluating Evidence**

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Identify who is telling a story or providing information in a text.

**III. Writing**

**Teachers:** It is important to recognize that of all the communication skills—listening, speaking, reading, and writing—writing is the most demanding and challenging, especially for kindergartners who are just learning not only the code, but the fine motor skills and letter strokes necessary to put something down on paper. Kindergartners can, however, express themselves in writing by drawing pictures and, as they begin to learn some of the code, copying or writing words, phrases, and sentences.

In addition, students can also participate in shared writing exercises modeled and scaffolded by an adult. The focus in shared writing should be on encouraging the students to verbally express themselves coherently and in complete sentences, as the teacher serves as a scribe.

**Writing to Reflect Audience, Purpose and Task**

- Draw pictures to represent a text that has been heard or read independently.
- Draw pictures to represent a preference or opinion.
- Write narratives, informative and explanatory texts, and offer an opinion through shared writing exercises.
- With assistance, add details to writing.
- Create a title or caption to accompany a picture and/or shared writing.



## IV. Language Conventions

- Form letters, words, phrases and sentences to communicate thoughts and ideas.
- Apply basic spelling conventions.
- Use basic capitalization and punctuation in sentences to convey meaning.

### A. HANDWRITING AND SPELLING

- Hold a pencil with a pincer grasp and make marks on paper.
- Trace, copy, and print from memory the 26 letters of the alphabet accurately in both their upper-case and lower-case forms.
- Write own name.
- Write from left to right, leaving spaces between words, and top to bottom using return sweep.
- Begin to write phonemically plausible spellings for words that cannot be spelled correctly with current code knowledge, e.g., write *bote* for *boat*, *sum* for *some*, *hunee* for *honey*.
- Write words, phrases, and sentences from dictation, applying phonics knowledge.

### B. PARTS OF SPEECH AND SENTENCE STRUCTURE

- Use and understand question words, i.e., what, where, when, who, how.
- Form regular plural nouns by adding 's' or 'es', i.e., dog, dogs, wish, wishes.
- Demonstrate understanding of frequently occurring prepositions, i.e., *to/from*, *in/out*, *on/off*.
- Produce and expand complete sentences orally and in shared writing exercises.

### C. CAPITALIZATION, AND PUNCTUATION

- Capitalize the first word in a sentence, the pronoun *I*.
- Identify and use end punctuation, including periods, question marks, and exclamation points.

## V. Poetry

**Teachers:** Children should be introduced to a varied selection of poetry with strong rhyme and rhythm. Children should hear these rhymes read aloud, and should say some of them aloud. Some rhymes may also be sung to familiar melodies. The poems listed here represent some of the most popular and widely anthologized titles; children may certainly be introduced to more Mother Goose rhymes beyond the selection below. Although children are not expected to memorize the following rhymes, they will delight in knowing their favorites by heart, and will experience a sense of achievement and satisfaction in being able to recite some of the rhymes.

### A. MOTHER GOOSE AND OTHER TRADITIONAL POEMS

A Diller, A Dollar  
 Baa, Baa, Black Sheep  
 Diddle, Diddle, Dumpling  
 Early to Bed  
 Georgie Porgie  
 Hey Diddle Diddle  
 Hickory, Dickory, Dock  
 Hot Cross Buns  
 Humpty Dumpty  
 It's Raining, It's Pouring  
 Jack and Jill  
 Jack Be Nimble  
 Jack Sprat  
 Ladybug, Ladybug  
 Little Bo Peep  
 Little Boy Blue

#### Note Regarding PRESCHOOL Content:

Some of the poems and stories specified here are appropriate for preschoolers. Indeed, one would hope that most preschoolers would come to kindergarten having heard, for example, some Mother Goose rhymes or the story of "Goldilocks and the Three Bears." However, as not all children attend preschool, and as home preparation varies, the *Core Knowledge Sequence* offers a core of familiar rhymes and stories for all kindergarten children. See also the *Core Knowledge Preschool Sequence*, available from the Core Knowledge Foundation.

Little Jack Horner  
 Little Miss Muffet  
 London Bridge Is Falling Down  
 Mary, Mary, Quite Contrary  
 Old King Cole  
 Old Mother Hubbard  
 One, Two, Buckle My Shoe  
 Pat-a-Cake  
 Rain, Rain, Go Away  
 Ride a Cock-Horse  
 Ring Around the Rosey  
 Rock-a-bye, Baby  
 Roses Are Red  
 See-Saw, Margery Daw  
 Simple Simon  
 Sing a Song of Sixpence  
 Star Light, Star Bright  
 There Was a Little Girl  
 There Was an Old Woman Who Lived in a Shoe  
 This Little Pig Went to Market  
 Three Blind Mice

**Note:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new. To bring children into the spirit of poetry, read it aloud and encourage them to speak it aloud so they can experience the music in the words.

#### **B . OTHER POEMS, OLD AND NEW**

April Rain Song (Langston Hughes)  
 Happy Thought (Robert Louis Stevenson)  
 I Do Not Mind You, Winter Wind (Jack Prelutsky)  
 Mary Had a Little Lamb (Sara Josepha Hale)  
 The More It Snows (A. A. Milne)  
 My Nose (Dorothy Aldis)  
 Rain (Robert Louis Stevenson)  
 Three Little Kittens (Eliza Lee Follen)  
 Time to Rise (Robert Louis Stevenson)  
 Tommy (Gwendolyn Brooks)  
 Twinkle Twinkle Little Star (Jane Taylor)

## **VI. Fiction**

**Teachers:** While the following works make up a strong core of literature, the content of language arts includes not only stories, fables, and poems, but also the well-practiced, operational knowledge of how written symbols represent sounds, and how those sounds and symbols convey meaning. Thus, the stories specified below are meant to complement, not to replace, materials designed to help children practice decoding and encoding skills (see above, II. Reading and III. Writing).

The following works constitute a core of stories for this grade. In kindergarten, these stories are meant to be read-aloud selections. Expose children to many more stories, including classic picture books and read-aloud books. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Children should also be exposed to nonfiction prose: biographies, books on science and history, books on art and music, etc. And, children should be given opportunities to tell and write their own stories.

#### **A. STORIES**

The Bremen Town Musicians (Brothers Grimm)  
 Chicken Little (also known as “Henny-Penny”)  
 Cinderella (Charles Perrault)  
 Goldilocks and the Three Bears  
 How Many Spots Does a Leopard Have? (African folktale)

King Midas and the Golden Touch  
 The Legend of Jumping Mouse (Native American: Northern Plains legend)  
 The Little Red Hen  
 Little Red Riding Hood  
 Momotaro: Peach Boy (Japanese folktale)  
 Snow White and the Seven Dwarfs  
 The Three Billy Goats Gruff  
 The Three Little Pigs  
 A Tug of War (African folktale)  
 The Ugly Duckling (Hans Christian Andersen)  
*The Velveteen Rabbit* (Margery Williams)  
 selections from *Winnie-the-Pooh* (A. A. Milne)  
 The Wolf and the Kids (Brothers Grimm)

**B. AESOP'S FABLES**

The Lion and the Mouse  
 The Grasshopper and the Ants  
 The Dog and His Shadow  
 The Hare and the Tortoise

**C. AMERICAN FOLK HEROES AND TALL TALES**

Johnny Appleseed  
 Casey Jones

**D. LITERARY TERMS**

**Teachers:** As children become familiar with stories, discuss the following:

author  
 illustrator

**Note:** Children will read more American folk heroes and tall tales in grade 2.

## VII. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

A dog is man's best friend.  
 April showers bring May flowers.  
 Better safe than sorry.  
 Do unto others as you would have them do unto you.  
 The early bird gets the worm.  
 Great oaks from little acorns grow.  
 Look before you leap.  
 A place for everything and everything in its place.  
 Practice makes perfect.  
 [It's] raining cats and dogs.  
 Where there's a will there's a way.

## History and Geography: Kindergarten

**Teachers:** In kindergarten, children often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in World History in Kindergarten is to foster curiosity and the beginnings of understanding about the larger world outside the child's locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

### WORLD HISTORY AND GEOGRAPHY

#### I. Geography: Spatial Sense (working with maps, globes, and other geographic tools)

**Teachers:** Foster children's geographical awareness through regular work with maps and globes. Have students regularly locate themselves on maps and globes in relation to places they are studying. Children should make and use a simple map of a locality (such as classroom, home, school grounds, "treasure hunt").

- Maps and globes: what they represent, how we use them
- Rivers, lakes, and mountains: what they are and how they are represented on maps and globes
- Locate the Atlantic and Pacific Oceans.
- Locate the North and South Poles.

#### II. An Overview of the Seven Continents

**Teachers:** Help children gain a beginning geographic vocabulary and a basic sense of how we organize and talk about the world by giving names to some of the biggest pieces of land. Introduce children to the seven continents through a variety of methods and media (tracing, coloring, relief maps, etc.), and associate the continents with familiar wildlife, landmarks, etc. (for example, penguins in Antarctica; the Eiffel Tower in Europe). Throughout the school year, reinforce names and locations of continents when potential connections arise in other disciplines (for example, connect Grimm's fairy tales to Europe; voyage of Pilgrims to Europe and North America; story of "Momotaro—Peach Boy" to Asia [Japan]; study of Native Americans to North America).

- Identify and locate the seven continents on a map and globe:
  - Asia
  - Europe
  - Africa
  - North America
  - South America
  - Antarctica
  - Australia

**Note:** In later grades, children will continue to learn about all the continents as well as specific countries and peoples.

## AMERICAN HISTORY AND GEOGRAPHY

**Teachers:** The study of American history begins in grades K-2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

## I. Geography

- Name and locate the town, city, or community, as well as the state where you live.
- Locate North America, the continental United States, Alaska, and Hawaii.

## II. Native American Peoples, Past and Present

**Teachers:** As children progress through the grades of the *Core Knowledge Sequence*, they will learn about many different Native American peoples in many different regions (such as **Pacific Northwest:** Kwakiutl, Chinook; **Plateau:** Nez Perce; **Great Basin:** Shoshone, Ute; **Southwest:** Dine [Navajo], Hopi, Apache, Zuni; **Plains:** Blackfoot, Comanche, Crow, Kiowa, Dakota, Lakota [Sioux], Cheyenne, Arapaho; **Eastern Woodlands:** Huron, Iroquois, Mohican, Delaware [Lenni Lenape], Susquehanna, Massachusetts, Wampanoag, Powhatan; **Southeast:** Cherokee, Seminole). In kindergarten, study at least **one** specific group of Native Americans. You might explore a local or regional tribe or nation, and compare it with one far away.

- Become familiar with the people and ways of life of at least one Native American tribe or nation, including:
  - how they lived
  - what they wore and ate
  - the homes they lived in
  - their beliefs and stories
  - the current status of the tribe or nation

## III. Early Exploration and Settlement

## A. THE VOYAGE OF COLUMBUS IN 1492

- Queen Isabella and King Ferdinand of Spain
- The Niña, Pinta, and Santa Maria
- Columbus’s mistaken identification of “Indies” and “Indians”
- The idea of what was, for Europeans, a “New World”

## B. THE PILGRIMS

- The Mayflower
- Plymouth Rock
- Thanksgiving Day celebration

## C. JULY 4, “INDEPENDENCE DAY”

- The “birthday” of our nation
- Democracy (rule of the people): Americans wanted to rule themselves instead of being ruled by a faraway king.
- Some people were not free: slavery in early America



#### IV. Presidents, Past and Present

**Teachers:** Introduce children to famous presidents, and discuss with them such questions as: *What is the president? How does a person become president? Who are some of our most famous presidents, and what did they do that made them famous?*

See below, Symbols and  
Figures: Mount Rushmore;  
the White House.

- George Washington  
The “Father of Our Country”  
Legend of George Washington and the cherry tree
- Thomas Jefferson, author of Declaration of Independence
- Abraham Lincoln  
Humble origins  
“Honest Abe”
- Theodore Roosevelt
- Current United States president

#### V. Symbols and Figures

- Recognize and become familiar with the significance of  
American flag  
Statue of Liberty  
Mount Rushmore  
The White House

# Visual Arts: Kindergarten

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

## I. Elements of Art

**Teachers:** The generally recognized elements of art include line, shape, form, space, light, texture, and color. In kindergarten, introduce children to line and color. Engage students in recognizing and using different kinds of lines and colors, and point out lines and colors in nature. (You may also wish to observe shapes in art and nature—see Math: Geometry.)

### A. COLOR

- Observe how colors can create different feelings and how certain colors can seem “warm” (red, orange, yellow) or “cool” (blue, green, purple)
- Observe the use of color in  
Pieter Bruegel, *The Hunters in the Snow*  
Helen Frankenthaler, *Blue Atmosphere*  
Paul Gauguin, *Tahitian Landscape*  
Pablo Picasso, *Le Gourmet*

### B. LINE

- Identify and use different lines: straight, zigzag, curved, wavy, thick, thin
- Observe different kinds of lines in  
Katsushika Hokusai, *Tuning the Samisen*  
Henri Matisse, *Purple Robe and Anemones*  
Joan Miró, *People and Dog in the Sun*

## II. Sculpture

- Recognize and discuss the following as sculptures:  
Northwest American Indian totem pole  
Statue of Liberty
- Mobiles: Alexander Calder’s *Lobster Trap and Fish Tail*

## III. Looking at and Talking about Works of Art

**Teachers:** After children have been introduced to some elements of art and a range of artworks and artists, engage them in looking at pictures and talking about them. Ask the children about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss the lines and colors, details not obvious at first, why they think the artist chose to depict things in a certain way, etc.

- Observe and talk about  
Pieter Bruegel, *Children’s Games*  
Mary Cassatt, *The Bath*  
Winslow Homer, *Snap the Whip*  
Diego Rivera, *Mother’s Helper*  
Henry O. Tanner, *The Banjo Lesson*

See also American History K:  
Native Americans, *re* totem  
pole.

# Music: Kindergarten

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

## I. Elements of Music

- Through participation, become familiar with some basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  - Recognize a steady beat; begin to play a steady beat.
  - Recognize that some beats have accents (stress).
  - Move responsively to music (marching, walking, hopping, swaying, etc.).
  - Recognize short and long sounds.
  - Discriminate between fast and slow.
  - Discriminate between obvious differences in pitch: high and low.
  - Discriminate between loud and soft.
  - Recognize that some phrases are the same, some different.
  - Sing unaccompanied, accompanied, and in unison.

## II. Listening and Understanding

**Teachers:** To encourage listening skills and the beginnings of understanding, play various kinds of music often and repeatedly. In the kindergarten classroom, music can be played for enjoyment, to accompany activities, to inspire creative movement, etc. Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

- Recognize the following instruments by sight and sound: guitar, piano, trumpet, flute, violin, drum.
- Become familiar with the following works:
  - Edvard Grieg, “Morning” and “In the Hall of the Mountain King” from *Peer Gynt*
  - Victor Herbert, “March of the Toys” from *Babes in Toyland*
  - Richard Rodgers, “March of the Siamese Children” from *The King and I*
  - Camille Saint-Saëns, *Carnival of the Animals*

## III. Songs

**Teachers:** See also Language Arts, Mother Goose poems. A number of the poems may be sung to familiar melodies.

The Bear Went Over the Mountain  
 Bingo  
 The Farmer in the Dell  
 Go In and Out the Window  
 Go Tell Aunt Rhody  
 Here We Go Round the Mulberry Bush  
 The Hokey Pokey  
 Hush Little Baby  
 If You’re Happy and You Know It  
 Jingle Bells



**Note:** Grieg’s “In the Hall of the Mountain King” is a good work to illustrate dynamics (loud and quiet), as well as tempo (slow and fast).



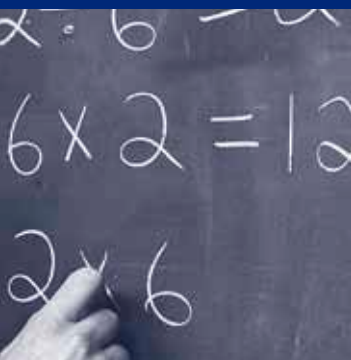
John Jacob Jingleheimer Schmidt  
Kumbaya (also Kum Ba Ya)  
London Bridge  
Old MacDonald Had a Farm  
Row, Row, Row Your Boat  
This Old Man  
Twinkle Twinkle Little Star  
The Wheels on the Bus

**Teachers:** You may wish to supplement the songs listed above with songs from the *Core Knowledge Preschool Sequence*, as follows:

A Tisket, A Tasket  
Are You Sleeping?  
Blue-Tail Fly (Jimmie Crack Corn)  
Do Your Ears Hang Low?  
Did You Ever See a Lassie?  
Eensy, Weensy Spider  
Five Little Ducks That I Once Knew  
Five Little Monkeys Jumping On the Bed  
Happy Birthday to You  
Head and Shoulders, Knees and Toes  
Here is the Beehive  
I Know an Old Lady  
I'm a Little Teapot  
Kookaburra  
Lazy Mary  
Looby Loo  
Oats, Peas, Beans and Barley Grow  
Oh, Do You Know the Muffin Man?  
Oh Where, Oh Where, Has My Little Dog Gone?  
One Potato, Two Potato  
Open, Shut Them  
Pop Goes the Weasel  
Teddy Bear, Teddy Bear, Turn Around  
Teddy Bears Picnic  
Where is Thumbkin?  
Who Stole the Cookie from the Cookie Jar?  
You Are My Sunshine

# Mathematics: Kindergarten

**Teachers:** Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



## I. Patterns and Classification

- Establish concepts of likeness and difference by sorting and classifying objects according to various attributes: size, shape, color, amount, function, etc.
- Define a set by the common property of its elements.
- In a collection of objects that includes a given set and an item that does not belong, indicate which item does not belong.
- Moving from concrete objects to pictorial representations, recognize patterns and predict the extension of a pattern.
- Extend a sequence of ordered concrete objects.

## II. Numbers and Number Sense

- Using concrete objects and pictorial representations, compare sets:
  - same as (equal to)
  - more than
  - less than
  - most
  - least
- Count
  - forward from 1 to 31, first beginning with 1, and later from any given number
  - backward from 10
  - from 1 to 10 by twos
  - by fives and tens to 50
- Write numbers 1 to 31 (with special attention to the difference between certain written symbols, such as 6 and 9; 2 and 5; 1 and 7; 12 and 21, etc.).
- Count and write the number of objects in a set.
- Given a number, identify one more, one less.
- Identify ordinal position, first (1st) through sixth (6th).
- Identify pairs.
- Interpret simple pictorial graphs.
- Identify  $\frac{1}{2}$  as one of two equal parts of a region or object; find  $\frac{1}{2}$  of a set of concrete objects.

## III. Money

- Identify pennies, nickels, dimes, and quarters.
- Identify the one-dollar bill.
- Identify the dollar sign (\$) and cents sign (¢).
- Write money amounts using the cents sign (¢).

#### IV. Computation

- Add and subtract to ten, using concrete objects.
- Recognize the meaning of the plus sign (+).
- Subtraction: the concept of “taking away”; recognize the meaning of the minus sign (-).

#### V. Measurement

- Identify familiar instruments of measurement, such as ruler, scale, thermometer.
- Compare objects according to:
  - Linear measure
    - long and short; longer than, shorter than
    - measure length using non-standard units
    - begin to measure length in inches
    - height: taller than, shorter than
  - Weight
    - heavy, light
    - heavier than, lighter than
  - Capacity (volume)
    - full and empty
    - less full than, as full as, fuller than
  - Temperature: hotter and colder
- Time
  - Sequence events: before and after; first, next, last.
  - Compare duration of events: which takes more or less time.
  - Read a clock face and tell time to the hour.
  - Know the days of the week and the months of the year.
  - Orientation in time: today, yesterday, tomorrow; morning, afternoon; this morning vs. yesterday morning, etc.

#### VI. Geometry

- Identify left and right hand.
- Identify top, bottom, middle.
- Know and use terms of orientation and relative position, such as:
  - closed, open
  - on, under, over
  - in front, in back (behind)
  - between, in the middle of
  - next to, beside
  - inside, outside
  - around
  - far from, near
  - above, below
  - to the right of, to the left of
  - here, there
- Identify and sort basic plane figures: square, rectangle, triangle, circle.
- Identify basic shapes in a variety of common objects and artifacts (windows, pictures, books, buildings, cars, etc.).
- Recognize shapes as the same or different.
- Make congruent shapes and designs.
- Compare size of basic plane figures (larger, smaller).

## Science: Kindergarten

**Teachers:** Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.



### I. Plants and Plant Growth

**Teachers:** Through reading aloud, observation, and activities such as growing plants from seeds in varying conditions, explore the following with children:

- What plants need to grow: sufficient warmth, light, and water
- Basic parts of plants: seed, root, stem, branch, leaf
- Plants make their own food.
- Flowers and seeds: seeds as food for plants and animals (for example, rice, nuts, wheat, corn)
- Two kinds of plants: deciduous and evergreen
- Farming
  - How some food comes from farms as crops
  - How farmers must take special care to protect their crops from weeds and pests
  - How crops are harvested, kept fresh, packaged, and transported for people to buy and consume

### II. Animals and Their Needs

**Teachers:** Through reading aloud, observation, and activities, explore with children the common characteristics and needs of animals, including:

- Animals, like plants, need food, water, and space to live and grow.
- Plants make their own food, but animals get food from eating plants or other living things.
- Offspring are very much (but not exactly) like their parents.
- Most animal babies need to be fed and cared for by their parents; human babies are especially in need of care when young.
- Pets have special needs and must be cared for by their owners.

### III. The Human Body

- The five senses and associated body parts:
  - Sight: eyes
  - Hearing: ears
  - Smell: nose
  - Taste: tongue
  - Touch: skin
- Taking care of your body: exercise, cleanliness, healthy foods, rest

#### IV. Introduction to Magnetism

**Teachers:** Through reading aloud, observation, and experiments with magnets, introduce children to the idea that there are forces we cannot see that act upon objects. Children should:

- Identify familiar everyday uses of magnets (for example, in toys, in cabinet locks, in “refrigerator magnets,” etc.).
- Classify materials according to whether they are or are not attracted by a magnet.

#### V. Seasons and Weather

**Teachers:** The emphasis in kindergarten should be on observation and description; technical explanations of meteorological phenomena should be taken up in later grades; see grades 2 and 4 for more detailed study of Meteorology.

- The four seasons
- Characteristic local weather patterns during the different seasons
- The sun: source of light and warmth
- Daily weather changes
  - Temperature: thermometers are used to measure temperature
  - Clouds
  - Rainfall: how the condition of the ground varies with rainfall; rainbows
  - Thunderstorms: lightning and thunder, hail, safety during thunderstorms
  - Snow and snowflakes, blizzard

#### VI. Taking Care of the Earth

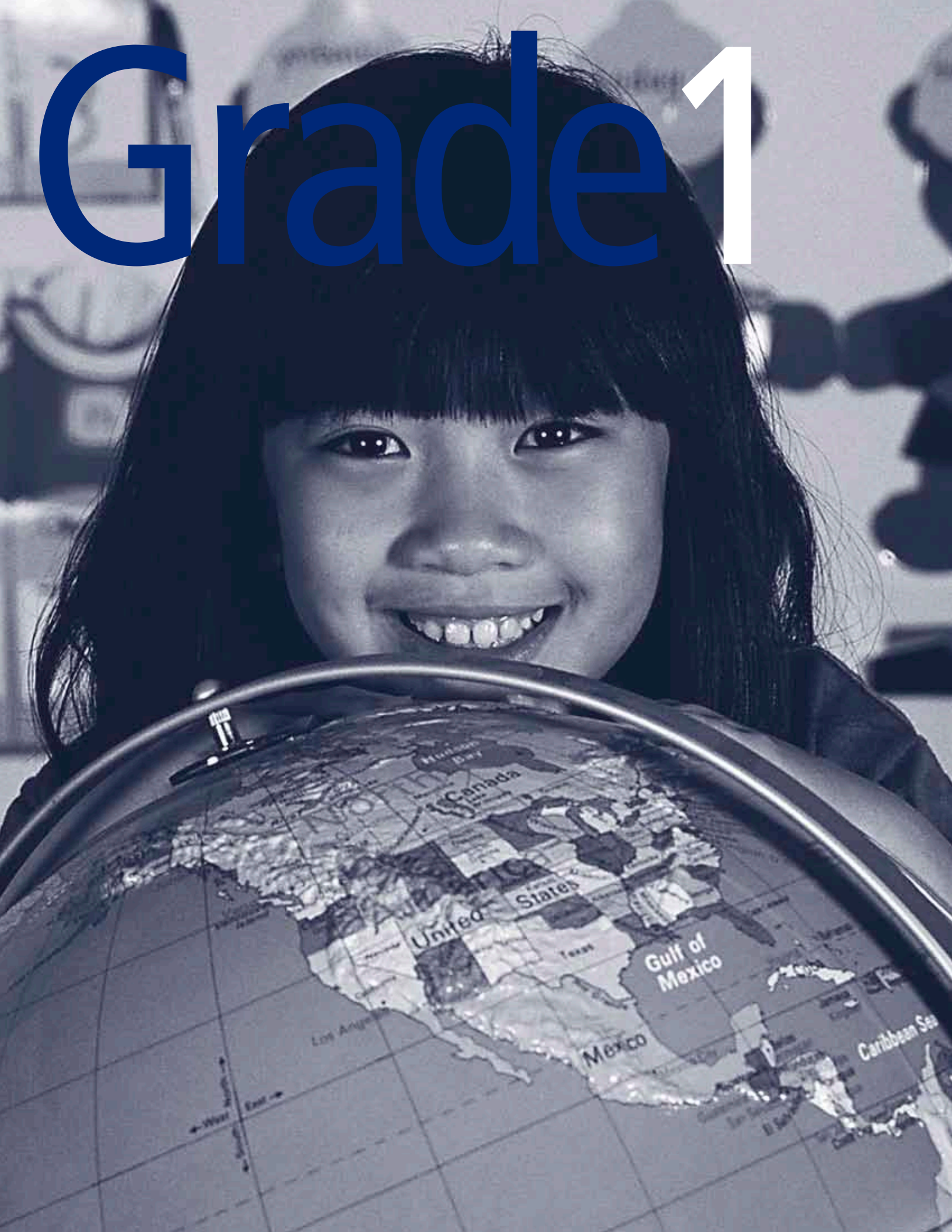
- Conservation: Some natural resources are limited, so people must be careful not to use too much of them (example: logging and reforestation).
- Practical measures for conserving energy and resources (for example, turning off unnecessary lights, tightly turning off faucets, etc.)
- Some materials can be recycled (for example, aluminum, glass, paper).
- Pollution (for example, littering, smog, water pollution) can be harmful, but if people are careful they can help reduce pollution.

#### VII. Science Biographies

George Washington Carver (botanist/discovered ways to keep soil rich)  
Jane Goodall (studied chimpanzees)  
Wilbur and Orville Wright (made first airplane)



# Grade 1



# Overview of Topics

## Grade 1

### Language Arts

- I. Listening and Speaking
  - A. Classroom Discussion
  - B. Presentation of Ideas and Information
  - C. Comprehension and Discussion of Read-Alouds—All Texts
  - D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry
  - E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Text
- II. Reading
  - A. Print Awareness
  - B. Phonemic Awareness
  - C. Phonics: Decoding and Encoding
  - D. Oral Reading and Fluency
  - E. Reading Comprehension—All Texts
  - F. Reading Comprehension—Fiction, Drama, and Poetry
  - G. Reading Comprehension—Nonfiction and Informational Text
- III. Writing
  - A. Narrative Writing
  - B. Informative/Explanatory Writing
  - C. Persuasive Writing (Opinion)
- IV. Language Conventions
  - A. Handwriting and Spelling
  - B. Parts of Speech and Sentence Structure
  - C. Capitalization and Punctuation
- V. Poetry
- VI. Fiction
  - A. Stories
  - B. Aesop’s Fables
  - C. Different Lands, Similar Stories
  - D. Literary Terms
- VII. Sayings and Phrases

### History and Geography

#### World:

- I. Geography
  - A. Spatial Sense
  - B. Geographical Terms and Features
- II. Early World Civilizations
  - A. Mesopotamia: The “Cradle of Civilization”
  - B. Ancient Egypt
  - C. History of World Religions
- III. Modern Civilization and Culture: Mexico
  - A. Geography
  - B. Culture

#### American:

- I. Early People and Civilizations
  - A. The Earliest People: Hunters and Nomads
  - B. Early American Civilizations

- II. Early Exploration and Settlement
  - A. Columbus
  - B. The Conquistadors
  - C. English Settlers
- III. From Colonies to Independence: The American Revolution
- IV. Early Exploration of the American West
- V. Symbols and Figures

### Visual Arts

- I. Art from Long Ago
- II. Elements of Art
  - A. Color
  - B. Line
  - C. Shape
  - D. Texture
- III. Kinds of Pictures: Portrait and Still Life

### Music

- I. Elements of Music
- II. Listening and Understanding
  - A. Musical Terms and Concepts
  - B. Music Can Tell a Story
  - C. American Musical Traditions (Jazz)
- III. Songs

### Mathematics

- I. Patterns and Classification
- II. Numbers and Number Sense
- III. Money
- IV. Computation
  - A. Addition
  - B. Subtraction
  - C. Solving Problems and Equations
- V. Measurement
- VI. Geometry

### Science

- I. Living Things and Their Environments
  - A. Habitats
  - B. Oceans and Undersea Life
  - C. Environmental Change and Habitat Destruction
  - D. Special Classifications of Animals
- II. The Human Body
  - A. Body Systems
  - B. Germs, Diseases, and Preventing Illness
- III. Matter
- IV. Properties of Matter: Measurement
- V. Introduction to Electricity
- VI. Astronomy
- VII. The Earth
  - A. Geographical Features of the Earth’s Surface
  - B. What’s Inside the Earth
- VIII. Science Biographies



## Language Arts: Grade 1



The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Grade 1, domains include:** Early World Civilizations; Modern Civilization and Culture: Mexico; Early American Civilizations; Early Exploration and Settlement; From Colonies to Independence: The American Revolution; Early Exploration of the American West; Living Things and Their Environments; The Human Body; Matter; Introduction to Electricity; Astronomy: Introduction to the Solar System; The Earth.

**NOTE:** The objectives listed in sections I–IV of Language Arts below are consistent with the *Core Knowledge Language Arts* program and embed all of the skills and concepts within the *Common Core State Standards for English Language Arts*.

### I. Listening and Speaking

**Teachers:** Traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children’s listening and speaking ability. This failure to focus on the development of oral language in language arts instruction has been a serious oversight. Literacy, the ability to read and write written language, is highly correlated with students’ oral language proficiency, and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. It is therefore essential that children build listening and speaking competency while also developing reading and writing skills.

#### A. CLASSROOM DISCUSSION

- Participate in age appropriate activities involving listening and speaking.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age.
- Identify and express physical sensations, mental states, and emotions of self and others.
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after*, etc.).
- Understand and use narrative language to describe people, places, things, locations, events, actions.
- Understand and use common sayings and phrases such as “Hit the nail on the head” and “Let the cat out of the bag” (see page 34).

#### B. PRESENTATION OF IDEAS AND INFORMATION

- Follow multi-step, oral directions.
- Give simple directions.
- Provide simple explanations.
- Recite a nursery rhyme, poem or song independently, using appropriate eye contact, volume and clear enunciation.
- Give oral presentations about personal experiences, topics of interest, and/or stories, using appropriate eye contact, volume and clear enunciation.

### C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS

**Teachers:** Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

At the first grade level, a child's ability to understand what he hears far outpaces his ability to independently read and understand written text. By listening to stories or nonfiction selections read aloud, children can experience the complexities of written language without expending cognitive energy on decoding; they can likewise access deeper and more complex content knowledge than they are presently able to read independently.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Grade appropriate read-aloud selections for poetry and fiction are included on pages 32–34. Nonfiction read-alouds should be selected on the basis of the history, science, music and visual art topics identified for Grade 1 students in the *Core Knowledge Sequence*, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, children should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems.
- Distinguish the following genres of literature: fiction, nonfiction and drama.

#### Grasping Specific Details and Key Ideas

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read-aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
- Retell key details.
- Ask questions to clarify information in a read-aloud.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud.

#### Observing Craft and Structure

- Understand and use words and phrases heard in read-alouds.
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds.

#### Integrating Information and Evaluating Evidence

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.

- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud.
- Identify who is telling a story or providing information in a text.

#### **D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY**

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Compare and contrast characters from different stories.
- Change some story events and provide a different story ending.
- Create and tell an original story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify sensory language and how it is used to describe people, objects, places and events.

#### **E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT**

**Teachers:** Select nonfiction read-aloud topics from the first grade history, science, music, and visual arts topics listed on pages 35–47, with emphasis on history and science.

- Generate questions and seek information from multiple sources to answer questions.
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
- With assistance, categorize and organize facts and information within a given topic.
- With assistance, create and interpret timelines and lifelines related to read-alouds.
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

## **II Reading**

### **A. PRINT AWARENESS**

- Demonstrate understanding that what is said can be written and that the writing system is a way of writing down sounds.
- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back).
- Identify the parts of books and function of each part (front cover, back cover, title page, table of contents).
- Demonstrate correct book orientation by holding book correctly and turning pages.
- Recognize that sentences in print are made up of separate words.
- Understand that words are separated by spaces.
- Distinguish letters, words, sentences, and stories.
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud.

- Demonstrate understanding that the sequence of letters in a written word represents the sequence of sounds in the spoken word.
- Recognize and name the 26 letters of the alphabet in both their upper-case and lower-case forms.
- Say the letters of the alphabet in order, either in song or recitation.

## B. PHONEMIC AWARENESS

- Demonstrate understanding that words are made up of sequences of sounds.
- Demonstrate understanding that vowel sounds are produced with the mouth open and airflow unobstructed, whereas consonant sounds involve closing parts of the mouth and blocking the air flow.
- Given a pair of spoken words, select the one that is longer (i.e., contains more phonemes).
- In riddle games, supply words that begin with a target phoneme.
- Indicate whether a target phoneme is or is not present in the initial/medial/final position of a spoken word, e.g., hear /m/ at the beginning of *mat* and /g/ at the end of *bag*.
- Listen to one-syllable words and tell the beginning or ending sounds, e.g., given *dog*, identify initial /d/ or final /g/.
- Recognize the same phoneme in different spoken words, e.g., /b/ in *ball*, *bug*, and *big*.
- Identify whether pairs of phonemes are the same or different, including pairs that differ only in voicing, e.g., /b/ and /p/.
- Orally blend two to three sounds to form a word, e.g., given the sounds /k/... /a/.../t/, blend to make *cat*.
- Segment a spoken word into phonemes, e.g., given *bat*, produce the segments/b//a//t/.
- Given a spoken word, produce another word that rhymes, e.g., given *hit*, supply *bit* or *mitt*.
- Identify the number of syllables in a spoken word.

## C. PHONICS: DECODING AND ENCODING

**Teachers:** Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific letter-sound relationships are taught and reinforced by having children both read and write the letter-sound correspondence being studied. Reading and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.

- Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
- Blend individual phonemes to pronounce printed words.
- Understand that sometimes two or more printed letters stand for a single sound.
- Read one to two syllable words containing any of the grapheme-phoneme correspondences listed below.
- Read and write words with inflectional endings, i.e., -s, -ed, -ing, -er, -est.
- Read, understand, and write contractions, i.e., *isn't*, *I'm*, *can't*, etc.
- Sort and classify words according to the spelling used to represent a specific phoneme.
- Read tricky spellings that can be sounded two ways, e.g., the letter 's' sounded /s/ as in *cats* and /z/ as in *dogs*.
- Read and spell chains of one-syllable words in which one sound is added, substituted, or omitted, i.e., read at > cat > bat > bad > bid.
- Read at least 30 words generally identified as high frequency words.

## CONSONANT SOUNDS AND SPELLINGS TAUGHT IN FIRST GRADE

/b/ spelled 'b' as in *boy*, 'bb' as in *tubby*

/d/ spelled 'd' as in *dog*, 'dd' as in *madder*, 'ed' as in *filled*

/f/ spelled 'f' as in *fun*, 'ff' as in *stuff*

/g/ spelled 'g' as in *get*, 'gg' as in *egg*

/h/ spelled 'h' as in *him*  
 /j/ spelled 'j' as in *jump*, 'g' as in *gem*, 'ge' as in *fringe*  
 /k/ spelled 'c' as in *cat*, 'k' as in *kitten*, 'ck' as in *sick*, 'cc' as in *moccasin*  
 /l/ spelled 'l' as in *lip*, 'll' as in *sell*  
 /m/ spelled 'm' as in *mad*, 'mm' as in *hammer*  
 /n/ spelled 'n' as in *net*, 'nn' as in *funny*, 'kn' as in *knock*  
 /p/ spelled 'p' as in *pet*, 'pp' as in *happy*  
 /r/ spelled 'r' as in *red*, 'rr' as in *earring*, 'wr' as in *wrist*  
 /s/ spelled 's' as in *sit*, 'ss' as in *dress*, 'c' as in *cent*, 'ce' as in *prince*, 'se' as in *rinse*  
 /t/ spelled 't' as in *top*, 'tt' as in *butter*, 'ed' as in *asked*  
 /v/ spelled 'v' as in *vet*, 've' as in *twelve*  
 /w/ spelled 'w' as in *wet*, 'wh' as in *when*  
 /x/ spelled 'x' as in *tax*  
 /y/ spelled 'y' as in *yes*  
 /z/ spelled 'z' as in *zip*, 'zz' as in *buzz*, 's' as in *dogs*  
 /ch/ spelled 'ch' as in *chop*, 'tch' as in *itch*  
 /sh/ spelled 'sh' as in *ship*  
 /th/ spelled 'th' as in *thin*  
 /th/ spelled 'th' as in *then*  
 /qu/ spelled 'qu' as in *quick*  
 /ng/ spelled 'ng' as in *sing*, 'n' as in *pink*

#### VOWEL SOUNDS AND SPELLINGS TAUGHT IN FIRST GRADE

/a/ spelled 'a' as in *cat*  
 /e/ spelled 'e' as in *get*  
 /i/ spelled 'i' as in *hit*  
 /o/ spelled 'o' as in *hot*  
 /u/ spelled 'u' as in *but*  
 /ae/ spelled 'a\_e' as in *cake*, 'ai' as in *wait*, 'ay' as in *day*, 'a' as in *paper*  
 /ee/ spelled 'ee' as in *bee*, 'e' as in *me*, 'y' as in *funny*, 'ea' as in *beach*, 'e\_e' as in *Pete*,  
 'ie' as in *cookie*  
 /ie/ spelled 'i\_e' as in *bike*, 'i' as in *biting*, 'y' as in *try*, 'ie' as in *tie*, 'igh' as in *night*  
 /oe/ spelled 'o\_e' as in *note*, 'oa' as in *boat*, 'oe' as in *toe*, 'o' as in *open*, 'ow' as in *snow*  
 /ue/ spelled 'u\_e' as in *cute*  
 /aw/ spelled 'aw' as in *paw*  
 /oo/ spelled 'oo' as in *look*,  
 /oo/ spelled 'oo' as in *soon*  
 /ou/ spelled 'ou' as in *shout*  
 /oi/ spelled 'oi' as in *oil*  
 /er/ spelled 'er' as in *her*  
 /ar/ spelled 'ar' as in *car*  
 /or/ spelled 'or' as in *for*

#### D. ORAL READING AND FLUENCY

- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Demonstrate increased accuracy, fluency, and expression on successive reading of a decodable text (50 wpm by the end of the year).
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
- Demonstrate understanding of and use commas and end punctuation while reading orally.
- Read aloud, alone, or with a partner at least 15 minutes each day.

#### E. READING COMPREHENSION—ALL TEXTS

**Teachers:** During the beginning of first grade, most students will still need to devote considerable energy when reading to deciphering the written text. Over the course of this year, they

will learn even more elements of the code, meaning that the decodable texts that they can read independently will increasingly resemble “real stories” and trade books. With practice and repeated readings of the same text, students will develop increasing automaticity, allowing them to focus more intently on the meaning of what they are reading. Both of these factors, i.e., the student’s increasing fluency and the use of more authentic text—which is now decodable because of the student’s increasing code knowledge—mean that attention to reading comprehension can move to a higher level than just the rudimentary understanding of text expected at the kindergarten level. This expectation is reflected in the increased number of objectives below that have been added to the kindergarten level objectives. However, it is important to remember that listening comprehension still far exceeds reading comprehension and that children’s ability to talk about what they have heard and/or read will exceed their ability to demonstrate that understanding in writing.

- Demonstrate understanding of completely decodable text after reading independently.

#### Grasping Specific Details and Key Ideas

- Sequence four to six pictures illustrating events from a text that has been read independently.
- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell key details from a text that has been read independently.
- Ask questions to clarify information about a text that has been read independently.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently.

#### Observing Craft and Structure

- Identify basic text features and what they mean, including title, table of contents, and chapters.
- Understand and use words and phrases from a text that has been read independently.
- Compare and contrast similarities and differences within a single text or between multiple texts read independently.
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently.

#### Integrating Information and Evaluating Evidence

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships.
- Identify who is telling a story or providing information in a text.
- Identify temporal words that link and sequence events, i.e., *first, next, then, etc.*
- Identify words that link ideas, i.e., *for example, also, in addition.*

#### F. READING COMPREHENSION—FICTION, DRAMA, AND POETRY

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Compare and contrast characters from different stories.
- Change some story events and provide a different story ending.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.

- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify sensory language and how it is used to describe people, objects, places and events.

#### G. READING COMPREHENSION—NONFICTION AND INFORMATIONAL TEXT

**Teachers:** Select nonfiction topics from the first grade history, science, music and visual arts topics listed on pages 35–47, with emphasis on history and science.

- With assistance, create and interpret timelines and lifelines related to text read independently.
- Distinguish text that describes events that happened long ago from text that describes contemporary or current events.

### III. Writing

**Teachers:** It is important to recognize that of all the communication skills—listening, speaking, reading, and writing—writing is the most demanding and challenging. During the beginning of first grade, children still need to devote much of their focus and cognitive energy to the code itself, as well as the fine motor act of writing. During this period, teachers should continue to support written expression through shared writing experiences that are modeled and scaffolded by an adult.

At some point during the first grade year, however, most children will feel comfortable enough with the basic skills to begin making a transition to writing more independently. Young children’s desire to express themselves in writing should be heartily encouraged. To this end, it is important that teachers have age appropriate expectations about what first grade student writing should resemble. Students have not been taught all of the spellings they will need to achieve dictionary-correct spelling. It is therefore premature to expect that words in their independent writing will be spelled correctly. It is reasonable to expect students to use the letter-sound correspondences they have learned to set down plausible spellings for the sounds in the word. For example, a student who writes *bote* for *boat*, *dun* for *done*, or *hed* for *head* has set down a plausible spelling for each sound in the word, using the code knowledge taught in this grade. This should be seen as good spelling for this stage of literacy acquisition. Dictionary-correct spelling will be a realistic goal when students have learned more spellings and learned how to use a dictionary to check spelling.

Furthermore, while teachers can begin to model and scaffold the use of a writing process, such as “Plan-Draft-Edit,” it is equally important not to dampen student enthusiasm by rigidly insisting that *all* student writing be edited over and over again to bring the text to the “publication” stage. A sensible balance that encourages children to use their current skill knowledge when writing—without stifling creative expression—is optimal at the first grade level.

#### Writing to Reflect Audience, Purpose and Task

- Add details to writing.
- Begin to use tools, including technology, to plan, draft, and edit writing.

#### Conducting Research

- Gather information from experiences or provided text sources.

#### A. NARRATIVE WRITING

- Write or retell a story that includes characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence.
- Write a descriptive paragraph using sensory language.
- Create a title and an ending that are relevant to the narrative.

**B. INFORMATIVE/EXPLANATORY WRITING**

- Write about a topic, including a beginning and ending sentence, facts and examples relevant to the topic, and specific steps (if writing explanatory text).

**C. PERSUASIVE WRITING (OPINION)**

- Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion using the linking word *because*.
- Create a title that is relevant to the topic or subject of the text.
- If writing about a specific book or read-aloud, refer to the content of the text.

**IV. Language Conventions**

- Form letters, words, phrases and sentences to communicate thoughts and ideas.
- Apply basic spelling conventions.
- Use basic capitalization and punctuation in sentences to convey meaning.

**A. HANDWRITING AND SPELLING**

- Print from memory the 26 letters of the alphabet accurately in both their upper-case and lower-case forms.
- Write on primary lined paper from left to right, staying within the lines and leaving spaces between words, and from top to bottom, using return sweep.
- Write phonemically plausible spellings for words that cannot be spelled correctly with current code knowledge, e.g., write *ate* for *eight*, *boi* for *boy*, *fone* for *phone*.
- Write words, phrases, and sentences from dictation, applying phonics knowledge.
- Identify and use synonyms and antonyms.

**B. PARTS OF SPEECH AND SENTENCE STRUCTURE**

- Recognize, identify and use subject, object, and possessive pronouns, i.e., *I, me, my, they, them*, orally, in written text and in own writing.
- Recognize, identify and use common and proper nouns, orally, in written text, and in own writing.
- Recognize, identify and use regular verbs to convey a sense of past, present, and future tense orally, in written text, and in own writing.
- Recognize, identify, and use adjectives orally, in written text, and in own writing.
- Recognize, identify and use subjects and predicates, orally, in written text, and in own writing.
- Recognize, identify, and use statements, questions, and exclamations orally, in written text, and in own writing.
- Produce and expand complete sentences orally and in shared writing exercises.

**C. CAPITALIZATION, AND PUNCTUATION**

- Capitalize the first word in a sentence, the pronoun *I*, and proper nouns (names and places,) months, days of the week.
- Identify and use end punctuation, including periods, question marks, and exclamation points.
- Use commas appropriately in greetings and closings of letters, dates, and items in a series.
- Write a simple friendly letter.
- Use apostrophes to create contractions and indicate possession, i.e., *cat's meow*.
- Use quotation marks appropriately to designate direct speech.



**Note:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new, and to have children write their own poems. To bring children into the spirit of poetry, read it aloud and encourage them to speak it aloud so they can experience the music in the words. Although children are not expected to memorize the following rhymes, they will delight in knowing their favorites by heart, and will experience a sense of achievement and satisfaction in being able to recite some of the rhymes.

## V. Poetry

Hope (Langston Hughes)  
 I Know All the Sounds the Animals Make (Jack Prelutsky)  
 My Shadow (Robert Louis Stevenson)  
 The Owl and the Pussycat (Edward Lear)  
 The Pasture (Robert Frost)  
 The Purple Cow (Gelett Burgess)  
 Rope Rhyme (Eloise Greenfield)  
 Sing a Song of People (Lois Lenski)  
 Solomon Grundy (traditional)  
 The Swing (Robert Louis Stevenson)  
 Table Manners [also known as “The Goops”] (Gelett Burgess)  
 Thanksgiving Day [“Over the river and through the wood”] (Lydia Maria Child)  
 Washington (Nancy Byrd Turner)  
 Wynken, Blynken, and Nod (Eugene Field)

## VI. Fiction

**Teachers:** While the following works make up a strong core of literature, the “content” of language arts includes not only stories, fables, and poems, but also the well-practiced, operational knowledge of how written symbols represent sounds, and how those sounds and symbols convey meaning. Thus, the stories specified below are meant to complement, not to replace, materials designed to help children practice decoding and encoding skills (see above, II. Reading and III. Writing).

The titles here constitute a core of stories for this grade. They are available in a variety of editions, some designed for novice readers, and others best for reading aloud to children. In first grade, most of the following titles should be read-aloud selections. It is recommended that you provide a mixture of texts, including some beginning readers, with their necessarily limited vocabulary and syntax, for these can give children the important sense of accomplishment that comes from being able to “read it all by myself.”

Expose children to many more stories, including classic picture books and read-aloud books. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Children should also be exposed to nonfiction prose—biographies, books on science and history, books on art and music—and they should be given opportunities to tell and write their own stories.

### A. STORIES

The Boy at the Dike (folktale from Holland)  
 The Frog Prince  
 Hansel and Gretel  
 selections from *The House at Pooh Corner* (A. A. Milne)  
 How Anansi Got Stories from the Sky God (folktale from West Africa)  
 It Could Always Be Worse (Yiddish folktale)  
 Jack and the Beanstalk  
 The Knee-High Man (African-American folktale)  
 Medio Pollito (Hispanic folktale)  
 The Pied Piper of Hamelin  
 Pinocchio  
 The Princess and the Pea  
 Puss-in-Boots  
 Rapunzel  
 Rumpelstiltskin  
 Sleeping Beauty  
*The Tale of Peter Rabbit* (Beatrix Potter)

Tales of Br'er Rabbit (recommended tales: Br'er Rabbit Gets Br'er Fox's Dinner; Br'er Rabbit Tricks Br'er Bear; Br'er Rabbit and the Tar Baby)  
Why the Owl Has Big Eyes (Native American legend)

**B. AESOP'S FABLES**

The Boy Who Cried Wolf  
The Dog in the Manger  
The Wolf in Sheep's Clothing  
The Maid and the Milk Pail  
The Fox and the Grapes  
The Goose and the Golden Eggs

**C. DIFFERENT LANDS, SIMILAR STORIES**

**Teachers:** To give students a sense that people all around the world tell certain stories that, while they differ in details, have much in common, introduce students to similar folktales from different lands, such as the following:

Lon Po Po (China) and Little Red Riding Hood  
Issun Boshi, or One-Inch Boy (Japan); Tom Thumb (England); Thumbelina (by the Danish writer Hans Christian Andersen); Little Finger of the Watermelon Patch (Vietnam)  
Some of the many variations on the Cinderella story (from Europe, Africa, China, Vietnam, Egypt, Korea, etc.)

**D. LITERARY TERMS**

Characters, heroes, and heroines  
Drama  
actors and actresses  
costumes, scenery and props  
theater, stage, audience

**Note:** Children should learn terms relating to drama as part of their participation in a play appropriate for first graders—possibly a dramatized version of one of the stories listed above.

## VII. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

A.M. and P.M.  
An apple a day keeps the doctor away.  
Do unto others as you would have them do unto you. [also in Kindergarten]  
Fish out of water  
Hit the nail on the head.  
If at first you don't succeed, try, try again.  
Land of Nod  
Let the cat out of the bag.  
The more the merrier.  
Never leave till tomorrow what you can do today.  
Practice makes perfect. [also in Kindergarten]  
Sour grapes  
There's no place like home.  
Wolf in sheep's clothing

# History and Geography: Grade 1

**Teachers:** In first grade, children often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in World History in first grade is to foster curiosity and the beginnings of understanding about the larger world outside the child's locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge embraces a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

## WORLD HISTORY AND GEOGRAPHY

### I. Geography

#### A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Foster children's geographical awareness through regular work with maps and globes. Have students regularly locate themselves on maps and globes in relation to places they are studying.

- Name your continent, country, state, and community.
- Understand that maps have keys or legends with symbols and their uses.
- Find directions on a map: east, west, north, south.
- Identify major oceans: Pacific, Atlantic, Indian, Arctic.
- Review the seven continents: Asia, Europe, Africa, North America, South America, Antarctica, Australia.
- Locate: Canada, United States, Mexico, Central America.
- Locate: the Equator, Northern Hemisphere, Southern Hemisphere, North and South Poles.

#### B. GEOGRAPHICAL TERMS AND FEATURES

- peninsula, harbor, bay, island

### II. Early World Civilizations

**Teachers:** As you introduce children to early civilizations, keep in mind the question, *What is civilization?* Help children see recurring features such as settling down, agriculture, building towns and cities, and learning how to write.

#### A. MESOPOTAMIA: THE "CRADLE OF CIVILIZATION"

- Importance of Tigris and Euphrates Rivers
- Development of writing, why writing is important to the development of civilization
- Code of Hammurabi (early code of laws), why rules and laws are important to the development of civilization

#### B. ANCIENT EGYPT

- Geography
  - Africa
  - Sahara Desert
- Importance of Nile River, floods and farming
- Pharaohs
  - Tutankhamen
  - Hatshepsut, woman pharaoh
- Pyramids and mummies, animal gods, Sphinx
- Writing: hieroglyphics

See also Visual Arts 1:  
Art from Long Ago: Art of  
Ancient Egypt.

**Note:** Students will be introduced to Hinduism and Buddhism in grade 2, and examine Islam in more detail in grade 4. They also examine lasting ideas from Judaism and Christianity in grade 6.

**Note:** In older sources you may find these formerly used spellings: Mohammed, Mecca, Koran.

### C. HISTORY OF WORLD RELIGIONS

**Teachers:** Since religion is a shaping force in the story of civilization, the *Core Knowledge Sequence* introduces children in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. The purpose is not to explore matters of theology but to provide a basic vocabulary for understanding many events and ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past. To the question, “Which one is true?” an appropriate response is: “People of different faiths believe different things to be true. The best people to guide you on this right now are your parents or someone at home.”

- Judaism
  - Belief in one God
  - Story of the Exodus: Moses leads the Hebrews out of Egypt
  - Israel, Chanukah, Star of David, Torah, synagogue
- Christianity
  - Christianity grew out of Judaism
  - Jesus, meaning of “messiah”
  - Christmas and Easter, symbol of the cross
- Islam
  - Originated in Arabia, since spread worldwide
  - Followers are called Muslims
  - Allah, Muhammad, Makkah, Qur’an, mosque
  - Symbol of crescent and star (found on the flags of many mainly Islamic nations)

## III. Modern Civilization and Culture: Mexico

### A. GEOGRAPHY

- North American continent, locate Mexico relative to Canada and the United States
- Central America, Yucatan Peninsula
- Pacific Ocean, Gulf of Mexico, Rio Grande
- Mexico City

### B. CULTURE

- Indian and Spanish heritage
- Traditions: fiesta, piñata
- National holiday: September 16, Independence Day

**Note:** For historical connections, see American History 1: Maya and Aztec civilizations; Conquistadors, Cortes, Moctezuma. See also Music 1: “La Cucaracha”; Language Arts 1: “Medio Pollito,” and Visual Arts 1: Diego Rivera, *Piñata* and, *The History of Medicine in Mexico* (mural).

# American History & Geography

## AMERICAN HISTORY AND GEOGRAPHY

**Teachers:** The study of American history begins in grades K–2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

### I. Early People and Civilizations

#### A. THE EARLIEST PEOPLE: HUNTERS AND NOMADS

- Crossing from Asia to North America (the land bridge as one possibility)  
From hunting to farming  
Gradual development of early towns and cities

#### B. EARLY AMERICAN CIVILIZATIONS

**Teachers:** Children will study the Maya, Inca, and Aztec civilizations in detail in grade 5. First grade teachers should examine the fifth grade guidelines to see how these topics build in the later grade.

Here, introduce children to these civilizations. Though it is historically accurate to note the warlike nature of the Maya and Aztecs, it is recommended that mention of the practice of human sacrifice be left to the fifth grade.

- Maya in Mexico and Central America
- Aztecs in Mexico  
Moctezuma (also called Montezuma)  
Tenochtitlan (Mexico City)
- Inca in South America (Peru, Chile)  
Cities in the Andes, Machu Picchu

### II. Early Exploration and Settlement

#### A. COLUMBUS

**Teachers:** Review from kindergarten the story of Columbus’s voyage in 1492.

#### B. THE CONQUISTADORS

- The search for gold and silver
- Hernán Cortés and the Aztecs
- Francisco Pizarro and the Inca
- Diseases devastate Native American population

#### C. ENGLISH SETTLERS

- The story of the Lost Colony  
Sir Walter Raleigh  
Virginia Dare
- Virginia  
Jamestown  
Captain John Smith  
Pocahontas and Powhatan
- Slavery, plantations in Southern colonies
- Massachusetts  
Pilgrims, Mayflower, Thanksgiving Day  
Massachusetts Bay Colony, the Puritans

**Note:** Early exploration and the colonial years will be studied in greater depth and detail in grade 3. First grade teachers should examine the third grade guidelines to see how these topics build in the later grade.

**Note:** The now-familiar name “Powhatan” was used by English settlers for the leader whose name was Wahunsonacock.



See below, Symbols and  
Figures: Liberty Bell.

See also Music 1: "Yankee  
Doodle."

### III. From Colonies to Independence: The American Revolution

**Teachers:** The American Revolution will be studied in greater depth and detail in grade 4. First grade teachers should examine the fourth grade guidelines to see how these topics build in the later grade. It is recommended that first grade teachers focus on the topics specified here, and leave for fourth grade the more detailed study of the Revolution. In first grade, emphasize the *story* of the birth of our nation.

- Locate the original thirteen colonies.
- The Boston Tea Party
- Paul Revere's ride, "One if by land, two if by sea"
- Minutemen and Redcoats, the "shot heard round the world"
- Thomas Jefferson and the Declaration of Independence, "We hold these truths to be self-evident, that all men are created equal. . . ."
- Fourth of July
- Benjamin Franklin: patriot, inventor, writer
- George Washington: from military commander to our first president  
Martha Washington  
Our national capital city named Washington
- Legend of Betsy Ross and the flag

### IV. Early Exploration of the American West

**Teachers:** America's westward growth will be studied in grade 2 and in greater depth and detail in grade 5. First grade teachers should examine the second and fifth grade guidelines to see how these topics build in later grades.

- Daniel Boone and the Wilderness Road
- The Louisiana Purchase  
Explorations of Lewis and Clark  
Sacagawea
- Geography: Locate the Appalachian Mountains, the Rocky Mountains, and the Mississippi River.

### V. Symbols and Figures

- Recognize and become familiar with the significance of  
Liberty Bell  
Current United States president  
American flag  
Bald eagle

# Visual Arts: Grade 1

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

## I. Art from Long Ago

**Teachers:** Help children see how art has been an important human activity since early times.

- Look at and discuss
  - Cave paintings
  - Art of Ancient Egypt
    - Great Sphinx
    - Mummy cases: Tutankhamen’s coffin
    - Bust of Queen Nefertiti

See also World History 1:  
Ancient Egypt.

## II. Elements of Art

**Teachers:** The generally recognized elements of art include line, shape, form, space, light, texture, and color. In first grade, focus on the following:

### A. COLOR

**Teachers:** Review from Kindergarten the idea of “warm” and “cool” colors.

- Know that red, yellow, and blue are commonly referred to as the “primary colors,” and that
  - blue + yellow = green
  - blue + red = purple
  - red + yellow = orange
- Observe the use of color in
  - Claude Monet, *Tulips in Holland*
  - James A. McNeill Whistler, *Arrangement in Black and Gray* (also known as *Whistler’s Mother*)
  - Diego Rivera, *Piñata*

See also World History 1:  
Mexico, *re piñata*.

### B. LINE

- Identify and use different lines: straight, zigzag, curved, wavy, spiral, thick, thin
- Observe how different lines are used in
  - Jacob Lawrence, *Parade*
  - Henri Matisse, *The Swan*
  - Georgia O’ Keeffe, one of her *Shell* paintings

### C. SHAPE

- Recognize basic geometric shapes—square, rectangle, triangle, circle, oval—in nature, man-made objects, and artworks, including
  - Jacob Lawrence, *Parade*
  - Grant Wood, *Stone City, Iowa*

**D. TEXTURE**

**Teachers:** Provide opportunities for children to experience both tactile and visual texture (these terms are for your reference only) by having them describe qualities of texture in natural objects (tactile texture) and in works of art (visual texture).

- Describe qualities of texture (as, for example, rough, smooth, bumpy, scratchy, slippery, etc.) in
  - Native American baskets (such as a pomo basket)
  - Edgar Degas, *Little Fourteen-Year-Old Dancer* (also known as *Dressed Ballet Dancer*)
  - Albrecht Dürer, *Young Hare*

**III. Kinds of Pictures: Portrait and Still Life**

**Teachers:** Introduce children to the terms we use to describe different kinds of paintings, discuss examples, and provide opportunities for children to create their own works in different genres. When you look at the specified works, ask the children about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss lines, shapes, colors, and textures; details not obvious at first; why they think the artist chose to depict things in a certain way, etc.

- Recognize as a portrait or self-portrait:
  - Leonardo da Vinci, *Mona Lisa*
  - Francisco Goya, *Don Manuel Osorio Manrique de Zuñiga*
  - Vincent van Gogh, *Self-Portrait* [1889]
- Recognize as a still life:
  - Vincent van Gogh, *Iris*
  - Paul Cézanne, studies with fruit, such as *Apples and Oranges*
- Recognize as a mural (a painting on a wall):
  - Diego Rivera, *The History of Medicine in Mexico*

See also World History 1: Mexico, re murals of Diego Rivera.



# Music: Grade 1

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

## I. Elements of Music

- Through participation become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  - Recognize a steady beat; moving to a beat; play a steady beat; recognize accents.
  - Move responsively to music (marching, walking, hopping, swaying, etc.).
  - Recognize short and long sounds.
  - Discriminate between fast and slow.
  - Discriminate between obvious differences in pitch: high and low.
  - Discriminate between loud and soft.
  - Understand that melody can move up and down.
  - Hum the melody while listening to music.
  - Echo short rhythms and melodic patterns.
  - Play simple rhythms and melodies.
  - Recognize like and unlike phrases.
  - Recognize that music has timbre or tone color.
  - Sing unaccompanied, accompanied, and in unison.
- Understand that music is written down in a special way and become familiar with the following notation:
  - whole note      ♩ half note      ♪ quarter note

## II. Listening and Understanding

**Teachers:** Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

### A. MUSICAL TERMS AND CONCEPTS

- Composers
  - Know that a composer is someone who writes music.
  - Become familiar with Wolfgang Amadeus Mozart as a composer who wrote what is known as classical music, and listen to the Allegro (first movement) from *A Little Night Music (Eine kleine Nachtmusik)*.
- Orchestra
  - Become familiar with the families of instruments in the orchestra: strings, brass, woodwinds, percussion.
  - Know that the leader of the orchestra is called the conductor.
  - Listen to Sergei Prokofiev, *Peter and the Wolf*.

**Note:** Children will review families of instruments and specific instruments in later grades.



**Note:** If resources are available, read aloud to students the story behind Tchaikovsky's *Nutcracker*, and either attend a performance or show scenes from the ballet, which is available on videotape. You may also wish to introduce children to the Suite from Tchaikovsky's *Sleeping Beauty*, in relation to the story in Language Arts 1, "Sleeping Beauty."

## B. MUSIC CAN TELL A STORY

- Opera  
Understand that opera combines music, singing, and acting.  
Listen to selections from Humperdinck's *Hansel and Gretel*: "Brother, Come Dance with Me," "I Am the Little Sandman," "Children's Prayer."
- Instrumental Music  
Listen to Paul Dukas, *The Sorcerer's Apprentice*.
- Ballet  
Understand that ballet combines music and movement, often to tell a story.  
Listen to Tchaikovsky's *Nutcracker Suite*.

**Teachers:** Familiarize children with other types of dance, such as square dancing and tap dancing.

## C. AMERICAN MUSICAL TRADITIONS

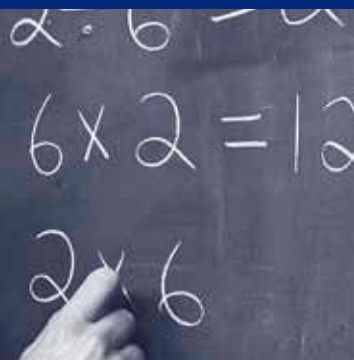
- Jazz  
Understand that jazz is a kind of music that developed in America, with African and African American roots, and that jazz musicians improvise.  
Recognize Louis Armstrong as a great early jazz musician.

## III. Songs

**Teachers:** You may also wish to teach children the song "Brother, Come Dance with Me" in connection with their introduction to the opera *Hansel and Gretel*. And you may wish to teach the poem "Thanksgiving Day" ("Over the river and through the wood") as a song (see Language Arts 1: Poetry).

America the Beautiful  
Billy Boy  
Dry Bones  
For He's a Jolly Good Fellow  
Frère Jacques  
La Cucaracha  
Make New Friends  
Michael, Row the Boat Ashore  
Oh, Dear, What Can the Matter Be?  
Oh, John the Rabbit  
Oh! Susanna  
On Top of Old Smokey  
She'll Be Comin' 'Round the Mountain  
Skip to My Lou  
Take Me Out to the Ball Game  
There's a Hole in the Bucket  
When the Saints Go Marching In  
Yankee Doodle

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



### I. Patterns and Classification

- Establish concepts of likeness and difference by sorting and classifying objects according to various attributes: size, shape, color, amount, function, etc.
- Define a set by the common property of its elements.
- In a collection of objects that includes a given set and an item that does not belong, indicate which item does not belong.
- Recognize patterns and predict the extension of a pattern.

### II. Numbers and Number Sense

Teachers: Review and build on topics from kindergarten.

- Write numbers 0 - 100.
- Count from 0 - 100 by ones; twos; fives; tens.
- Count by tens from a given single-digit number.
- Count forward and backwards.
- Use tallies.
- Identify ordinal position, 1st to 10th.
- Identify dozen; half-dozen; pair.
- Recognize place value: ones, tens, hundreds.
- Identify more and less; counting how many more or less.
- Given a number, identify one more and one less; ten more and ten less.
- Compare quantities using the signs  $<$ ,  $>$ , and  $=$ .
- Recognize fractions as part of a whole:  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$
- Create and interpret simple pictorial graphs and bar graphs.

### III. Money

- Identify and recognize relative value of penny, nickel, dime, quarter.
- Recognize and use dollar (\$) and cents (¢) signs.
- Show how different combinations of coins equal the same amounts of money.

### IV. Computation

#### A. ADDITION (using concrete objects, and paper and pencil)

- Know the meaning of the plus (+) sign.
- Know what a “sum” is.
- Know addition facts to  $10 + 10$  (untimed mastery).
- Add in any order.
- Know what happens when you add zero.
- Know how to write addition problems horizontally and vertically.
- Know that when you add 3 numbers, you get the same sum regardless of grouping of addends.
- Solve two-digit addition problems with and without regrouping.



## B. SUBTRACTION (using concrete objects, and paper and pencil)

- Understand subtraction as “taking away.”
- Know the meaning of the minus sign ( - ).
- Know what a “difference” is.
- Know subtraction facts corresponding to addition facts (untimed mastery).
- Know how to write subtraction problems horizontally and vertically.
- Solve two-digit subtraction problems with and without regrouping.
- Mentally subtract 10 from a two-digit number.

## C. SOLVING PROBLEMS AND EQUATIONS

- Write an addition or subtraction equation to solve basic one-step story and picture problems.
- Solve simple equations in the form of  $\_\_ - 2 = 7$ ;  $5 + \_\_ = 7$ .

## V. Measurement

- Identify familiar instruments of measurement, such as ruler, scale, thermometer.
- Compare objects according to:
  - Linear measure
    - Measure length using non-standard units.
    - Measure length in inches and feet, and in centimeters.
    - Measure and draw line segments in inches and centimeters.
  - Weight
    - Compare weights of objects using a balance scale.
    - Measure weight in non-standard units and in pounds.
  - Capacity (volume)
    - Estimate and measure capacity in cups.
    - Identify quart, gallon.
  - Temperature: associate temperature in degrees Fahrenheit with weather.
- Time
  - Sequence events: before and after; first, next, last.
  - Compare duration of events: which takes more or less time.
  - Read a clock face and tell time to the half-hour.
  - Know the days of the week and the months of the year, both in order and out of sequence.
  - Orientation in time: today, yesterday, tomorrow; morning, afternoon, evening, night; this morning vs. yesterday morning, etc.

## VI. Geometry

- Identify left and right hand.
- Identify top, bottom, middle.
- Know and use terms of orientation and relative position, such as:

closed, open	around
on, under, over	far from, near
in front, in back (behind)	above, below
between, in the middle of	to the right of, to the left of
next to, beside	here, there
inside, outside	
- Identify and draw basic plane figures: square, rectangle, triangle, circle.
- Describe square, rectangle, triangle according to number of sides.
- Identify basic solid figures: sphere, cube, cone.
- Identify basic shapes in a variety of common objects and artifacts (balls, cans, windows, pictures, books, buildings, cars, etc.).
- Make congruent shapes and designs.



**Teachers:** Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

## I. Living Things and Their Environments

**Teachers:** Introduce the idea of interdependence between living things and their environment.

### A. HABITATS

- Living things live in environments to which they are particularly suited.
- Specific habitats and what lives there, for example:
  - Forest [oak trees, squirrels, raccoons, snails, mice]
  - Meadow and prairie [wildflowers, grasses, prairie dogs]
  - Underground [fungi, moles, worms]
  - Desert [cactus, lizard, scorpion]
  - Water [fish, oysters, starfish]
- The food chain or food web: a way of picturing the relationships between living things
  - Animals: big animals eat little ones, big animals die and are eaten by little ones.
  - Plants: nutrients, water, soil, air, sunlight

### B. OCEANS AND UNDERSEA LIFE

- Most of the earth is covered with water.
- Locate oceans: Pacific, Atlantic, Indian, Arctic.
- Oceans are salt water (unlike fresh water rivers and lakes).
- Coast, shore, waves, tides (high and low)
- Currents, the Gulf Stream
- Landscape of the ocean floor: mountain peaks and deep valleys (trenches)
- Diversity of ocean life: from organisms too small for the eye to see (plankton), to giant whales
- Dangers to ocean life (for example, overfishing, pollution, oil spills)

### C. ENVIRONMENTAL CHANGE AND HABITAT DESTRUCTION

- Environments are constantly changing, and this can sometimes pose dangers to specific habitats, for example:
  - Effects of population and development
  - Rainforest clearing, pollution, litter

### D. SPECIAL CLASSIFICATIONS OF ANIMALS

- Herbivores: plant-eaters (for example, elephants, cows, deer)
- Carnivores: flesh-eaters (for example, lions, tigers)
- Omnivores: plant and animal-eaters (for example, bears)
- Extinct animals (for example, dinosaurs)

**Note:** The food chain will be studied again in grade 3.



**Note:** Major body systems will be studied in greater detail in grades 2–6.

## II. The Human Body

### A. BODY SYSTEMS

**Teachers:** Introduce the idea of body systems, and have children identify basic parts of the following body systems:

- Skeletal system: skeleton, bones, skull
- Muscular system: muscles
- Digestive system: mouth, stomach
- Circulatory system: heart and blood
- Nervous system: brain, nerves

### B. GERMS, DISEASES, AND PREVENTING ILLNESS

- Taking care of your body: exercise, cleanliness, healthy foods, rest
- Vaccinations

## III. Matter

**Note:** Children are likely to have a notion of atoms that, in absolute scientific terms, is inaccurate. The goal in this grade is to introduce concepts and terms that, over time, will be more precisely defined. Use the Teacher Handbook to define what you and your students should know and learn in Grade 1.

**Teachers:** Introduce children to the idea that everything is made of matter, and that all matter is made up of parts too small to see.

- Basic concept of atoms
- Names and common examples of three states of matter:
  - solid (for example, wood, rocks)
  - liquid (for example, water)
  - gas (for example, air, steam)
- Water as an example of changing states of matter of a single substance

## IV. Properties of Matter: Measurement

**Teachers:** Have children describe and classify objects according to what they are made of, and according to their physical properties (color, shape, size, weight, texture, etc.).

- Units of measurement:
  - Length: centimeter, inch, foot
  - Volume: gallon, quart
- Temperature: degrees Fahrenheit

## V. Introduction to Electricity

**Teachers:** Through reading aloud, observation and experiment, explore with children basic principles of electricity and electrical safety rules.

**Note:** Electricity will be studied in more detail in grade 4.

- Static electricity
- Basic parts of simple electric circuits (for example, batteries, wire, bulb or buzzer, switch)
- Conductive and nonconductive materials
- Safety rules for electricity (for example, never put your finger, or anything metallic, in an electrical outlet; never touch a switch or electrical appliance when your hands are wet or when you're in the bathtub; never put your finger in a lamp socket; etc.)

## VI. Astronomy: Introduction to the Solar System

- Sun: source of energy, light, heat
- Moon: phases of the moon (full, half, crescent, new)
- The eight planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune)  
(Note: In 2006, Pluto was classified as a dwarf planet.)
- Stars
  - Constellations, Big Dipper
  - The sun is a star.
- Earth and its place in the solar system
  - The earth moves around the sun; the sun does not move.
  - The earth revolves (spins); one rotation takes one day (24 hours).
  - Sunrise and sunset
  - When it is day where you are, it is night for people on the opposite side of the earth.

## VII. The Earth

### A. GEOGRAPHICAL FEATURES OF THE EARTH'S SURFACE

- The shape of the earth, the horizon
- Oceans and continents
- North Pole and South Pole, Equator

### B. WHAT'S INSIDE THE EARTH

- Inside the earth
  - Layers: crust, mantle, core
  - High temperatures
- Volcanoes and geysers
- Rocks and minerals
  - Formation and characteristics of different kinds of rocks: metamorphic, igneous, sedimentary
  - Important minerals in the earth (such as quartz, gold, sulfur, coal, diamond, iron ore)

## VIII. Science Biographies

Rachel Carson (got people to stop using DDT)  
 Thomas Edison (invented an electric light bulb)  
 Edward Jenner (found a way to stop smallpox)  
 Louis Pasteur (made milk safe to drink)

See also World History and Geography: Spatial Sense.

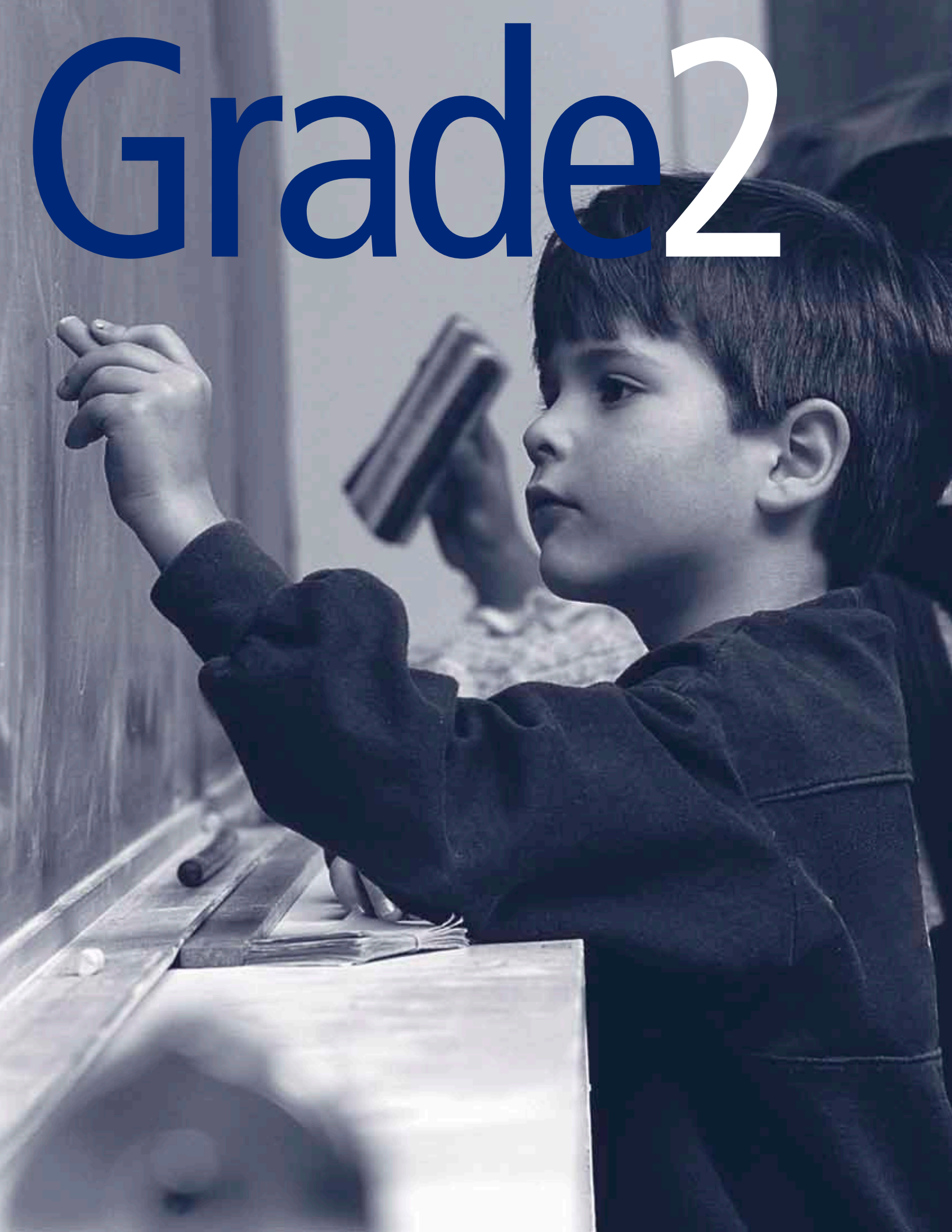
**Note:** Topics in geology will be studied in more detail in grade 4.

See above, Environmental Change and Habitat Destruction, *re* Rachel Carson; Electricity, *re* Thomas Edison; Human Body: Vaccinations, *re* Edward Jenner; Human Body: Germs, Diseases, *re* Louis Pasteur.





# Grade 2



# Overview of Topics

## Grade 2

### Language Arts

- I. Listening and Speaking
  - A. Classroom Discussion
  - B. Presentation of Ideas and Information
  - C. Comprehension and Discussion of Read-Alouds—All Texts
  - D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry
  - E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Text
- II. Reading
  - A. Phonics: Decoding and Encoding
  - B. Oral Reading and Fluency
  - C. Reading Comprehension—All Texts
  - D. Reading Comprehension—Fiction, Drama, and Poetry
  - E. Reading Comprehension—Nonfiction and Informational Text
- III. Writing
  - A. Narrative Writing
  - B. Informative/Explanatory Writing
  - C. Persuasive Writing (Opinion)
- IV. Language Conventions
  - A. Spelling
  - B. Parts of Speech and Sentence Structure
  - C. Capitalization and Punctuation
- V. Poetry
- VI. Fiction
  - A. Stories
  - B. Mythology of Ancient Greece
  - C. American Folk Heroes and Tall Tales
  - D. Literary Terms
- VII. Sayings and Phrases

### History and Geography

#### World:

- I. Geography
  - A. Spatial Sense
  - B. Geographical Terms and Features
- II. Early Asian Civilizations
  - A. Geography of Asia
  - B. India
  - C. China
- III. Modern Japanese Civilization
  - A. Geography
  - B. Culture
- IV. The Ancient Greek Civilization

#### American:

- I. American Government: The Constitution
- II. The War of 1812

- III. Westward Expansion
  - A. Pioneers Head West
  - B. Native Americans
- IV. The Civil War
- V. Immigration and Citizenship
- VI. Fighting for a Cause
- VII. Geography of the Americas
  - A. North America
  - B. South America
- VIII. Symbols and Figures

### Visual Arts

- I. Elements of Art
- II. Sculpture
- III. Kinds of Pictures: Landscapes
- IV. Abstract Art
- V. Architecture

### Music

- I. Elements of Music
- II. Listening and Understanding
  - A. The Orchestra
  - B. Keyboard Instruments
  - C. Composers and Their Music
- III. Songs

### Mathematics

- I. Numbers and Number Sense
- II. Fractions
- III. Money
- IV. Computation
  - A. Addition
  - B. Subtraction
  - C. Introduction to Multiplication
  - D. Solving Problems and Equations
- V. Measurement
  - A. Linear Measure
  - B. Weight
  - C. Capacity (Volume)
  - D. Temperature
  - E. Time
- VI. Geometry

### Science

- I. Cycles in Nature
  - A. Seasonal Cycles
  - B. Life Cycles
  - C. The Water Cycle
- II. Insects
- III. The Human Body
  - A. Cells
  - B. Digestive and Excretory Systems
  - C. Taking Care of Your Body: A Healthy Diet
- IV. Magnetism
- V. Simple Machines
- VI. Science Biographies

## Language Arts: Grade 2

The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Grade 2, domains include:** Early Asian Civilizations; Modern Japanese Civilization; The Ancient Greek Civilization; American Government: The Constitution; The War of 1812; Westward Expansion; The Civil War; Immigration and Citizenship; Fighting for a Cause; Cycles in Nature; Insects; The Human Body; Magnetism; Simple Machines.

**NOTE:** The objectives listed in sections I–IV of Language Arts below are consistent with the *Core Knowledge Language Arts* program and embed all of the skills and concepts within the *Common Core State Standards for English Language Arts*.

### I. Listening and Speaking

**Teachers:** Traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children’s listening and speaking ability. This failure to focus on the development of oral language in language arts instruction has been a serious oversight. Literacy, the ability to read and write written language, is highly correlated with students’ oral language proficiency, and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. It is therefore essential that children build listening and speaking competency while also developing reading and writing skills.

#### A. CLASSROOM DISCUSSION

- Maintain attention and actively participate in discussions about a variety of topics, ideas, and texts in both small and large group settings.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age.
- Participate in a conversation or group discussion by making reference to, or building upon, a comment made by another person.
- Identify and express physical sensations, mental states, and emotions of self and others.
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after, etc.*).
- Understand and use narrative language to describe people, places, things, locations, events, actions.
- Understand and use common sayings and phrases such as “Don’t judge a book by its cover” and “Better late than never” (see page 60).

#### B. PRESENTATION OF IDEAS AND INFORMATION

- Follow multi-step, oral directions.
- Give simple directions.
- Provide simple explanations.

- Recite a nursery rhyme, poem or song independently, using appropriate eye contact, volume and clear enunciation.
- Give oral presentations about personal experiences, topics of interest, stories, and summaries of factual information that have been presented orally, visually or through multimedia, using appropriate eye contact, volume and clear enunciation.

### C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS

**Teachers:** Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

At the second grade level, students are becoming increasingly skilled as independent readers. Nevertheless, research indicates that reading comprehension ability does not catch up to listening comprehension until the middle school grades. It is therefore still important to provide second graders with extensive read aloud experiences of both fiction and nonfiction texts.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Grade appropriate read-aloud selections for poetry and fiction are included on pages 58–60. Nonfiction read-alouds should be selected on the basis of the history, science, music and visual art topics identified for Grade 2 students in the *Core Knowledge Sequence*, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, children should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems.
- Distinguish the following genres of literature: fiction, nonfiction and drama.

#### Grasping Specific Details and Key Ideas

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
- Retell key details.
- Summarize in one's own words selected parts of a read-aloud.
- Ask questions to clarify information in a read-aloud.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud.

#### Observing Craft and Structure

- Understand and use words and phrases heard in read-alouds.
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds.

### Integrating Information and Evaluating Evidence

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud.
- Identify who is telling a story or providing information in a text.

#### D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY

- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Compare and contrast characters from different stories.
- Describe characters in increasing depth by referring to dialogue and/or their actions in the story.
- Change some story events and provide a different story ending.
- Create and tell an original story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify repetitions in phrases, refrains, or sounds in poems or songs.
- Identify sensory language and how it is used to describe people, objects, places and events.
- Describe the use of rhyme, rhythm and sensory images used in poetry.

#### E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT

**Teachers: Select nonfiction read-aloud topics from the second grade history, science, music, and visual arts topics listed on pages 61–75, with emphasis on history and science.**

- Generate questions and seek information from multiple sources to answer questions.
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
- With assistance, categorize and organize facts and information within a given topic.
- With assistance, create and interpret timelines and lifelines related to read-alouds.
- Interpret information presented in diagrams, charts, graphs, etc.
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

## II Reading

### A. PHONICS: DECODING AND ENCODING

**Teachers: Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific letter-sound relationships are taught and reinforced by having children both read and write the letter-sound correspondence being studied. Reading**

and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.

- Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
- Blend individual phonemes to pronounce printed words.
- Understand that sometimes two or more printed letters stand for a single sound.
- Read multi-syllable words containing any of the grapheme-phoneme correspondences listed below.
- Read and write words with inflectional endings, i.e., -s, -ed, -ing, -er, -est.
- Read, understand, and write contractions, i.e., *isn't*, *I'm*, *can't*, etc.
- Sort and classify words according to the spelling used to represent a specific phoneme.
- Read tricky spellings that can be sounded two ways, e.g., the letter 's' sounded /s/ as in *cats* and /z/ as in *dogs*.
- Read and spell chains of one-syllable words in which one sound is added, substituted, or omitted, i.e., read at > cat > bat > bad > bid.
- Read at least 100 words generally identified as high frequency words.

#### CONSONANT SOUNDS AND SPELLINGS TAUGHT IN SECOND GRADE

/b/ spelled 'b' as in *boy*, 'bb' as in *tubby*  
 /d/ spelled 'd' as in *dog*, 'dd' as in *madder*, 'ed' as in *filled*  
 /f/ spelled 'f' as in *fun*, 'ff' as in *stuff*  
 /g/ spelled 'g' as in *get*, 'gg' as in *egg*  
 /h/ spelled 'h' as in *him*  
 /j/ spelled 'j' as in *jump*, 'g' as in *gem*, 'ge' as in *fringe*  
 /k/ spelled 'c' as in *cat*, 'k' as in *kitten*, 'ck' as in *sick*, 'cc' as in *moccasin*  
 /l/ spelled 'l' as in *lip*, 'll' as in *sell*  
 /m/ spelled 'm' as in *mad*, 'mm' as in *hammer*  
 /n/ spelled 'n' as in *net*, 'nn' as in *funny*, 'kn' as in *knock*  
 /p/ spelled 'p' as in *pet*, 'pp' as in *happy*  
 /r/ spelled 'r' as in *red*, 'rr' as in *earring*, 'wr' as in *wrist*  
 /s/ spelled 's' as in *sit*, 'ss' as in *dress*, 'c' as in *cent*, 'ce' as in *prince*, 'se' as in *rinse*  
 /t/ spelled 't' as in *top*, 'tt' as in *butter*, 'ed' as in *asked*  
 /v/ spelled 'v' as in *vet*, 've' as in *twelve*  
 /w/ spelled 'w' as in *wet*, 'wh' as in *when*  
 /x/ spelled 'x' as in *tax*  
 /y/ spelled 'y' as in *yes*  
 /z/ spelled 'z' as in *zip*, 'zz' as in *buzz*, 's' as in *dogs*  
 /ch/ spelled 'ch' as in *chop*, 'tch' as in *itch*  
 /sh/ spelled 'sh' as in *ship*  
 /th/ spelled 'th' as in *thin*  
 /th/ spelled 'th' as in *then*  
 /qu/ spelled 'qu' as in *quick*  
 /ng/ spelled 'ng' as in *sing*, 'n' as in *pink*

#### VOWEL SOUNDS AND SPELLINGS TAUGHT IN SECOND GRADE

/a/ spelled 'a' as in *cat*  
 /e/ spelled 'e' as in *get*, 'ea' as in *head*  
 /i/ spelled 'i' as in *hit*, 'y' as in *myth*  
 /o/ spelled 'o' as in *hot*, 'a' as in *wall*  
 /u/ spelled 'u' as in *but*, 'o' as in *son*  
 /ae/ spelled 'a\_e' as in *cake*, 'ai' as in *wait*, 'ay' as in *day*, 'a' as in *paper*, 'ey' as in *hey*,  
 'ei' as in *weight*, 'ea' as in *great*  
 /ee/ spelled 'ee' as in *bee*, 'e' as in *me*, 'y' as in *funny*, 'ea' as in *beach*, 'e\_e' as in *Pete*,  
 'ie' as in *cookie*, 'i' as in *ski*, 'ey' as in *key*

/ie/ spelled 'i\_e' as in *bike*, 'i' as in *biting*, 'y' as in *try*, 'ie' as in *tie*, 'igh' as in *night*  
 /oe/ spelled 'o\_e' as in *note*, 'oa' as in *boat*, 'oe' as in *toe*, 'o' as in *open*, 'ow' as in *snow*  
 /ue/ spelled 'u\_e' as in *cute*, 'u' as in *unit*, 'ue' as in *cue*  
 /aw/ spelled 'aw' as in *paw*, 'au' as in *Paul*, 'augh' as in *caught*, 'ough' as in *bought*  
 /oo/ spelled 'oo' as in *look*, 'u' as in *student*, 'ue' as in *blue*, 'ui' as in *fruit*, 'ew' as in *new*, 'u\_e' as in *tune*  
 /oo/ spelled 'oo' as in *soon*  
 /ou/ spelled 'ou' as in *shout*, 'ow' as in *now*  
 /oi/ spelled 'oi' as in *oil*, 'oy' as in *toy*  
 /er/ spelled 'er' as in *her*, 'ur' as in *hurt*, 'ir' as in *bird*, 'ar' as in *dollar*  
 /ar/ spelled 'ar' as in *car*  
 /or/ spelled 'or' as in *for*, 'ore' as in *more*, 'our' as in *four*, 'oor' as in *door*  
 Schwa spelled 'a' as in *about*  
 /shun/ spelled 'tion' as in *mention*

## B. ORAL READING AND FLUENCY

- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Demonstrate increased accuracy, fluency, and expression on successive reading of a decodable text (90 wpm by the end of the year).
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
- Demonstrate understanding of and use commas and end punctuation while reading orally.
- Read aloud, alone, or with a partner at least 20 minutes each day.

## C. READING COMPREHENSION—ALL TEXTS

**Teachers:** At the second grade level, students should be demonstrating ever-increasing code knowledge and fluency in their independent reading, allowing them to focus more intently on the meaning of what they are reading. This increased focus on reading comprehension is reflected in the number and complexity of the objectives below, as compared to earlier grades. However, it is important to remember that listening comprehension still far exceeds reading comprehension and that children's ability to talk about what they have heard and/or read will exceed their ability to demonstrate that understanding in writing.

- Demonstrate understanding of text—the majority of which is decodable—after independent reading.

### Grasping Specific Details and Key Ideas

- Sequence four to six pictures illustrating events from a text that has been read independently.
- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell key details from a text that has been read independently.
- Summarize in one's own words selected parts of a text.
- Ask questions to clarify information about a text that has been read independently.
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently.

### Observing Craft and Structure

- Identify basic text features and what they mean, including title, table of contents, chapter headings and captions.
- Understand and use words and phrases from a text that has been read independently.
- Compare and contrast similarities and differences within a single text or between multiple texts read independently.
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently.

### Integrating Information and Evaluating Evidence

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is read independently and then ask questions to clarify this information.
- Identify who is telling a story or providing information in a text.
- Identify temporal words that link and sequence events, i.e., *first, next, then*, etc.
- Identify words that link ideas, i.e., *for example, also, in addition*.

#### D. READING COMPREHENSION—FICTION, DRAMA, AND POETRY

- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Compare and contrast characters from different stories.
- Describe characters in increasing depth by referring to dialogue and/or their actions in the story.
- Change some story events and provide a different story ending.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify sensory language and how it is used to describe people, objects, places, and events.
- Identify repetitions in phrases, refrains, or sounds in poems or songs.
- Describe the use of rhyme, rhythm and sensory images used in poetry.

#### E. READING COMPREHENSION—NONFICTION AND INFORMATIONAL TEXT

**Teachers:** Select nonfiction topics from the second grade history, science, music and visual arts topics listed on pages 61–75 with emphasis on history and science.

- Generate questions and seek information from multiple sources to answer questions.
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
- Interpret information presented in diagrams, charts, graphs, etc.
- With assistance, categorize and organize facts and information for a given topic.
- With assistance, create and interpret timelines and lifelines related to text read independently.
- Distinguish text that describes events that happened long ago from text that describes contemporary or current events.

### III. Writing

**Teachers:** Students develop ever increasing code knowledge and fluency in reading during second grade and, as a result, most will also become increasingly comfortable and competent in expressing their thoughts and ideas in writing.

Teachers should, however, have age appropriate expectations about what second grade student writing should resemble. Students’ spelling skills will often lag behind the code knowledge they demonstrate in reading. It is reasonable to expect that the students will use the letter-sound correspondences they have learned thus far to set down plausible spellings for the sounds in the word.



For example, a student who writes *doller* for *dollar*, *wate* for *wait* or *weight* has set down a plausible spelling for each sound in the word, using the code knowledge taught in this grade. This should be seen as acceptable spelling for this stage of literacy acquisition. With continued writing practice, students should begin to include more dictionary correct spellings for words that they read and write frequently. Dictionary-correct spelling as the rule will be a realistic goal when students have learned more spellings, had repeated writing practice opportunities and have learned how to use a dictionary to check spelling.

At the second grade level, teachers should model and scaffold use of a writing process, such as “Plan-Draft-Edit,” as students learn to write in various genres. It is important, though, not to dampen student enthusiasm for writing by rigidly insisting that *all* student writing be edited over and over again to bring the text to the “publication” stage. A sensible balance that encourages children to use their current skill knowledge when writing, as well as a simple editing rubric for review—without stifling creative expression—is optimal at the second grade level.

#### Writing to Reflect Audience, Purpose and Task

- Add details to writing.
- Begin to use tools, including technology, to plan, draft, and edit writing.

#### Conducting Research

- Gather information from experiences or provided text sources.

#### A. NARRATIVE WRITING

- Write a familiar story that includes setting(s), character(s), dialogue, and if appropriate, several events, using temporal words and phrases to indicate the chronology of events.
- Write a personal narrative.
- Create a title and an ending that are relevant to the narrative.

#### B. INFORMATIVE/EXPLANATORY WRITING

- Write about a topic, including a beginning and ending sentence, facts and examples relevant to the topic, and specific steps (if writing explanatory text).
- Group similar information into paragraphs.
- Use linking words such as *also*, *another*, *and*, etc. to connect ideas within a paragraph.

#### C. PERSUASIVE WRITING (OPINION)

- Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion.
- Use words to link opinions with reasons or supporting details, such as *because*, *also*, *another*.
- Create a title that is relevant to the topic or subject of the text.
- If writing about a specific book or read-aloud, refer to the content of the text.

### IV. Language Conventions

- Form sentences and paragraphs to communicate thoughts and ideas.
- Apply basic spelling conventions.
- Use basic capitalization and punctuation in sentences to convey meaning.

#### A. SPELLING

- Write phonemically plausible spellings for words using current code knowledge, e.g., write *doller* for *dollar*, *wate* for *wait* or *weight*.
- Write words, phrases, and sentences from dictation, applying phonics knowledge.
- Alphabetize words to the second letter.
- Use a children’s dictionary, with assistance, to check spelling and verify the meaning of words.
- Identify and use synonyms, antonyms, homophones, and compound words.

**B. PARTS OF SPEECH AND SENTENCE STRUCTURE**

- Recognize, identify and use subject, object, and possessive pronouns, i.e., *I, me, my, they, them*, orally, in written text and in own writing.
- Recognize, identify and use correct noun-pronoun agreement orally, in written text and in own writing.
- Recognize, identify and use common and proper nouns, orally, in written text, and in own writing.
- Recognize, identify, and use the articles *a* and *an* appropriately orally, in written text and in own writing.
- Recognize, identify and use selected regular and irregular plural nouns orally, in written text and in own writing.
- Recognize, identify and use selected regular and irregular past, present, and future tense verbs orally, in written text, and in own writing.
- Recognize, identify, and use adjectives orally, in written text, and in own writing.
- Recognize, identify, and use adverbs orally, in written text, and in own writing.
- Recognize, identify and use subjects and predicates, orally, in written text, and in own writing.
- Recognize, identify, and use statements, questions, and exclamations orally, in written text, and in own writing.
- Recognize, identify, and use complete simple and compound sentences.

**C. CAPITALIZATION, AND PUNCTUATION**

- Capitalize the first word in a sentence, the pronoun *I*, and proper nouns (names and places,) months, days of the week, titles of people, and addresses.
- Recognize, identify and use abbreviations with correct punctuation for the months, days of the week, titles of people, and addresses.
- Identify and use end punctuation, including periods, question marks, and exclamation points.
- Use commas appropriately in greetings and closings of letters, dates, items in a series, and addresses.
- Write a simple friendly letter.
- Use apostrophes to create contractions and indicate possession, i.e., *cat's meow*.
- Use quotation marks appropriately to designate direct speech.

**V. Poetry**

**Note:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new, and to have children write their own poems. To bring children into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words.

Bed in Summer (Robert Louis Stevenson)  
 Bee! I'm expecting you (Emily Dickinson)  
 Buffalo Dusk (Carl Sandburg)  
 Caterpillars (Aileen Fisher)  
 Discovery (Harry Behn)  
 Harriet Tubman (Eloise Greenfield)  
 Hurt No Living Thing (Christina Rossetti)  
 Lincoln (Nancy Byrd Turner)  
 The Night Before Christmas (Clement Clarke Moore)  
 Rudolph Is Tired of the City (Gwendolyn Brooks)  
 Seashell (Federico Garcia Lorca)  
 Smart (Shel Silverstein)  
 Something Told the Wild Geese (Rachel Field)  
 There Was an Old Man with a Beard (Edward Lear)  
 Who Has Seen the Wind? (Christina Rossetti)  
 Windy Nights (Robert Louis Stevenson)

See below, Literary Terms—  
 limerick, *re* Edward Lear.

## VI. Fiction

**Note:** Review Drama from first grade, and engage children in dramatic activities, possibly with one of the stories below in the form of a play.

**Teachers:** The titles listed below are available in a variety of editions, including both adaptations for novice readers and others that lend themselves to reading aloud to children—for example, *Charlotte’s Web* or “How the Camel Got His Hump.” It is recommended that you provide a mixture of texts. Editions designed for beginning readers can help children practice decoding skills. Read-aloud texts, which the children may not be capable of reading on their own, can be understood when the words are read aloud and talked about with a helpful adult. Such active listening to vocabulary and syntax that go beyond the limits of grade-level readability formulas is an important part of developing an increasingly sophisticated verbal sense.

The titles below constitute a core of stories for this grade. Expose children to many more stories, including classic picture books, read-aloud books, etc. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Children should also be exposed to nonfiction prose—biographies, books on science and history, books on art and music—and they should be given opportunities to tell and write their own stories.

**Note:** “The Magic Paintbrush” is also known as “Tye May and the Magic Brush” and “Liang [or Ma Liang] and the Magic Brush.”

See also World History 2: India, re “The Blind Men and the Elephant” and “The Tiger, the Brahman, and the Jackal.”

### A. STORIES

- Beauty and the Beast
- The Blind Men and the Elephant (a fable from India)
- A Christmas Carol* (Charles Dickens)
- Charlotte’s Web* (E. B. White)
- The Emperor’s New Clothes (Hans Christian Andersen)
- The Fisherman and His Wife (Brothers Grimm)
- How the Camel Got His Hump (a “Just-So” story by Rudyard Kipling)
- Iktomi stories (legends of the Plains Indian trickster figure, such as Iktomi Lost His Eyes; Iktomi and the Berries; Iktomi and the Boulder)
- The Magic Paintbrush (a Chinese folktale)
- El Pajaro Cu (a Hispanic folktale)
- selections from *Peter Pan* (James M. Barrie)
- Talk (a West African folktale)
- The Tiger, the Brahman, and the Jackal (a folktale from India)
- The Tongue-Cut Sparrow (a folktale from Japan)

### B. MYTHOLOGY OF ANCIENT GREECE

**Teachers:** See *World History and Geography 2: The Ancient Greek Civilization*.

**Note:** Roman names are listed in parentheses because, although children do not study ancient Rome until third grade in the *Core Knowledge Sequence*, you are likely to encounter both Greek and Roman names in various books of myths you may use.

- Gods of Ancient Greece (and Rome)
  - Zeus (Jupiter)
  - Hera (Juno)
  - Apollo (Apollo)
  - Artemis (Diana)
  - Poseidon (Neptune)
  - Aphrodite (Venus)
  - Demeter (Ceres)
  - Ares (Mars)
  - Hermes (Mercury)
  - Athena (Minerva)
  - Hephaestus (Vulcan)
  - Dionysus (Bacchus)
  - Eros (Cupid)
  - Hades (Pluto)
- Mount Olympus: home of the gods
- Mythological creatures and characters
  - Atlas (holding the world on his shoulders)
  - centaurs
  - Cerberus
  - Pegasus
  - Pan
- Greek Myths
  - Prometheus (how he brought fire from the gods to men)
  - Pandora’s Box
  - Oedipus and the Sphinx
  - Theseus and the Minotaur
  - Daedalus and Icarus

**Note:** Students will read more myths in third grade; see Language Arts 3.

Arachne the Weaver  
Swift-footed Atalanta  
Demeter and Persephone  
Hercules (Heracles) and the Labors of Hercules

**C. AMERICAN FOLK HEROES AND TALL TALES**

**Teachers:** Johnny Appleseed and Casey Jones were introduced in kindergarten.

Paul Bunyan  
Johnny Appleseed  
John Henry  
Pecos Bill  
Casey Jones

See also Music 2: III. Songs,  
"John Henry."

**D. LITERARY TERMS**

**Teachers:** In the course of their studies, children should learn the following terms:

myth  
tall tale  
limerick

**VII. Sayings and Phrases**

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

Back to the drawing board  
Better late than never  
Cold feet  
Don't cry over spilled milk.  
Don't judge a book by its cover.  
Easier said than done  
Eaten out of house and home  
Get a taste of your own medicine  
Get up on the wrong side of the bed  
In hot water  
Keep your fingers crossed.  
Practice what you preach.  
The real McCoy  
Two heads are better than one.  
Turn over a new leaf  
Where there's a will there's a way.  
You can't teach an old dog new tricks.



## History and Geography: Grade 2

**Teachers:** In second grade, children often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in World History in second grade is to foster curiosity and the beginnings of understanding about the larger world outside the child's locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

### WORLD HISTORY AND GEOGRAPHY

#### I. Geography

##### A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Review and reinforce topics from grade 1, including:

- Name your continent, country, state, and community.
- Understand that maps have keys or legends with symbols and their uses.
- Find directions on a map: east, west, north, south.
- Identify major oceans: Pacific, Atlantic, Indian, Arctic.
- The seven continents: Asia, Europe, Africa, North America, South America, Antarctica, Australia.
- Locate: Canada, United States, Mexico, Central America.
- Locate: the Equator, Northern Hemisphere and Southern Hemisphere, North and South Poles.

##### B. GEOGRAPHICAL TERMS AND FEATURES

**Teachers:** Review terms from grade 1 (peninsula, harbor, bay, island), and add:

- coast, valley, prairie, desert, oasis

#### II. Early Asian Civilizations

**Teachers:** Since religion is a shaping force in the story of civilization, the *Core Knowledge Sequence* introduces children in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. The purpose is not to explore matters of theology but to provide a basic vocabulary for understanding many events and ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past. To the question, "Which one is true?" an appropriate response is: "People of different faiths believe different things to be true. The best people to guide you on this right now are your parents or someone at home."

##### A. GEOGRAPHY OF ASIA

- The largest continent, with the most populous countries in the world
- Locate: China, India, Japan

##### B. INDIA

- Indus River and Ganges River
- Hinduism  
Brahma, Vishnu, Shiva

See also below, American History and Geography: Geography of the Americas.

See also Language Arts 2: "The Tiger, the Brahman, and the Jackal," and "The Blind Men and the Elephant," re India.

See also Visual Arts 2:  
Architecture: Great Stupa,  
re Buddhism.

See also Language Arts 2:  
"The Magic Paintbrush."

**Note:** Students will study  
feudal Japan in grade 5.  
See also Language Arts 2:  
"The Tongue-Cut Sparrow";  
Visual Arts 2: Elements of  
Art: Hokusai, *The Great  
Wave*; and, Architecture:  
Himeji Castle.

See also Language Arts 2:  
Greek Myths; Visual Arts 2:  
Sculpture, Discus Thrower;  
Architecture, The Parthenon.

**Note:** Suggested topics  
for learning about  
Alexander include his  
tutoring by Aristotle, his  
horse Bucephalus, and the  
legend of the Gordian knot.

- Many holy books, including the Rig Veda
- Buddhism  
Prince Siddhartha becomes Buddha, "the Enlightened One"  
Buddhism begins as an outgrowth of Hinduism in India, and then spreads through  
many countries in Asia.  
King Asoka (also spelled Ashoka)

### C. CHINA

**Teachers:** Students will study China again in grade 4. Second grade teachers should examine the fourth grade guidelines to see how these topics build in the later grade.

- Yellow (Huang He) and Yangtze (Chang Jiang) Rivers
- Teachings of Confucius (for example, honor your ancestors)
- Great Wall of China
- Invention of paper
- Importance of silk
- Chinese New Year

## III. Modern Japanese Civilization

### A. GEOGRAPHY

- Locate relative to continental Asia: "land of the rising sun"
- A country made up of islands; four major islands
- Pacific Ocean, Sea of Japan
- Mt. Fuji
- Tokyo

### B. CULTURE

- Japanese flag
- Big modern cities, centers of industry and business
- Traditional craft: origami
- Traditional costume: kimono

## IV. The Ancient Greek Civilization

**Teachers:** Students will study Greece again in grade 6, with a focus on the legacy of ideas from ancient Greece and Rome.

- Geography: Mediterranean Sea and Aegean Sea, Crete
- Sparta
- Athens as a city-state: the beginnings of democracy
- Persian Wars: Marathon and Thermopylae
- Olympic games
- Worship of gods and goddesses
- Great thinkers: Socrates, Plato, and Aristotle
- Alexander the Great

# American History and Geography

## AMERICAN HISTORY AND GEOGRAPHY

**Teachers:** The study of American history begins in grades K-2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

### I. American Government: The Constitution

**Teachers:** Through analogies to familiar settings—the family, the school, the community—discuss some basic questions regarding American government, such as: “What is government?” “What are some basic functions of American government?” (Making and enforcing laws; settling disputes; protecting rights and liberties, etc.) Only basic questions need to be addressed at this grade level. In fourth grade students will examine in more detail specific issues and institutions of American government, including, for example, the separation of powers, and the relation between state and federal government.

- American government is based on the Constitution, the highest law of our land.
- James Madison, the “Father of the Constitution”
- Government by the consent of the governed: “We the people”

### II. The War of 1812

- President James Madison and Dolley Madison
- British impressment of American sailors
- Old Ironsides
- British burn the White House
- Fort McHenry, Francis Scott Key, and “The Star-Spangled Banner”
- Battle of New Orleans, Andrew Jackson

### III. Westward Expansion

**Teachers:** Students will study Westward Expansion in greater depth and detail in grade 5. Second grade teachers should examine the fifth grade guidelines to see how these topics build in the later grade. It is recommended that second grade teachers keep their focus on the people and events specified here, and leave for fifth grade the figures and ideas specified for that grade.

#### A. PIONEERS HEAD WEST

- New means of travel
  - Robert Fulton, invention of the steamboat
  - Erie Canal
  - Railroads: the Transcontinental Railroad
- Routes west: wagon trains on the Oregon Trail
- The Pony Express

#### B. NATIVE AMERICANS

- Sequoyah and the Cherokee alphabet
- Forced removal to reservations: the “Trail of Tears”
- Some Native Americans displaced from their homes and ways of life by railroads (the “iron horse”)
- Effect of near extermination of buffalo on Plains Indians

See also Language Arts 2:  
Iktomi stories.

## IV. The Civil War

**Teachers:** Students will study the Civil War in greater depth and detail in grade 5. Second grade teachers should examine the fifth grade guidelines to see how these topics build in the later grade.

- Controversy over slavery
- Harriet Tubman, the “underground railroad”
- Northern v. Southern states: Yankees and Rebels
- Ulysses S. Grant and Robert E. Lee
- Clara Barton, “Angel of the Battlefield,” founder of American Red Cross
- President Abraham Lincoln: keeping the Union together
- Emancipation Proclamation and the end of slavery

## V. Immigration and Citizenship

**Teachers:** Students will study Immigration and Urbanization in greater depth and detail in grade 6. Second grade teachers should examine the sixth grade American History guidelines to see how these topics build in the later grade. In second grade, it is recommended that teachers use narrative, biography, and other accessible means to introduce children to the idea that many people have come to America (and continue to come here) from all around the world, for many reasons: to find freedom, to seek a better life, to leave behind bad conditions in their native lands, etc. Discuss with children: What is an immigrant? Why do people leave their home countries to make a new home in America? What is it like to be a newcomer in America? What hardships have immigrants faced? What opportunities have they found?

- America perceived as a “land of opportunity”
- The meaning of “e pluribus unum” (a national motto you can see on the back of coins)
- Ellis Island and the significance of the Statue of Liberty
- Millions of newcomers to America
  - Large populations of immigrants settle in major cities (such as New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, San Francisco)
- The idea of citizenship
  - What it means to be a citizen of a nation
  - American citizens have certain rights and responsibilities (for example, voting, eligible to hold public office, paying taxes)
  - Becoming an American citizen (by birth, naturalization)

## VI. Fighting for a Cause

**Teachers:** Through narrative, biography, and other accessible means, introduce students to the idea that while America is a country founded upon “the proposition that all men are created equal,” equality has not always been granted to all Americans. Many people, however, have dedicated themselves to the struggle to extend equal rights to all Americans. Specific figures and issues to study include:

- Susan B. Anthony and the right to vote
- Eleanor Roosevelt and civil rights and human rights
- Mary McLeod Bethune and educational opportunity
- Jackie Robinson and the integration of major league baseball
- Rosa Parks and the bus boycott in Montgomery, Alabama
- Martin Luther King, Jr. and the dream of equal rights for all
- Cesar Chavez and the rights of migrant workers

**Note:** In grade 4, students will study, in the historical context of antebellum reform, early pioneers in the women’s movement in America, including Elizabeth Cady Stanton, Lucretia Mott, Margaret Fuller, and Sojourner Truth.

**Note:** Students will study the modern American civil rights movement in more depth and detail in grade 8.



**Note:** In fifth grade, the American Geography requirements include “fifty states and capitals.” Teachers in grades two through four may want to introduce these incrementally to prepare for the fifth grade requirement.

## VII. Geography of the Americas

### A. NORTH AMERICA

- North America: Canada, United States, Mexico
- The United States
  - Fifty states: 48 contiguous states, plus Alaska and Hawaii
  - Current territories (American Samoa, Guam, Puerto Rico, and U.S. Virgin Islands)
  - Mississippi River
  - Appalachian and Rocky Mountains
  - Great Lakes
- Atlantic and Pacific Oceans, Gulf of Mexico, Caribbean Sea, West Indies
- Central America

### B. SOUTH AMERICA

- Brazil: largest country in South America, Amazon River, rain forests
- Peru and Chile: Andes Mountains
- Locate: Venezuela, Colombia, Ecuador
- Bolivia: named after Simon Bolivar, “The Liberator”
- Argentina: the Pampas
- Main languages: Spanish and (in Brazil) Portuguese

## VIII. Symbols and Figures

- Recognize and become familiar with the significance of
  - U. S. flag: current and earlier versions
  - Statue of Liberty
  - Lincoln Memorial

## Visual Arts: Grade 2

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

### I. Elements of Art

**Teachers:** The generally recognized elements of art include line, shape, form, space, light, texture, and color. In second grade, continue when appropriate to discuss qualities of line, shape, color, and texture that children learned about in kindergarten and first grade.

- Recognize lines as horizontal, vertical, or diagonal.
- Observe the use of line in  
Pablo Picasso, *Mother and Child*  
Katsushika Hokusai, *The Great Wave at Kanagawa Nami-Ura* from *Thirty-six Views of Mt. Fuji*

See also World History 2:  
Japan, re Hokusai.

### II. Sculpture

- Observe shape, mass, and line in sculptures, including  
*The Discus Thrower*  
*Flying Horse* (from Wu-Wei, China)  
Auguste Rodin, *The Thinker*

See also World History 2:  
The Ancient Greek  
Civilization, re *The Discus  
Thrower*; and China, re  
*Flying Horse*.

### III. Kinds of Pictures: Landscapes

**Teachers:** Briefly review from grade 1: portrait, self-portrait, and still life. In discussing the following works, ask the children about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss lines, shapes, colors, and textures; details not obvious at first; why they think the artist chose to depict things in a certain way, etc.

- Recognize as landscapes and discuss  
Thomas Cole, *The Oxbow* (also known as *View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm*)  
El Greco, *View of Toledo* (also known as *Toledo in a Storm*)  
Henri Rousseau, *Virgin Forest*  
Vincent van Gogh, *The Starry Night*

**Note:** You may wish to recall from kindergarten, Joan Miró, *People and Dog in the Sun*.

### IV. Abstract Art

- Compare lifelike and abstract animals, including  
Paintings of birds by John James Audubon  
Albrecht Dürer, *Young Hare*  
Paul Klee, *Cat and Bird*  
Pablo Picasso, *Bull's Head* (made from bicycle seat and handlebars)  
Henri Matisse, *The Snail* (also known as *Chromatic Composition*)
- Observe and discuss examples of abstract painting and sculpture, including  
Marc Chagall, *I and the Village*  
Constantin Brancusi, *Bird in Space*

## V. Architecture

See also World History 2:  
The Ancient Greek  
Civilization, *re* the  
Parthenon; India, *re* the  
Great Stupa; Japan, *re*  
Himeji Castle.




- Understand architecture as the art of designing buildings.
- Understand symmetry and a line of symmetry, and observe symmetry in the design of some buildings (such as the Parthenon).
- Noting line, shape, and special features (such as columns and domes), look at  
The Parthenon  
Great Stupa (Buddhist temple in Sanchi, India)  
Himeji Castle (also known as “White Heron Castle,” Japan)  
The Guggenheim Museum (New York City)

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

## I. Elements of Music

- Through participation, become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  - Recognize a steady beat, accents, and the downbeat; play a steady beat.
  - Move responsively to music (marching, walking, hopping, swaying, etc.).
  - Recognize short and long sounds.
  - Discriminate between fast and slow; gradually slowing down and getting faster.
  - Discriminate between differences in pitch: high and low.
  - Discriminate between loud and soft; gradually increasing and decreasing volume.
  - Understand that melody can move up and down.
  - Hum the melody while listening to music.
  - Echo short rhythms and melodic patterns.
  - Play simple rhythms and melodies.
  - Recognize like and unlike phrases.
  - Recognize timbre (tone color).
  - Sing unaccompanied, accompanied, and in unison.
  - Recognize verse and refrain.
  - Recognize that musical notes have names.
  - Recognize a scale as a series of notes.
  - Sing the C major scale using “do re mi” etc.
- Understand the following notation:
  - ≡ staff,  treble clef, names of lines and spaces in the treble clef
  - whole note    half note    quarter note
  - whole rest, half rest, quarter rest

## II. Listening and Understanding

**Teachers:** Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

### A. THE ORCHESTRA

- Review families of instruments: strings, brass, woodwinds, percussion.
- Become familiar with instruments in the string family—violin, viola, cello, double bass—and listen to
  - Camille Saint-Saëns, from *Carnival of the Animals*: “The Swan” (cello) and “Elephants” (double bass)
  - Antonio Vivaldi, *The Four Seasons* (see below, Composers and Their Music)
- Become familiar with instruments in the percussion family—for example, drums (timpani, snare), xylophone, wood block, maracas, cymbals, triangle, tambourine—and listen to Carlos Chavez, *Toccata for Percussion*, third movement.

**Note:** In third grade, students will take a closer look at the brass and woodwind families.

**Note:** If you have recordings or other resources, also introduce African drumming and Latin American music with percussion.

See also below, Composers and Their Music, Bach, *Toccata and Fugue in D minor* (organ).

## B. KEYBOARD INSTRUMENTS

- Recognize that the piano and organ are keyboard instruments, and listen to a variety of keyboard music, including:
  - Wolfgang Amadeus Mozart, *Rondo Alla turca* from *Piano Sonata K. 331*
  - Ludwig van Beethoven, *Für Elise*
  - Felix Mendelssohn, from *Songs without Words*, “Spring Song”

## C. COMPOSERS AND THEIR MUSIC

**Teachers:** Provide brief, child-friendly biographical profiles of the following composers, and listen to representative works:

- Antonio Vivaldi, *The Four Seasons*
- Johann Sebastian Bach, *Minuet in G major* (collected by Bach in the *Anna Magdalena Notebook*); *Jesu, Joy of Man’s Desiring*; *Toccata and Fugue in D minor*
- Ludwig van Beethoven, *Symphony No. 6 (“Pastoral”)*: first movement and from final movement, “Thunderstorm” to end of symphony

See also Language Arts 2: American tall tales, re “Casey Jones,” and “John Henry.”

See also American History 2: Civil War, re “Dixie,” “Follow the Drinking Gourd,” and “When Johnny Comes Marching Home.”

See also American History 2: War of 1812, re “The Star-Spangled Banner.”

## III. Songs

Buffalo Gals  
 Casey Jones (chorus only)  
 Clementine  
 Dixie  
 Do-Re-Mi  
 The Erie Canal  
 Follow the Drinking Gourd  
 Good Bye Old Paint  
 Home on the Range  
 I’ve Been Working on the Railroad  
 John Henry  
 Old Dan Tucker  
 The Star-Spangled Banner  
 Swing Low, Sweet Chariot  
 This Land Is Your Land  
 When Johnny Comes Marching Home

## Mathematics: Grade 2

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving higher order skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



### I. Numbers and Number Sense

- Write numbers to 1,000.
- Read and write words for numbers from one to one-hundred.
- Order and compare numbers to 1,000, using the signs  $<$ ,  $>$ , and  $=$ .
- Count
  - by twos, threes, fives, and tens
  - by tens from any given number
  - by hundreds to 1,000; by fifties to 1,000
  - forward and backward
- Use a number line.
- Use tallies.
- Identify ordinal position, 1st to 20th, and write words for ordinal numbers, first to twentieth.
- Identify even and odd numbers.
- Identify dozen; half-dozen; pair.
- Recognize place value: ones, tens, hundreds, thousands.
- Write numbers up to hundreds in expanded form (for example  $64 = 60 + 4$ ;  $367 = 300 + 60 + 7$ ).
- Given a number, identify one more and one less; ten more and ten less.
- Round to the nearest ten.
- Create and interpret simple bar graphs.
- Identify and extend numerical and symbolic patterns.
- Record numeric data systematically and find the lowest and highest values in a data set.

### II. Fractions

- Recognize these fractions as part of a whole set or region and write the corresponding numerical symbols:  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{1}{6}$ ,  $\frac{1}{8}$ ,  $\frac{1}{10}$ .
- Recognize fractions that are equal to 1.

### III. Money

- Recognize relative values of a penny, nickel, dime, quarter, and dollar.
- Write amounts of money using \$ and ¢ signs, and the decimal point.
- Show how different combinations of coins equal the same amounts of money.
- Add and subtract amounts of money.

## IV. Computation

### A. ADDITION

- Achieve timed mastery of addition facts (2 seconds).
- Recognize what an addend is.
- Know how to write addition problems horizontally and vertically.
- Know how to add in any order and check a sum by changing the order of the addends.
- Estimate the sum.
- Solve two-digit and three-digit addition problems with and without regrouping.
- Find the sum (up to 999) of any two whole numbers.
- Add three two-digit numbers.
- Practice doubling (adding a number to itself).

### B. SUBTRACTION

- Understand the inverse relation between addition and subtraction; use addition to check subtraction.
- Know addition and subtraction “fact families.”
- Achieve mastery of subtraction facts.
- Estimate the difference.
- Know how to write subtraction problems horizontally and vertically.
- Solve two-digit and three-digit subtraction problems with and without regrouping.
- Given two whole numbers of 999 or less, find the difference.

### C. INTRODUCTION TO MULTIPLICATION

- Recognize the “times” sign ( $\times$ ).
- Know what “factor” and “product” mean.
- Understand that you can multiply numbers in any order.
- Multiplication facts: know the product of any single-digit number  $\times$  1, 2, 3, 4, 5.
- Know what happens when you multiply by 1, by 0, and by 10.
- Practice simple word problems involving multiplication.

### D. SOLVING PROBLEMS AND EQUATIONS

- Solve basic word problems.
- Write and solve simple equations in the form of  $\_\_ - 9 = 7$ ;  $7 + \_\_ = 16$ ;  $4 \times \_\_ = 8$ .

## V. Measurement

### A. LINEAR MEASURE

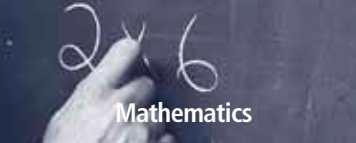
- Make linear measurements in feet and inches, and in centimeters.
- Know that one foot = 12 inches.
- Know abbreviations: ft., in.
- Measure and draw line segments in inches to  $1/2$  inch, and in centimeters.
- Estimate linear measurements, then measure to check estimates.

### B. WEIGHT

- Compare weights of objects using a balance scale.
- Estimate and measure weight in pounds, and know abbreviation: lb.

### C. CAPACITY (VOLUME)

- Estimate and measure capacity in cups.
- Measure liquid volumes: cups, pints, quarts, gallons.
- Compare U.S. and metric liquid volumes: quart and liter (one liter is a little more than one quart).



#### D. TEMPERATURE

- Measure and record temperature in degrees Fahrenheit to the nearest 2 degrees.
- Know the degree sign: °

#### E. TIME

- Read a clock face and tell time to five-minute intervals.
- Know how to distinguish time as A.M. or P.M.
- Understand noon and midnight.
- Solve problems on elapsed time (how much time has passed?).
- Using a calendar, identify the date, day of the week, month, and year.
- Write the date using words and numbers.

### VI. Geometry

Teachers: Review and reinforce topics from grade 1 as necessary (left and right, orientation and position, etc.)

- Identify and draw basic plane figures: square, rectangle, triangle, circle.
- Describe square, rectangle, triangle according to number of sides; distinguish between square and rectangle as regards length of sides (a square has sides of equal length).
- Measure perimeter in inches of squares and rectangles.
- Identify solid figures—sphere, cube, pyramid, cone, cylinder—and associate solid figures with planar shapes: sphere (circle), cube (square), pyramid (triangle).
- Make congruent shapes and designs.
- Identify lines as horizontal; vertical; perpendicular; parallel.
- Name lines and line segments (for example, line AB; segment CD).
- Identify a line of symmetry, and create simple symmetric figures.



Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.



## I. Cycles in Nature

### A. SEASONAL CYCLES

- The four seasons and earth's orbit around the sun (one year)
- Seasons and life processes
  - Spring: sprouting, sap flow in plants, mating and hatching
  - Summer: growth
  - Fall: ripening, migration
  - Winter: plant dormancy, animal hibernation

### B. LIFE CYCLES

- The life cycle: birth, growth, reproduction, death
- Reproduction in plants and animals
  - From seed to seed with a plant
  - From egg to egg with a chicken
  - From frog to frog
  - From butterfly to butterfly: metamorphosis (see below: Insects)

### C. THE WATER CYCLE

- Most of the earth's surface is covered by water.
- The water cycle
  - Evaporation and condensation
  - Water vapor in the air, humidity
  - Clouds: cirrus, cumulus, stratus
  - Precipitation, groundwater

**Note:** In fourth grade, students will review the water cycle and study other topics in meteorology.

## II. Insects

- Insects can be helpful and harmful to people.
  - Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
  - Harmful: destroy crops, trees, wooden buildings, clothes; carry disease; bite or sting
- Distinguishing characteristics
  - Exoskeleton, chitin
  - Six legs and three body parts: head, thorax and abdomen
  - Most but not all insects have wings.
- Life cycles: metamorphosis
  - Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
  - Some insects go through distinct stages of egg, larva, pupa, adult (examples: butterflies, ants).



- Social insects
  - Most insects live solitary lives, but some are social (such as ants, honeybees, termites, wasps).
  - Ants: colonies
  - Honeybees: workers, drones, queen

### III. The Human Body

#### A. CELLS

- All living things are made up of cells, too small to be seen without a microscope.
  - Cells make up tissues.
  - Tissues make up organs.
  - Organs work in systems.

#### B. THE DIGESTIVE AND EXCRETORY SYSTEMS

**Teachers:** Explore with children what happens to the food we eat by studying body parts and functions involved in taking in food and getting rid of waste. Children should become familiar with the following:

- Salivary glands, taste buds
- Teeth: incisors, bicuspid, molars
- Esophagus, stomach, liver, small intestine, large intestine
- Kidneys, urine, bladder, urethra, anus, appendix

#### C. TAKING CARE OF YOUR BODY: A HEALTHY DIET

- The “food pyramid” or “MyPlate”
- Vitamins and minerals

### IV. Magnetism

**Teachers:** Magnetism was introduced in kindergarten. Review and introduce new topics in second grade, with greater emphasis on experimentation.

- Magnetism demonstrates that there are forces we cannot see that act upon objects.
- Most magnets contain iron.
- Lodestones: naturally occurring magnets
- Magnetic poles: north-seeking and south-seeking poles
- Magnetic field (strongest at the poles)
- Law of magnetic attraction: unlike poles attract, like poles repel
- The earth behaves as if it were a huge magnet: north and south magnetic poles (near, but not the same as, geographic North Pole and South Pole)
- Orienteering: use of a magnetized needle in a compass, which will always point to the north

## V. Simple Machines

**Teachers:** Examine with children how specific tools are made to perform specific jobs—for example, hammers, screwdrivers, pliers, etc. Through observation and experimentation, examine with children how simple machines help make work easier, and how they are applied and combined in familiar tools and machines.

- Simple machines
  - lever
  - pulley
  - wheel-and-axle
    - gears: wheels with teeth and notches
    - how gears work, and familiar uses (for example, in bicycles)
  - inclined plane
  - wedge
  - screw
- Friction, and ways to reduce friction (lubricants, rollers, etc.)

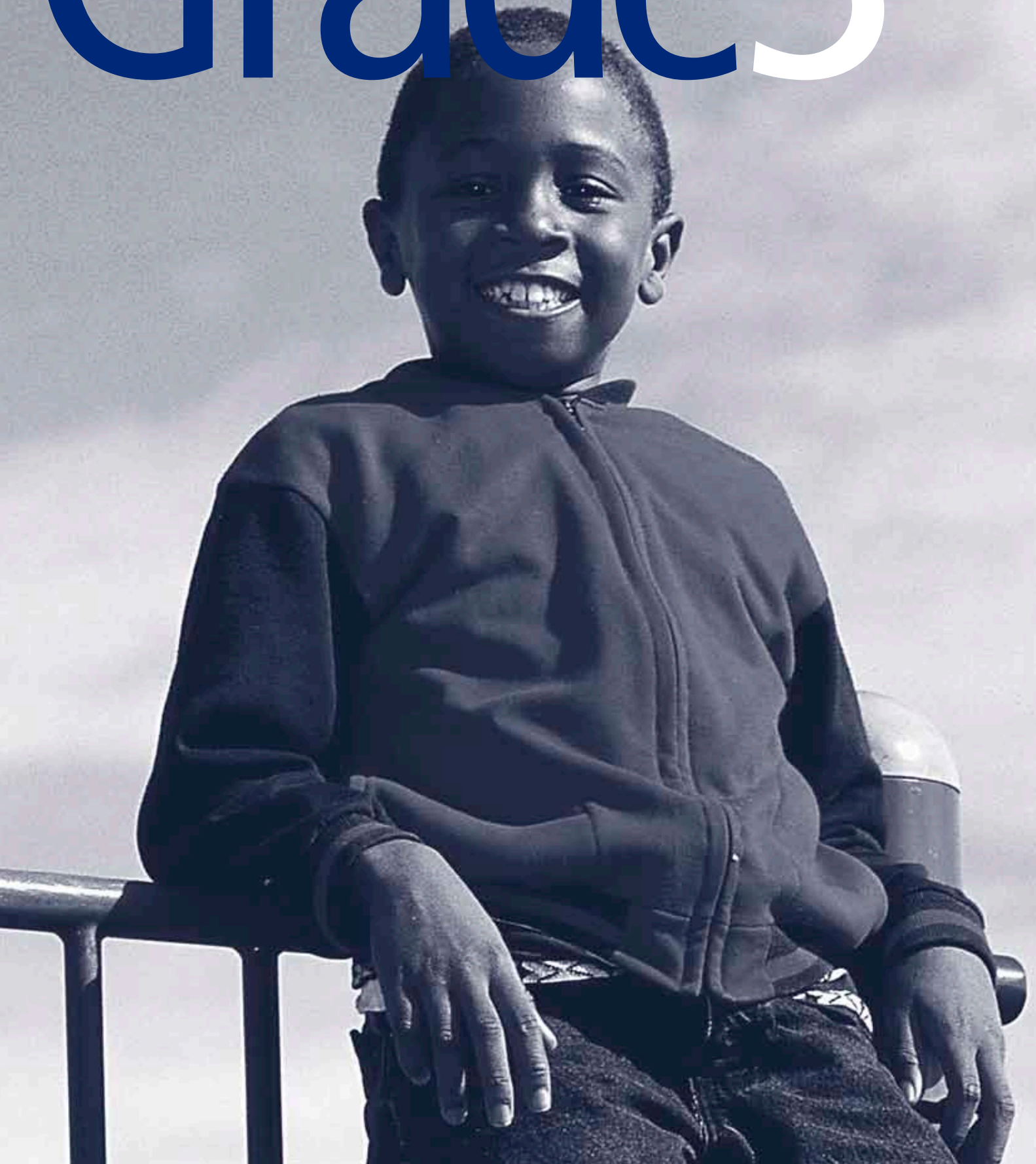
## VI. Science Biographies

See above, Human Body:  
Cells re Anton van  
Leeuwenhoek; Simple  
Machines: Friction, re Elijah  
McCoy.

Anton van Leeuwenhoek (invented the microscope)  
Elijah McCoy (invented the automatic lubricator/the real McCoy)  
Florence Nightingale (helped the wounded in the Crimean War/made hospitals more  
sanitary)  
Daniel Hale Williams (performed the first open-chest surgery)



# Grade 3



# Overview of Topics

## Grade 3

### Language Arts

- I. Reading and Writing
  - A. Reading Comprehension and Response
  - B. Writing
  - C. Spelling, Grammar, and Usage
  - D. Vocabulary
- II. Poetry
- III. Fiction
  - A. Stories
  - B. Myths and Mythical Characters
  - C. Literary Terms
- IV. Sayings and Phrases

### History and Geography

#### World:

- I. World Geography
  - A. Spatial Sense
  - B. Geographical Terms and Features
  - C. Canada
  - D. Important Rivers of the World
- II. The Ancient Roman Civilization
  - A. Geography of the Mediterranean Region
  - B. Background
  - C. The Empire
  - D. The "Decline and Fall" of Rome
  - E. The Eastern Roman Empire: Byzantine Civilization
- III. The Vikings

#### American:

- I. The Earliest Americans
  - A. Crossing from Asia to North America
  - B. Native Americans
- II. Early Exploration of North America
  - A. Early Spanish Exploration and Settlement
  - B. Exploration and Settlement of the American Southwest
  - C. The Search for the Northwest Passage
- III. The Thirteen Colonies: Life and Times Before the Revolution
  - A. Geography
  - B. Southern Colonies
  - C. New England Colonies
  - D. Middle Atlantic Colonies

### Visual Arts

- I. Elements of Art
  - A. Light
  - B. Space in Artworks
  - C. Design: How the Elements of Art Work Together
- II. American Indian Art
- III. Art of Ancient Rome and Byzantine Civilization

### Music

- I. Elements of Music
- II. Listening and Understanding
  - A. The Orchestra
  - B. Composers and Their Music
  - C. Musical Connections
- III. Songs

### Mathematics

- I. Numbers and Number Sense
- II. Fractions and Decimals
- III. Money
- IV. Computation
  - A. Addition
  - B. Subtraction
  - C. Multiplication
  - D. Division
  - E. Solving Problems and Equations
- V. Measurement
  - A. Linear Measure
  - B. Weight
  - C. Capacity (Volume)
  - D. Temperature
  - E. Time
- VI. Geometry

### Science

- I. Introduction to Classification of Animals
- II. The Human Body
  - A. The Muscular System
  - B. The Skeletal System
  - C. The Nervous System
  - D. Vision: How the Eye Works
  - E. Hearing: How the Ear Works
- III. Light and Optics
- IV. Sound
- V. Ecology
- VI. Astronomy
- VII. Science Biographies

## Language Arts: Grade 3

The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Grade 3, domains include:** The Ancient Roman Civilization; The Vikings; The Earliest Americans; Early Exploration of North America; The Thirteen Colonies: Life and Times Before the Revolution; Introduction to Classification of Animals; The Human Body; Light and Optics; Sound; Ecology; Astronomy.

**NOTE:** The objectives listed in **I. Reading and Writing** are currently under revision, as part of the *Core Knowledge Language Arts* program development for Grades 3–5. The revised Grade 3 goals and objectives will be conceptually consistent with the K–2 language arts sections of the 2010 edition of the *Sequence* and will be posted at [www.coreknowledge.org](http://www.coreknowledge.org) as part of the online *Sequence* as soon as they are available.

**I. Reading and Writing**

**Teachers:** Many of the following sub-goals are designed to help children achieve the overall goal for reading in third grade: to be able to read (both aloud and silently), with fluency, accuracy, and comprehension any story or other text appropriately written for third grade. Such texts include Beverly Cleary's *Ramona* books, Laura Ingalls Wilder's *Little House in the Big Woods*, and third-grade-level volumes in such nonfiction series as *Let's Read and Find Out* and *New True Books*.

In third grade, children should be competent decoders of most one- and two-syllable words, and they should become increasingly able to use their knowledge of phonemes, syllable boundaries, and prefixes and suffixes to decode multisyllable words. Systematic attention to decoding skills should be provided as needed for children who have not achieved the goals specified for grades 1 and 2.

**A. READING COMPREHENSION AND RESPONSE**

- Independently read and comprehend longer works of fiction (“chapter books”) and nonfiction appropriately written for third grade or beyond.
- Point to specific words or passages that are causing difficulties in comprehension.
- Orally summarize main points from fiction and nonfiction readings.
- Ask and pose plausible answers to how, why, and what-if questions in interpreting texts, both fiction and nonfiction.
- Use a dictionary to answer questions regarding meaning and usage of words with which he or she is unfamiliar.
- Know how to use a table of contents and index to locate information.

**B. WRITING**

**Teachers:** Children should be given many opportunities for writing, both imaginative and expository, with teacher guidance that strikes a balance between encouraging creativity and requiring correct use of conventions. The following guidelines build on the second grade guidelines: please refer to them and provide review and reinforcement as necessary to ensure mastery.

**Note:** Children should read outside of school at least 20 minutes daily.

- Produce a variety of types of writing—such as stories, reports, poems, letters, descriptions—and make reasonable judgments about what to include in his or her own written works based on the purpose and type of composition.
- Know how to gather information from basic print sources (such as a children’s encyclopedia), and write a short report presenting the information in his or her own words.
- Know how to use established conventions when writing a friendly letter: heading, salutation (greeting), closing, signature.
- Produce written work with a beginning, middle, and end.
- Organize material in paragraphs and understand
  - how to use a topic sentence
  - how to develop a paragraph with examples and details
  - that each new paragraph is indented
- In some writings, proceed with guidance through a process of gathering information, organizing thoughts, composing a draft, revising to clarify and refine his or her meaning, and proofreading with attention to spelling, mechanics, and presentation of a final draft.

**Note:** Review from grade 2: capital letters for the first word of a sentence; proper nouns; the pronoun “I”; holidays and months and days of the week; names of countries, cities, states; main words in titles; initials.

**Note:** Review and reinforce from grade 2: singular and plural nouns; making words plural with /s/ or /es/; irregular plurals; correct usage of irregular verbs (*be*, *have*, *do*, *go*, *come*, etc.); regular past tense with *-ed* and past tense of irregular verbs.

**Note:** Children should know that a *possessive* noun shows ownership.

**Note:** Teach only words that can be clearly analyzed into prefix and base word; for example, do not teach “discover” or “display” as prefixed words.

### C. SPELLING, GRAMMAR, AND USAGE

- Spell most words correctly or with a highly probable spelling, and use a dictionary to check and correct spellings about which he or she is uncertain.
- Use capital letters correctly.
- Understand what a complete sentence is, and
  - identify subject and predicate in single-clause sentences
  - distinguish complete sentences from fragments
- Identify and use different sentence types:
  - declarative (makes a statement)
  - interrogative (asks a question)
  - imperative (gives a command)
  - exclamatory (for example, “What a hit!”)
- Know the following parts of speech and how they are used:
  - nouns (for concrete nouns)
  - pronouns (singular and plural)
  - verbs: action verbs and auxiliary (helping) verbs
  - adjectives (including articles: *a* before a consonant, *an* before a vowel, and *the*)
  - adverbs
- Know how to use the following punctuation:
  - end punctuation: period, question mark, or exclamation point
  - comma: between day and year when writing a date; between city and state in an address; in a series; after *yes* and *no*
  - apostrophe: in contractions; in singular and plural possessive nouns
- Recognize and avoid the double negative.

### D. VOCABULARY

- Know what prefixes and suffixes are and how the following affect word meaning:
  - Prefixes:
    - re* meaning “again” (as in reuse, refill)
    - un* meaning “not” (as in unfriendly, unpleasant)
    - dis* meaning “not” (as in dishonest, disobey)
    - un* meaning “opposite of” or “reversing an action” (as in untie, unlock)
    - dis* meaning “opposite of” or “reversing an action” (as in disappear, dismount)
  - Suffixes:
    - er* and *or* (as in singer, painter, actor)
    - less* (as in careless, hopeless)
    - ly* (as in quickly, calmly)



**Note:** Review synonyms and antonyms.

- Know what homophones are (for example, by, buy; hole, whole) and correct usage of homophones that commonly cause problems:  
     their, there, they're  
     your, you're  
     its, it's  
     here, hear  
     to, too, two
- Recognize common abbreviations (for example, St., Rd., Mr., Mrs., Ms., Dr., U.S.A., ft., in., lb.).

## II. Poetry

**Teachers:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new, and to have children write their own poems. To bring children into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words. At this grade, poetry should be a source of delight; technical analysis should be delayed until later grades.

Adventures of Isabel (Ogden Nash)  
 The Bee (Isaac Watts; see also below, "The Crocodile")  
 By Myself (Eloise Greenfield)  
 Catch a Little Rhyme (Eve Merriam)  
 The Crocodile (Lewis Carroll)  
 Dream Variations (Langston Hughes)  
 Eletelephony (Laura Richards)  
 Father William (Lewis Carroll)  
 First Thanksgiving of All (Nancy Byrd Turner)  
 For want of a nail, the shoe was lost . . . (traditional)  
 Jimmy Jet and His TV Set (Shel Silverstein)  
 Knoxville, Tennessee (Nikki Giovanni)  
 Trees (Sergeant Joyce Kilmer)

## III. Fiction

**Teachers:** The titles here constitute a selected core of stories for this grade. Expose children to many more stories, and encourage children to write their own stories. Children should also be exposed to nonfiction prose: biographies, books about science and history, books on art and music, etc. Also, engage children in dramatic activities, possibly with one of the stories below in the form of a play. Some of the following works, such as *Alice in Wonderland* and *The Wind in the Willows*, lend themselves to reading aloud to children.

### A. STORIES

*Alice in Wonderland* (Lewis Carroll)  
 from *The Arabian Nights*:  
     Aladdin and the Wonderful Lamp  
     Ali Baba and the Forty Thieves  
 The Hunting of the Great Bear (an Iroquois legend about the origin of the Big Dipper)  
 The Husband Who Was to Mind the House (a Norse/English folktale, also known as "Gone is Gone")  
 The Little Match Girl (Hans Christian Andersen)  
 The People Could Fly (an African American folktale)  
 Three Words of Wisdom (a folktale from Mexico)  
 William Tell  
 selections from *The Wind in the Willows*: "The River Bank" and  
     "The Open Road" (Kenneth Grahame)

See also American History 3:  
 Slavery in the Colonies, re  
 "The People Who Could Fly."

See also World History 3:  
Vikings.

See also World History 3,  
Ancient Rome.

## B. MYTHS AND MYTHICAL CHARACTERS

- Norse Mythology
  - Asgard (home of the gods)
  - Valhalla
  - Hel (underworld)
  - Odin
  - Thor
  - trolls
  - Norse gods and English names for days of the week: Tyr, Odin [Wodin], Thor, Frigg [Freya]
- More Myths and Legends of Ancient Greece and Rome
  - Jason and the Golden Fleece
  - Perseus and Medusa
  - Cupid and Psyche
  - The Sword of Damocles
  - Damon and Pythias
  - Androcles and the Lion
  - Horatius at the Bridge

## C. LITERARY TERMS

biography and autobiography  
fiction and nonfiction

## IV. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

Actions speak louder than words.  
His bark is worse than his bite.  
Beat around the bush  
Beggars can't be choosers.  
Clean bill of health  
Cold shoulder  
A feather in your cap  
Last straw  
Let bygones be bygones.  
One rotten apple spoils the whole barrel.  
On its last legs  
Rule the roost  
The show must go on.  
Touch and go  
When in Rome do as the Romans do.  
Rome wasn't built in a day.

# History and Geography: Grade 3

## WORLD HISTORY AND GEOGRAPHY

### I. World Geography

**Teachers:** The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

#### A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Review and reinforce earlier topics, and add new topics as follows:

- Name your continent, country, state, and community.
- Understand that maps have keys or legends with symbols and their uses.
- Find directions on a map: east, west, north, south.
- Identify major oceans: Pacific, Atlantic, Indian, Arctic.
- The seven continents: Asia, Europe, Africa, North America, South America, Antarctica, Australia
- Locate: Canada, United States, Mexico, Central America.
- Locate: the Equator, Northern Hemisphere and Southern Hemisphere, North and South Poles.
- Measure straight-line distances using a bar scale.
- Use an atlas and, if available, on-line sources to find geographic information.

#### B. GEOGRAPHICAL TERMS AND FEATURES

**Teachers:** Review terms from grade 1 (peninsula, harbor, bay, island) and grade 2 (coast, valley, desert, oasis, prairie), and add:

- boundary, channel, delta, isthmus, plateau, reservoir, strait

#### C. CANADA

- Locate in relation to United States
- French and British heritage, French-speaking Quebec
- Rocky Mountains
- Hudson Bay, St. Lawrence River, Yukon River
- Divided into provinces
- Major cities, including Montreal, Quebec, Toronto, Vancouver

#### D. IMPORTANT RIVERS OF THE WORLD

- Terms: source, mouth, tributary, drainage basin
- Asia: Ob, Yellow (Huang He), Yangtze (Chang Jiang), Ganges, Indus, Tigris, Euphrates
- Africa: Nile, Niger, Congo
- South America: Amazon, Parana, Orinoco
- North America: Mississippi and major tributaries, Mackenzie, Yukon
- Australia: Murray-Darling
- Europe: Volga, Danube, Rhine

See also below,  
American History and  
Geography II.C: Search for  
the Northwest Passage.

## II. The Ancient Roman Civilization

**Teachers:** Students will study Rome again in grade 6, with a focus on the legacy of ideas from ancient Greece and Rome.

### A. GEOGRAPHY OF THE MEDITERRANEAN REGION

- Mediterranean Sea, Aegean Sea, Adriatic Sea
- Greece, Italy (peninsula), France, Spain
- Strait of Gibraltar, Atlantic Ocean
- North Africa, Asia Minor (peninsula), Turkey
- Bosphorus (strait), Black Sea, Istanbul (Constantinople)
- Red Sea, Persian Gulf, Indian Ocean

### B. BACKGROUND

- Define B.C. / A.D. and B.C.E. / C.E.
- The legend of Romulus and Remus
- Latin as the language of Rome
- Worship of gods and goddesses, largely based on Greek religion
- The Republic: Senate, Patricians, Plebeians
- Punic Wars: Carthage, Hannibal

### C. THE EMPIRE

- Julius Caesar
  - Defeats Pompey in civil war, becomes dictator
  - “Veni, vidi, vici” (“I came, I saw, I conquered”)
  - Cleopatra of Egypt
  - Caesar assassinated in the Senate, Brutus
- Augustus Caesar
- Life in the Roman Empire
  - The Forum: temples, marketplaces, etc.
  - The Colosseum: circuses, gladiator combat, chariot races
  - Roads, bridges, and aqueducts
- Eruption of Mt. Vesuvius, destruction of Pompeii
- Persecution of Christians

### D. THE “DECLINE AND FALL” OF ROME

- Weak and corrupt emperors, legend of Nero fiddling as Rome burns
- Civil wars
- City of Rome sacked
- Social and moral decay

### E. THE EASTERN ROMAN EMPIRE: BYZANTINE CIVILIZATION

- The rise of the Eastern Roman Empire, known as the Byzantine Empire
- Constantine, emperor who made Christianity the official religion of Rome
- Constantinople (now called Istanbul) merges diverse influences and cultures.
- Justinian, Justinian’s Code

See also Language Arts 3:  
More Myths and Legends of  
Ancient Greece and Rome.

See also Visual Arts 3:  
Art of Ancient Rome and  
Byzantine Civilization.

## III. The Vikings

- From area now called Scandinavia (Sweden, Denmark, Norway)
- Also called Norsemen, they were skilled sailors and shipbuilders.
- Traders, and sometimes raiders of the European coast
- Eric the Red and Leif Ericson (Leif “the Lucky”)
- Earliest Europeans (long before Columbus) we know of to come to North America
  - Locate: Greenland, Canada, Newfoundland

See also Language Arts 3:  
Norse Myths.

# American History and Geography

## AMERICAN HISTORY AND GEOGRAPHY

**Teachers:** In third grade, students begin a more detailed and in-depth chronological investigation of topics, some of which have been introduced in grades K–2. Specific topics include: the early exploration of North America; ways of life of specific Native American peoples; life in colonial America before the Revolution. Use of timelines is encouraged. The following guidelines are meant to complement any locally required studies of the family, community, or region. Note that in fifth grade the American Geography requirements include “fifty states and capitals”; teachers in grades two through four may want to introduce these incrementally to prepare for the fifth grade requirement.

### I. The Earliest Americans

#### A. CROSSING FROM ASIA TO NORTH AMERICA

- During the Ice Age, nomadic hunters cross from Asia to North America (now the Bering Strait). (Crossing a land bridge is just one of many theories.) Different peoples, with different languages and ways of life, eventually spread out over the North and South American continents. These early peoples include:
  - Inuits (Eskimos)
  - Anasazi, pueblo builders and cliff dwellers
  - Mound builders

#### B. NATIVE AMERICANS

- In the Southwest
  - Pueblos (Hopi, Zuni)
  - Dine (Navajo)
  - Apaches
- Eastern “Woodland” Indians
  - Woodland culture: wigwams, longhouses, farming, peace pipe, Shaman and Sachem
  - Major tribes and nations (such as Powhatan, Delaware, Susquehanna, Mohican, Massachusetts, Iroquois Confederacy)
- In the Southeast
  - Cherokee
  - Seminole

### II. Early Exploration of North America

**Teachers:** In fifth grade, students will examine European exploration in a more global context. Third grade teachers should look ahead to the fifth grade World History guidelines (under “European Exploration, Trade, and the Clash of Cultures”) to see how the topics introduced here will be developed and extended later. It is recommended that third grade teachers keep their focus on the explorers and events specified here, and leave for fifth grade the figures and ideas specified for that grade.

#### A. EARLY SPANISH EXPLORATION AND SETTLEMENT

- Settlement of Florida
- Ponce de Leon, legend of the Fountain of Youth
- Hernando de Soto
- Founding of St. Augustine (oldest continuous European settlement in what is now the U.S.)
- Geography: Caribbean Sea, West Indies, Puerto Rico, Cuba, Gulf of Mexico, Mississippi River

See also Language Arts 3: “The Hunting of the Great Bear” (an Iroquois legend).

**B. EXPLORATION AND SETTLEMENT OF THE AMERICAN SOUTHWEST**

- Early Spanish explorers in the lands that are now the states of Texas, New Mexico, Arizona, and California; missionary settlements (missions), especially in Texas and California
- Coronado and the legend of the “Seven Cities of Cibola” (of Gold)
- Geography: Grand Canyon and Rio Grande
- Conflicts between the Spanish and the Pueblos (1680 revolt led by Popé)

**C. THE SEARCH FOR THE NORTHWEST PASSAGE**

- Many explorers undertook the perilous, sometimes fatal, voyage to find a short cut across North America to Asia, including:
  - John Cabot: Newfoundland
  - Champlain: “New France” and Quebec
  - Henry Hudson: the Hudson River
- Geography
  - “New France” and Quebec
  - Canada, St. Lawrence River
  - The Great Lakes: Superior, Michigan, Huron, Erie, Ontario

**Note:** Students may also be interested to learn about Amerigo Vespucci, the unlikely source of our country’s name.

**III. The Thirteen Colonies: Life and Times Before the Revolution**

**Teachers:** Discuss with children the definition of “colony” and why countries establish colonies. Help children see that the thirteen English colonies were not alike. Different groups of people came to America with different motivations (hoping to get rich, looking for religious freedom, etc.), and the thirteen colonies developed in different ways.

**A. GEOGRAPHY**

- The thirteen colonies by region: New England, Middle Atlantic, Southern
- Differences in climate from north to south: corresponding differences in agriculture (subsistence farming in New England, gradual development of large plantations in the South)
- Important cities in the development of trade and government: Philadelphia, Boston, New York, Charleston

**B. SOUTHERN COLONIES**

- Southern colonies: Virginia, Maryland, North Carolina, South Carolina, Georgia
- Virginia
  - Chesapeake Bay, James River
  - 1607: three ships of the London Company (later called the Virginia Company) arrive in Virginia, seeking gold and other riches
  - Establishment of Jamestown, first continuous English colony in the New World
  - Trade with Powhatan Indians (see also Eastern Woodland Indians, above)
  - John Smith
  - Pocahontas, marriage to John Rolfe
  - Diseases kill many people, both colonists and Indians
  - The Starving Time
  - Clashes between American Indians and English colonists
  - Development of tobacco as a cash crop, development of plantations
  - 1619: first African laborers brought to Virginia
- Maryland
  - A colony established mainly as a refuge for Catholics
  - Lord Baltimore
- South Carolina
  - Charleston
  - Plantations (rice, indigo) and slave labor

**Note:** The question of fact vs. legend regarding the rescue of John Smith by Pocahontas presents a good opportunity to explore what historians know and how they seek to learn about the past.

See also Language Arts 3:  
“The People Who Could Fly”  
re slavery in the colonies.

- Georgia
  - James Oglethorpe’s plan to establish a colony for English debtors
- Slavery in the Southern colonies
  - Economic reasons that the Southern colonies came to rely on slavery (for example, slave labor on large plantations)
  - The difference between indentured servants and slaves: slaves as property
  - The Middle Passage

#### C. NEW ENGLAND COLONIES

- New England colonies: Massachusetts, New Hampshire, Connecticut, Rhode Island
- Gradual development of maritime economy: fishing and shipbuilding
- Massachusetts
  - Colonists seeking religious freedom: in England, an official “established” church (the Church of England), which did not allow people to worship as they chose
  - The Pilgrims
    - From England to Holland to Massachusetts
    - 1620: Voyage of the Mayflower
    - Significance of the Mayflower Compact
    - Plymouth, William Bradford
    - Helped by Wampanoag Indians: Massasoit, Tisquantum (Squanto)
  - The Puritans
    - Massachusetts Bay Colony, Governor John Winthrop: “We shall be as a city upon a hill.”
    - Emphasis on reading and education, the *New England Primer*
- Rhode Island
  - Roger Williams: belief in religious toleration
  - Anne Hutchinson

**Note:** In fifth grade, students will explore the social changes that led to the Protestant Reformation.

#### D. MIDDLE ATLANTIC COLONIES

- Middle Atlantic colonies: New York, New Jersey, Delaware, Pennsylvania
- New York
  - Dutch settlements and trading posts in “New Netherland”
  - Dutch West India Company acquires Manhattan Island and Long Island through a (probably misunderstood) purchase from the Indians; Dutch establish New Amsterdam (today, New York City)
  - English take over from the Dutch, and rename the colony New York
- Pennsylvania
  - William Penn
  - Society of Friends, “Quakers”
  - Philadelphia

## Visual Arts: Grade 3

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

### I. Elements of Art

**Teachers:** The generally recognized elements of art include line, shape, form, space, light, texture, and color. In third grade, build on what the children have learned in earlier grades as you introduce concepts of light, space, and design.

#### A. LIGHT

- Observe how artists use light and shadow (to focus our attention, affect our emotions, etc.) in  
James Chapin, *Ruby Green Singing*  
Jan Vermeer, *Milkmaid*

#### B. SPACE IN ARTWORKS

- Understand the following terms: two-dimensional (height, width) and three-dimensional (height, width, depth)
- Observe relationship between two-dimensional and three-dimensional shapes: square to cube, triangle to pyramid, circle to sphere and cylinder
- Observe how artists can make two-dimensional look three-dimensional by creating an illusion of depth, and examine the foreground, middle ground, and background in paintings, including  
Jean Millet, *The Gleaners*  
Pieter Bruegel, *Peasant Wedding*

#### C. DESIGN: HOW THE ELEMENTS OF ART WORK TOGETHER

- Become familiar with how these terms are used in discussing works of art:  
Figure and ground  
Pattern  
Balance and symmetry
- Examine design—how the elements of art work together—in  
Rosa Bonheur, *The Horse Fair*  
Mary Cassatt, *The Bath*  
Early American quilts  
Edward Hicks, *The Peaceable Kingdom*  
Henri Matisse, cut-outs: *Icarus*  
Edvard Munch, *The Scream*  
Horace Pippin, *Victorian Interior*  
Faith Ringgold, *Tar Beach*

**Note:** Students will take a more detailed look at perspective in grade 5.

See also American History 3: Colonial America, re Early American quilts and *The Peaceable Kingdom*.



## II. American Indian Art

**Teachers:** The works of art specified below are associated with the Southwest and Eastern Woodland Indians studied in third grade, thus other works of art, such as totem poles, are not listed here because they would be more appropriately examined when students are introduced to the Pacific Northwest Indians. Students should be made aware of the spiritual purposes and significance of many American Indian works of art.

- Become familiar with American Indian works, including
  - Kachina dolls (Hopi, Zuni)
  - Navajo (Dine) blankets and rugs, sand paintings
  - Jewelry

## III. Art of Ancient Rome and Byzantine Civilization

**Teachers:** The works of art listed here may be introduced as part of your study of ancient Roman civilization; see *World History Grade 3*.

- Become familiar with artworks of ancient Roman and Byzantine civilization, including
  - Le Pont du Gard
  - The Pantheon
  - Byzantine mosaics
  - Hagia Sophia







## Music: Grade 3

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

### I. Elements of Music

- Through participation, become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  - Recognize a steady beat, accents, and the downbeat; play a steady beat.
  - Move responsively to music.
  - Recognize short and long sounds.
  - Discriminate between fast and slow; gradually slowing down and getting faster.
  - Discriminate between differences in pitch: high and low.
  - Discriminate between loud and soft; gradually increasing and decreasing volume.
  - Understand that melody can move up and down.
  - Hum the melody while listening to music.
  - Echo short rhythms and melodic patterns.
  - Play simple rhythms and melodies.
  - Sing unaccompanied, accompanied, and in unison.
  - Recognize harmony; sing rounds.
  - Recognize verse and refrain.
  - Continue work with timbre and phrasing.
  - Review names of musical notes; scale as a series of notes; singing the C major scale using “do re mi” etc.
- Understand the following notation
  - names of lines and spaces in the treble clef
  -  treble clef,  staff, bar line, double bar line, measure, repeat signs
  -  whole note    half note    quarter note    eighth note
  - whole rest, half rest, quarter rest
  - meter signature:  $\frac{4}{4}$     $\frac{2}{4}$     $\frac{3}{4}$
  - soft *p* *pp* loud *f* *ff*

### II. Listening and Understanding

**Teachers:** Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

#### A. THE ORCHESTRA

- Review families of instruments: strings, brass, woodwinds, percussion.
- Become familiar with brass instruments—trumpet, French horn, trombone, tuba—and listen to
  - Gioacchino Rossini, *William Tell Overture*, finale (trumpet)
  - Wolfgang Amadeus Mozart, selections from the *Horn Concertos* (French horn)

See also below, re brass instruments, Composers and Their Music: Aaron Copland’s *Fanfare for the Common Man*, and John Philip Sousa, *Stars and Stripes Forever*. See also Language Arts 3: William Tell.

**Note:** When you explore woodwinds with children, you may also want to recall Prokofiev’s *Peter and the Wolf*: the duck’s theme (oboe), cat’s theme (clarinet), bird’s theme (flute), and Grandfather’s theme (bassoon).

See below, Songs, “Simple Gifts.”

See also Language Arts 3: Tales from “The Arabian Nights” re *Scheherazade*. Also, re Norse mythology, you may want to introduce Wagner’s “The Ride of the Valkyries.”

**Note:** Review from earlier grades “America the Beautiful” and “The Star-Spangled Banner.”

- Become familiar with woodwind instruments—flute and piccolo (no reeds); clarinet, oboe, bassoon (with reeds)—and listen to  
 Claude Debussy, *Prelude to the Afternoon of a Faun* (flute)  
 Opening of George Gershwin’s *Rhapsody in Blue* (clarinet)

**B. COMPOSERS AND THEIR MUSIC**

**Teachers:** Provide brief, child-friendly biographical profiles of the following composers, and listen to representative works:

- Peter Ilich Tchaikovsky, *Suite from Swan Lake*
- John Philip Sousa, *Stars and Stripes Forever*
- Aaron Copland, *Fanfare for the Common Man*; “Hoedown” from *Rodeo*, “Simple Gifts” from *Appalachian Spring*

**C. MUSICAL CONNECTIONS**

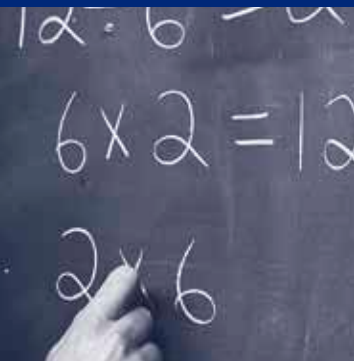
**Teachers:** Introduce children to the following in connection with topics in other disciplines:

- Nikolai Rimsky-Korsakov, *Scheherazade*, part one: “The Sea and Sinbad’s Ship”

**III. Songs**

- Alouette
- America (“My country, ’tis of thee”)
- A Bicycle Built for Two (chorus only)
- Down in the Valley
- He’s Got the Whole World in His Hands
- Hey, Ho, Nobody Home (round)
- In the Good Old Summertime (chorus only)
- Li’l Liza Jane
- My Bonnie Lies Over the Ocean
- Polly Wolly Doodle
- The Man on the Flying Trapeze (chorus only)
- The Sidewalks of New York (chorus only)
- Simple Gifts (“Tis a gift to be simple”)
- This Little Light of Mine
- You’re a Grand Old Flag

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



### I. Numbers and Number Sense

- Read and write numbers (in digits and words) up to six digits.
- Recognize place value up to hundred thousands.
- Order and compare numbers to 999,999, using the signs  $<$ ,  $>$ , and  $=$ .
- Count by twos, threes, fives, and tens; count by tens from any given number.
- Write numbers in expanded form.
- Use a number line.
- Identify ordinal position, 1st to 100th.
- Review: even and odd numbers; dozen; half-dozen; pair.
- Round to the nearest ten; to the nearest hundred.
- Identify perfect squares (and square roots) to 100, and recognize the square root sign:  $\sqrt{\quad}$
- Identify Roman numerals from 1 to 20 (I - XX).
- Understand what negative numbers are in relation to familiar uses (such as temperatures below zero).
- Locate positive and negative whole numbers on a number line.
- Create and interpret bar graphs and line graphs.
- Record outcomes for a simple event (for example, tossing a die) and display the results graphically.

### II. Fractions and Decimals

- Recognize fractions to  $\frac{1}{10}$  and fractions whose denominator is 100.
- Identify numerator and denominator.
- Write mixed numbers.
- Recognize equivalent fractions (for example,  $\frac{1}{2} = \frac{3}{6}$ ).
- Compare fractions with like denominators, using the signs  $<$ ,  $>$ , and  $=$ .
- Know and write decimal equivalents to  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ .
- Read and write decimals to the hundredths.

### III. Money

- Write amounts of money using \$ and ¢ signs, and the decimal point.
- Make change, using as few coins as possible.
- Add and subtract amounts of money.
- Multiply and divide amounts of money by small whole numbers.

## IV. Computation

**Teachers:** Children should know their basic addition and subtraction facts; review and reinforce as necessary to ensure mastery.

### A. ADDITION

- Review and practice basic addition facts.
- Mentally estimate a sum.
- Use mental computation strategies.
- Addition with and without regrouping: find the sum (up to 10,000) of any two whole numbers.

### B. SUBTRACTION

- Understand addition and subtraction as inverse operations; use addition to check subtraction.
- Review and practice basic subtraction facts.
- Mentally estimate the difference.
- Use mental computation strategies.
- Subtraction with and without regrouping: given two whole numbers of 10,000 or less, find the difference.

### C. MULTIPLICATION

- Master basic multiplication facts to  $10 \times 10$ .
- Mentally multiply, by 10, 100, and 1,000.
- Multiply two whole numbers, with and without regrouping, in which one factor is 9 or less and the other is a multi-digit number up to three digits.
- Write numbers in expanded form using multiplication, for example:  $9,278 = (9 \times 1,000) + (2 \times 100) + (7 \times 10) + 8$ .
- Estimate a product.
- Solve word problems involving multiplication.

### D. DIVISION

- Understand multiplication and division as inverse operations.
- Know the meaning of dividend, divisor, and quotient.
- Know basic division facts to  $100 \div 10$ .
- Know that you cannot divide by 0.
- Know that any number divided by 1 = that number.
- Divide two- and three-digit dividends by one-digit divisors.
- Solve division problems with remainders.
- Check division by multiplying (and adding remainder).

### E. SOLVING PROBLEMS AND EQUATIONS

- Solve two-step word problems.
- Solve equations in the form of  $\_\_ \times 9 = 63$ ;  $81 \div \_\_ = 9$ .
- Solve problems with more than one operation, as in  $(43 - 32) \times (5 + 3) = \_\_$ .
- Read and write expressions that use parentheses to indicate order of multiple operations.

## V. Measurement

### A. LINEAR MEASURE

- Make linear measurements in yards, feet, and inches; and, in centimeters and meters.
- Know that one foot = 12 inches; one yard = 36 inches; 3 feet = 1 yard; 1 meter = 100 centimeters; 1 meter is a little more than one yard.
- Measure and draw line segments in inches (to  $\frac{1}{4}$  inch), and in centimeters.
- Estimate linear measurements, then measure to check estimates.



**B. WEIGHT**

- Compare weights of objects using a balance scale.
- Estimate and measure weight in pounds and ounces; grams and kilograms.
- Know abbreviations: lb., oz., g, kg

**C. CAPACITY (VOLUME)**

- Estimate and measure liquid capacity in cups, pints, quarts, gallons, and liters.
- Know that 1 quart = 2 pints; 1 gallon = 4 quarts.
- Compare U.S. and metric liquid volumes: quart and liter (one liter is a little more than one quart).

**D. TEMPERATURE**

- Measure and record temperature in degrees Fahrenheit and Celsius.
- Know the degree sign: °
- Identify freezing point of water as  $32^{\circ}\text{ F} = 0^{\circ}\text{ C}$ .

**E. TIME**

- Read a clock face and tell time to the minute as either A.M. or P.M.; tell time in terms of both “minutes before” and “minutes after” the hour.
- Solve problems on elapsed time (how much time has passed?).
- Using a calendar, identify the date, day of the week, month, and year.
- Write the date using words (for name of month) and numbers, and only numbers.

**VI. Geometry**

- Identify lines as horizontal, vertical, perpendicular, or parallel.
- Name lines and line segments (for example, line AB; segment CD).
- Polygons: recognize vertex (plural: vertices); identify sides as line segments (for example, side CD); identify pentagon, hexagon, and octagon (regular).
- Identify angles by letter names (for example,  $\angle$  ABC); identify a right angle; know that there are four right angles in a square or rectangle.
- Compute area in square inches ( $\text{in}^2$ ) and square centimeters ( $\text{cm}^2$ ).
- Recognize and draw congruent figures; identify a line of symmetry, and create symmetric figures.
- Identify solid figures: sphere, cube, rectangular solid, pyramid, cone, cylinder.

## Science: Grade 3

**Teachers:** Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.



### I. Introduction to Classification of Animals

- Scientists classify animals according to the characteristics they share, for example:
  - Cold-blooded or warm-blooded
  - Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons)
- Different classes of vertebrates

**Teachers:** Children should become familiar with examples of animals in each class and some basic characteristics of each class, such as:

Fish: aquatic animals, breathe through gills, cold-blooded, most have scales, most develop from eggs that the female lays outside her body

Amphibians: live part of their lives in water and part on land, have gills when young, later develop lungs, cold-blooded, usually have moist skin

Reptiles: hatch from eggs, cold-blooded, have dry, thick, scaly skin

Birds: warm-blooded, most can fly, have feathers and wings, most build nests, hatch from eggs, most baby birds must be fed by parents and cared for until they can survive on their own (though some, like baby chickens and quail, can search for food a few hours after hatching)

Mammals: warm-blooded, have hair on their bodies, parents care for the young, females produce milk for their babies, breathe through lungs, most are terrestrial (live on land) though some are aquatic

### II. The Human Body

#### A. THE MUSCULAR SYSTEM

- Muscles
  - Involuntary and voluntary muscles

#### B. THE SKELETAL SYSTEM

- Skeleton, bones, marrow
- Musculo-skeletal connections
  - Ligaments
  - Tendons, Achilles tendon
  - Cartilage
- Skull, cranium
- Spinal column, vertebrae
- Joints
- Ribs, rib cage, sternum
- Scapula (shoulder blades), pelvis, tibia, fibula
- Broken bones, x-rays



### C. THE NERVOUS SYSTEM

- Brain: medulla, cerebellum, cerebrum, cerebral cortex
- Spinal cord
- Nerves
- Reflexes

### D. VISION: HOW THE EYE WORKS

- Parts of the eye: cornea, iris and pupil, lens, retina
- Optic nerve
- Farsighted and nearsighted

### E. HEARING: HOW THE EAR WORKS

- Sound as vibration
- Outer ear, ear canal
- Eardrum
- Three tiny bones (hammer, anvil, and stirrup) pass vibrations to the cochlea
- Auditory nerve

## III. Light and Optics

**Teachers:** Through experimentation and observation, introduce children to some of the basic physical phenomena of light, with associated vocabulary.

**Note:** Students will study light in more detail in grade 8.

- The speed of light: light travels at an amazingly high speed.
- Light travels in straight lines (as can be demonstrated by forming shadows).
- Transparent and opaque objects
- Reflection
  - Mirrors: plane, concave, convex
  - Uses of mirrors in telescopes and some microscopes
- The spectrum: use a prism to demonstrate that white light is made up of a spectrum of colors.
- Lenses can be used for magnifying and bending light (as in magnifying glass, microscope, camera, telescope, binoculars).

## IV. Sound

**Teachers:** Through experimentation and observation, introduce children to some of the basic physical phenomena of sound, with associated vocabulary.

**Note:** Students will study sound in more detail in grade 8.

- Sound is caused by an object vibrating rapidly.
- Sounds travel through solids, liquids, and gases.
- Sound waves are much slower than light waves.
- Qualities of sound
  - Pitch: high or low, faster vibrations = higher pitch, slower vibrations = lower pitch
  - Intensity: loudness and quietness
- Human voice
  - Larynx (voice box)
  - Vibrating vocal cords: longer, thicker vocal cords create lower, deeper voices
- Sound and how the human ear works
- Protecting your hearing

See above, II.E: Hearing.



## V. Ecology

**Teachers:** Some topics here, such as habitats, were introduced in first grade. In this grade, develop in more detail, and explore new topics.

- Habitats, interdependence of organisms and their environment
- The concept of a “balance of nature” (constantly changing, not a static condition)
- The food chain or food web: producers, consumers, decomposers (Although the tendency is to recognize the limits of these models as well. See also Grade 1.)
- Ecosystems: how they can be affected by changes in environment (for example, rainfall, food supply, etc.), and by man-made changes
- Man-made threats to the environment
  - Air pollution: emissions, smog
  - Water pollution: industrial waste, run-off from farming
- Measures we can take to protect the environment (for example, conservation, recycling)

## VI. Astronomy

- The “Big Bang” as one theory
- The universe: an extent almost beyond imagining
- Galaxies: Milky Way and Andromeda
- Our solar system
  - Sun: source of energy (heat and light)
  - The eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
- Planetary motion: orbit and rotation
  - How day and night on earth are caused by the earth’s rotation
  - Sunrise in the east and sunset in the west
  - How the seasons are caused by the earth’s orbit around the sun, tilt of the earth’s axis
- Gravity, gravitational pull
  - Gravitational pull of the moon (and to a lesser degree, the sun) causes ocean tides on earth
  - Gravitational pull of “black holes” prevents even light from escaping
- Asteroids, meteors (“shooting stars”), comets, Halley’s Comet
- How an eclipse happens
- Stars and constellations
- Orienteering (finding your way) by using North Star, Big Dipper
- Exploration of space
  - Observation through telescopes
  - Rockets and satellites: from unmanned to manned flights
  - Apollo 11, first landing on the moon: “One small step for a man, one giant leap for mankind.”
  - Space shuttle

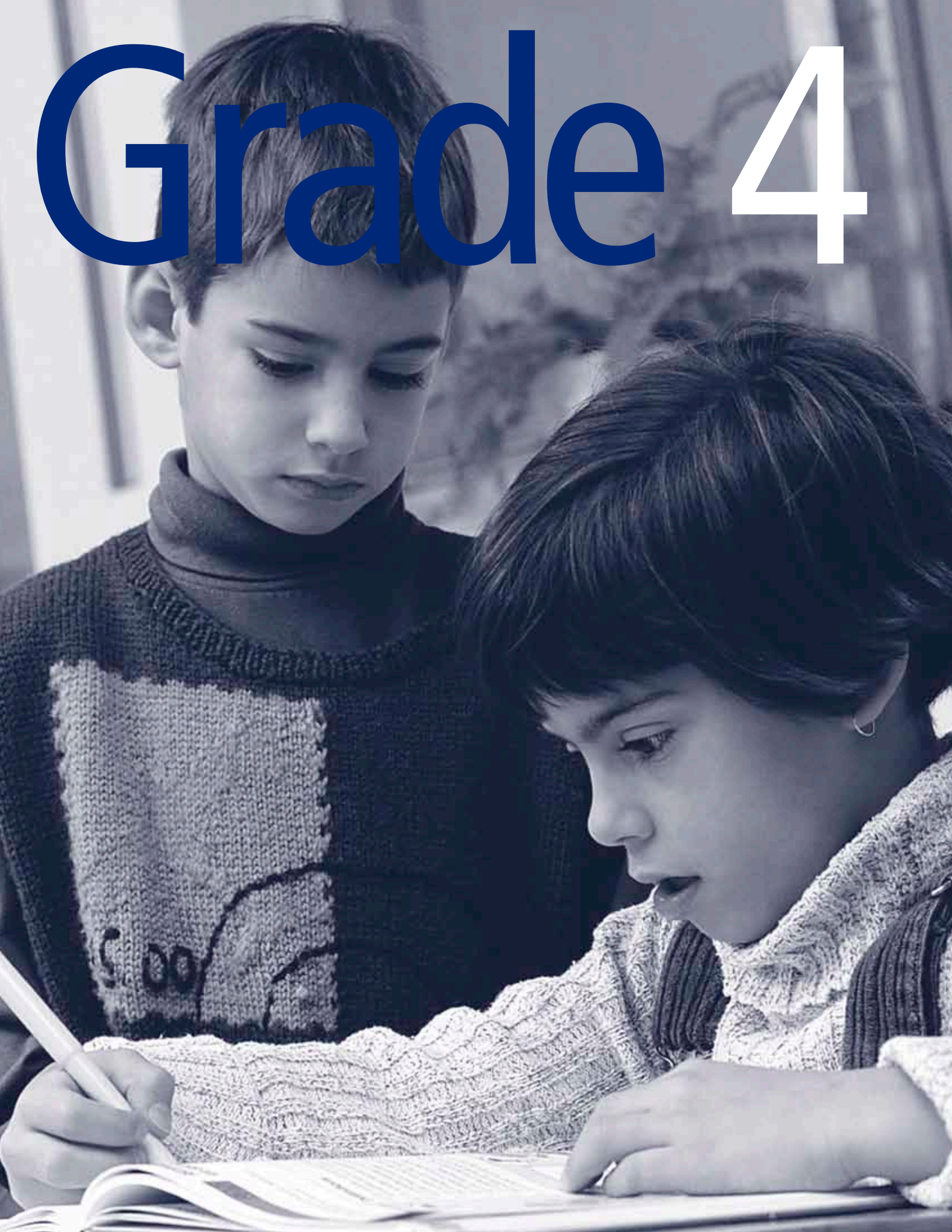
## VII. Science Biographies

See above, Sound, *re*  
Alexander Graham Bell;  
Astronomy, *re* Copernicus;  
Exploration of Space, *re*  
Mae Jemison; Ecology, *re*  
John Muir.

Alexander Graham Bell (invented the telephone)  
Copernicus (had new sun-centered idea about the solar system)  
Mae Jemison (astronaut and medical pioneer)  
John Muir (conservationist who helped create many national parks)



# Grade 4



# Overview of Topics

## Grade 4

### Language Arts

- I. Writing, Grammar, and Usage
  - A. Writing and Research
  - B. Grammar and Usage
- II. Poetry
  - A. Poems
  - B. Terms
- III. Fiction
  - A. Stories
  - B. Myths and Mythical Characters
  - C. Literary Terms
- IV. Speeches
- V. Sayings and Phrases

### History and Geography

#### World:

- I. World Geography
  - A. Spatial Sense
  - B. Mountains and Mountain Ranges
- II. Europe in the Middle Ages
  - A. Geography Related to the Development of Western Europe
  - B. Background
  - C. Developments in History of the Christian Church
  - D. Feudalism
  - E. The Norman Conquest
  - F. Growth of Towns
  - G. England in the Middle Ages
- III. The Spread of Islam and the "Holy Wars"
  - A. Islam
  - B. Development of Islamic Civilization
  - C. Wars Between Muslims and Christians
- IV. Early and Medieval African Kingdoms
  - A. Geography of Africa
  - B. Early African Kingdoms
  - C. Medieval Kingdoms of the Sudan
- V. China: Dynasties and Conquerors

#### American:

- I. The American Revolution
  - A. Background: The French and Indian War
  - B. Causes and Provocations
  - C. The Revolution
- II. Making a Constitutional Government
  - A. Main Ideas Behind the Declaration of Independence
  - B. Making a New Government: From the Declaration to the Constitution
  - C. The Constitution of the United States
  - D. Levels and Functions of Government (National, State, Local)
- III. Early Presidents and Politics
- IV. Reformers
- V. Symbols and Figures

### Visual Arts

- I. Art of the Middle Ages in Europe
- II. Islamic Art and Architecture
- III. The Art of Africa
- IV. The Art of China
- V. The Art of a New Nation: The United States

### Music

- I. Elements of Music
- II. Listening and Understanding
  - A. The Orchestra
  - B. Vocal Ranges
  - C. Composers and Their Music
  - D. Musical Connections
- III. Songs

### Mathematics

- I. Numbers and Number Sense
- II. Fractions and Decimals
  - A. Fractions
  - B. Decimals
- III. Money
- IV. Computation
  - A. Multiplication
  - B. Division
  - C. Solving Problems and Equations
- V. Measurement
- VI. Geometry

### Science

- I. The Human Body
  - A. The Circulatory System
  - B. The Respiratory System
- II. Chemistry: Basic Terms and Concepts
  - A. Atoms
  - B. Properties of Matter
  - C. Elements
  - D. Solutions
- III. Electricity
- IV. Geology: The Earth and Its Changes
  - A. The Earth's Layers
  - B. How Mountains Are Formed
  - C. Rocks
  - D. Weathering and Erosion
- V. Meteorology
- VI. Science Biographies

## Language Arts: Grade 4

The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Grade 4, domains include:** Europe in the Middle Ages; The Spread of Islam and the “Holy Wars”; Early and Medieval African Kingdoms; China: Dynasties and Conquerors; The American Revolution; Making a Constitutional Government; Early Presidents and Politics; Reformers; The Human Body; Chemistry: Basic Terms and Concepts; Electricity; Geology: The Earth and Its Changes; Meteorology.

**NOTE:** The objectives listed in **I. Writing, Grammar, and Usage** are currently under revision, as part of the *Core Knowledge Language Arts* program development for Grades 3–5. The revised Grade 4 goals and objectives will be conceptually consistent with the K–2 language arts sections of the 2010 edition of the *Sequence* and will be posted at [www.coreknowledge.org](http://www.coreknowledge.org) as part of the online *Sequence* as soon as they are available.

### I. Writing, Grammar, and Usage

**Teachers:** Children should be given many opportunities for writing, both imaginative and expository, but place a stronger emphasis than in previous grades on expository writing, including, for example, summaries, book reports, and descriptive essays. Provide guidance that strikes a balance between encouraging creativity and requiring correct use of conventions. Children should be given more responsibility for (and guidance in) editing for organization and development of ideas, and proofreading to correct errors in spelling, usage, and mechanics. In fourth grade, children should be able to spell most words or provide a highly probable spelling, and know how to use a dictionary to check and correct words that present difficulty. They should receive regular practice in vocabulary enrichment.

**Note:** Introduce fourth graders to the purpose of a bibliography, and have them prepare one that identifies basic publication information about the sources used, such as author, title, and date of publication.

#### A. WRITING AND RESEARCH

- Produce a variety of types of writing—including stories, reports, summaries, descriptions, poems, letters—with a coherent structure or story line.
- Know how to gather information from different sources (such as an encyclopedia, magazines, interviews, observations, atlas, on-line), and write short reports presenting the information in his or her own words, with attention to the following:
  - understanding the purpose and audience of the writing
  - defining a main idea and sticking to it
  - providing an introduction and conclusion
  - organizing material in coherent paragraphs
  - documenting sources in a rudimentary bibliography
- Organize material in paragraphs and understand
  - how to use a topic sentence
  - how to develop a paragraph with examples and details
  - that each new paragraph is indented

**B. GRAMMAR AND USAGE**

- Understand what a complete sentence is, and identify subject and predicate in single-clause sentences  
distinguish complete sentences from fragments  
identify and correct run-on sentences
- Identify subject and verb in a sentence and understand that they must agree.
- Identify and use different sentence types: declarative, interrogative, imperative, exclamatory.
- Know the following parts of speech and how they are used: nouns, pronouns, verbs (action verbs and auxiliary verbs), adjectives (including articles), adverbs, conjunctions (*and, but, or*), interjections.
- Know how to use the following punctuation:
  - end punctuation: period, question mark, or exclamation point
  - comma: between day and year when writing a date, between city and state in an address, in a series, after *yes* and *no*, before conjunctions that combine sentences, inside quotation marks in dialogue
  - apostrophe: in contractions, in singular and plural possessive nouns
  - quotation marks: in dialogue, for titles of poems, songs, short stories, magazine articles
- Understand what synonyms and antonyms are, and provide synonyms or antonyms for given words.
- Use underlining or italics for titles of books.
- Know how the following prefixes and suffixes affect word meaning:
  - Prefixes:
    - im, in* (as in impossible, incorrect)
    - non* (as in nonfiction, nonviolent)
    - mis* (as in misbehave, misspell)
    - en* (as in enable, endanger)
    - pre* (as in prehistoric, pregame)
  - Suffixes:
    - ily, y* (as in easily, speedily, tricky)
    - ful* (as in thoughtful, wonderful)
    - able, ible* (as in washable, flexible)
    - ment* (as in agreement, amazement)
- Review correct usage of problematic homophones:
  - their, there, they're
  - your, you're
  - its, it's
  - here, hear
  - to, too, two

**Note:** A brief review of prefixes and suffixes introduced in third grade is recommended. Prefixes: *re, un, dis*. Suffixes: *er* and *or, less, ly*.

**II. Poetry**

**Teachers:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new, and to have children write their own poems. To bring children into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words. At this grade, poetry should be a source of delight; technical analysis should be delayed until later grades.

**A. POEMS**

Afternoon on a Hill (Edna St. Vincent Millay)  
 Clarence (Shel Silverstein)  
 Clouds (Christina Rossetti)  
 Concord Hymn (Ralph Waldo Emerson)  
 Dreams (Langston Hughes)  
 the drum (Nikki Giovanni)

- Fog (Carl Sandburg)
- George Washington (Rosemary and Stephen Vincent Benet)
- Humanity (Elma Stuckey)
- Life Doesn't Frighten Me (Maya Angelou)
- Monday's Child Is Fair of Face (traditional)
- Paul Revere's Ride (Henry Wadsworth Longfellow)
- The Pobble Who Has No Toes (Edward Lear)
- The Rhinoceros (Ogden Nash)
- Things (Eloise Greenfield)
- A Tragic Story (William Makepeace Thackeray)

**B. TERMS**

stanza and line

**III. Fiction**

**Teachers:** In fourth grade, children should be fluent, competent readers of appropriate materials. Decoding skills should be automatic, allowing the children to focus on meaning. Regular practice in reading aloud and independent silent reading should continue. Children should read outside of school at least 20 minutes daily.

The titles below constitute a selected core of stories for this grade. Teachers and parents are encouraged to expose children to many more stories, and to encourage children to write their own stories. Children should also be exposed to nonfiction prose: biographies, books about science and history, books on art and music, etc. Also, engage children in dramatic activities, possibly with one of the stories below in the form of a play. Some of the stories below—such as *Gulliver's Travels*, *Robinson Crusoe*, and the stories by Washington Irving—are available in editions adapted for young readers.

**A. STORIES**

- The Fire on the Mountain (an Ethiopian folktale)
- from *Gulliver's Travels*: Gulliver in Lilliput and Brobdingnag (Jonathan Swift)
- The Legend of Sleepy Hollow* and *Rip Van Winkle* (Washington Irving)
- The Magic Brocade (a Chinese folktale)
- Pollyanna* (Eleanor Porter)
- Robinson Crusoe* (Daniel Defoe)
- Robin Hood
- St. George and the Dragon
- Treasure Island* (Robert Louis Stevenson)

**B. MYTHS AND MYTHICAL CHARACTERS**

- Legends of King Arthur and the Knights of the Round Table
  - How Arthur Became King
  - The Sword in the Stone
  - The Sword Excalibur
  - Guinevere
  - Merlin and the Lady of the Lake
  - Sir Lancelot

**C. LITERARY TERMS**

novel  
plot  
setting

See also American History 4: American Revolution, re stories by Washington Irving.

**Note:** "The Magic Brocade" is also known as "The Chuang Brocade," "The Enchanted Tapestry," "The Magic Tapestry," and "The Weaving of a Dream."

See also World History 4: The Middle Ages, re "Robin Hood" and "St. George and the Dragon."

See also World History 4: The Middle Ages, feudalism and chivalry, re Legends of King Arthur.

#### IV. Speeches

**Teachers:** Famous passages from the following speeches should be taught in connection with topics in American History 4.

Patrick Henry: "Give me liberty or give me death"

Sojourner Truth: "Ain't I a woman?"

#### V. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

An ounce of prevention is worth a pound of cure.  
 As the crow flies  
 Beauty is only skin deep.  
 The bigger they are, the harder they fall.  
 Birds of a feather flock together.  
 Blow hot and cold  
 Break the ice  
 Bull in a china shop  
 Bury the hatchet  
 Can't hold a candle to  
 Don't count your chickens before they hatch.  
 Don't put all your eggs in one basket.  
 Etc.  
 Go to pot  
 Half a loaf is better than none.  
 Haste makes waste.  
 Laugh and the world laughs with you.  
 Lightning never strikes twice in the same place.  
 Live and let live.  
 Make ends meet.  
 Make hay while the sun shines.  
 Money burning a hole in your pocket  
 Once in a blue moon  
 One picture is worth a thousand words.  
 On the warpath  
 RSVP  
 Run-of-the-mill  
 Seeing is believing.  
 Shipshape  
 Through thick and thin  
 Timbuktu  
 Two wrongs don't make a right.  
 When it rains, it pours.  
 You can lead a horse to water, but you can't make it drink.



# History and Geography: Grade 4

## WORLD HISTORY AND GEOGRAPHY

### I. World Geography

**Teachers:** The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures. Many geographic topics are listed below in connection with historical topics.

#### A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Review as necessary map-reading skills and concepts, as well as geographic terms, from previous grades (see Geography guidelines for grade 3).

- Measure distances using map scales.
- Read maps and globes using longitude and latitude, coordinates, degrees.
- Prime Meridian (0 degrees); Greenwich, England; 180° Line (International Date Line)
- Relief maps: elevations and depressions

#### B. MOUNTAINS AND MOUNTAIN RANGES

- Major mountain ranges
  - South America: Andes
  - North America: Rockies and Appalachians
  - Asia: Himalayas and Urals
  - Africa: Atlas Mountains
  - Europe: Alps
- High mountains of the world
  - Asia: Everest
  - North America: McKinley
  - South America: Aconcagua
  - Europe: Mont Blanc
  - Africa: Kilimanjaro

### II. Europe in the Middle Ages

#### A. GEOGRAPHY RELATED TO THE DEVELOPMENT OF WESTERN EUROPE

- Rivers: Danube, Rhine, Rhone, and Oder
- Mountains: Alps, Pyrenees
- Iberian Peninsula: Spain and Portugal, proximity to North Africa
- France: the region known as Normandy
- Mediterranean Sea, North Sea, Baltic Sea
- British Isles: England, Ireland, Scotland, Wales; the English Channel

#### B. BACKGROUND

- Beginning about A.D. 200, nomadic, warlike tribes began moving into western Europe, attacking the western Roman Empire; city of Rome sacked by Visigoths in A.D. 410  
The Huns: Attila the Hun
- Peoples settling in old Roman Empire included Vandals (cf. English word “vandalism”), Franks in Gaul (now France), Angles (in England: cf. “Angle-land”) and Saxons.
- The “Middle Ages” are generally dated from about A.D. 450 to 1400. Approximately the first three centuries after the fall of Rome (A.D. 476) are sometimes called the “Dark Ages.”

See also Science 4: How Mountains Are Formed.

See also Visual Arts 4: Art of the Middle Ages in Europe: Medieval Madonnas and Gothic architecture. And see Music 4, Gregorian chant.

See also Language Arts 4: Legends of King Arthur.

**C. DEVELOPMENTS IN HISTORY OF THE CHRISTIAN CHURCH**

- Growing power of the pope (Bishop of Rome)
- Arguments among Christians: split into Roman Catholic Church and Eastern Orthodox Church
- Conversion of many Germanic peoples to Christianity
- Rise of monasteries, preservation of classical learning
- Charlemagne
  - Temporarily unites the western Roman Empire
  - Crowned Emperor by the pope in A.D. 800, the idea of a united “Holy Roman Empire”
  - Charlemagne’s love and encouragement of learning

**D. FEUDALISM**

- Life on a manor, castles
- Lords, vassals, knights, freedmen, serfs
- Code of chivalry
- Knight, squire, page

**E. THE NORMAN CONQUEST**

- Locate the region called Normandy.
- William the Conqueror: Battle of Hastings, 1066

**F. GROWTH OF TOWNS**

- Towns as centers of commerce, guilds and apprentices
- Weakening of feudal ties

**G. ENGLAND IN THE MIDDLE AGES**

- Henry II
  - Beginnings of trial by jury
  - Murder of Thomas Becket in Canterbury Cathedral
  - Eleanor of Aquitaine
- Significance of the Magna Carta, King John, 1215
- Parliament: beginnings of representative government
- The Hundred Years’ War
  - Joan of Arc
- The Black Death sweeps across Europe

**III. The Spread of Islam and the “Holy Wars”**

**Teachers:** Since religion is a shaping force in the story of civilization, the *Core Knowledge Sequence* introduces children in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. In the fourth grade the focus is on history, geography, and the development of a civilization. The purpose is not to explore matters of theology but to understand the place of religion and religious ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past.

A review of major religions introduced in earlier grades in the *Core Knowledge Sequence* is recommended: Judaism/Christianity/Islam (Grade 1) and Hinduism/Buddhism (grade 2).

**A. ISLAM**

- Muhammad: the last prophet
- Allah, Qur’an, *jihad*
- Sacred city of Makkah, mosques

**Note:** In older sources you may find these formerly used spellings: Mohammed, Mecca, Koran.

- “Five pillars” of Islam:
  - Declaration of faith
  - Prayer (five times daily), facing toward Makkah
  - Fasting during Ramadan
  - Help the needy
  - Pilgrimage to Makkah
- Arab peoples unite to spread Islam in northern Africa, through the eastern Roman empire, and as far west as Spain.
- Islamic Turks conquer region around the Mediterranean; in 1453, Constantinople becomes Istanbul.
- The first Muslims were Arabs, but today diverse people around the world are Muslims.

#### B. DEVELOPMENT OF ISLAMIC CIVILIZATION

- Contributions to science and mathematics: Avicenna (Ibn Sina), Arabic numerals
- Muslim scholars translate and preserve writings of Greeks and Romans
- Thriving cities as centers of Islamic art and learning, such as Cordoba (Spain)

#### C. WARS BETWEEN MUSLIMS AND CHRISTIANS

- The Holy Land, Jerusalem
- The Crusades
- Saladin and Richard the Lion-Hearted
- Growing trade and cultural exchange between east and west

See also Visual Arts 4: Islamic Art and Architecture.

### IV. Early and Medieval African Kingdoms

#### A. GEOGRAPHY OF AFRICA

- Mediterranean Sea and Red Sea, Atlantic and Indian Oceans
- Cape of Good Hope
- Madagascar
- Major rivers: Nile, Niger, Congo
- Atlas Mountains, Mt. Kilimanjaro
- Contrasting climate in different regions:
  - Deserts: Sahara, Kalahari
  - Tropical rain forests (along lower West African coast and Congo River)
  - Savanna (grasslands)
  - The Sahel (the fertile region below the Sahara)

#### B. EARLY AFRICAN KINGDOMS

- Kush (in a region also called Nubia): once ruled by Egypt, then became rulers of Egypt
- Aksum (also spelled Axum): a trading kingdom in what is now Ethiopia

See also Language Arts 4: “The Fire on the Mountain.”

#### C. MEDIEVAL KINGDOMS OF THE SUDAN

- Trans-Saharan trade led to a succession of flourishing kingdoms: Ghana, Mali, and Songhai
  - Camel caravans
  - Trade in gold, iron, salt, ivory, and slaves
  - The city of Timbuktu: center of trade and learning
  - Spread of Islam into West Africa through merchants and travelers
  - Ibn Batuta (also spelled Battutah, Batuta), world traveler and geographer
- Mali: Sundiata Keita, Mansa Musa
- Songhai: Askia Muhammad

See also Visual Arts 4: The Art of Africa.

**Note:** In older sources you are likely to find Chinggis Khan spelled as Genghis Khan, and Khubilai Khan spelled as Kublai Khan.

See also Visual Arts 4: The Art of China; and Language Arts 4: “The Magic Brocade.”

## V. China: Dynasties and Conquerors

- Qin Shihuangdi, first emperor, begins construction of Great Wall
- Han dynasty: trade in silk and spices, the Silk Road, invention of paper
- Tang and Song dynasties: highly developed civilization, extensive trade, important inventions (including compass, gunpowder, paper money)
- Mongol invasions and rule
  - Chinggis Khan and the “Golden Horde”
  - Khubilai Khan: establishes capital at what is now Beijing
  - Marco Polo
- Ming dynasty
  - The “Forbidden City”
  - Explorations of Zheng He

# American History and Geography



## AMERICAN HISTORY AND GEOGRAPHY

**Teachers:** The following guidelines are meant to complement any locally required studies of the family, community, state, or region. Note that in fifth grade the American Geography requirements include “fifty states and capitals”; teachers in grades two through four may want to introduce these incrementally to prepare for the fifth grade requirement.

### I. The American Revolution

**Teachers:** In fourth grade students should undertake a detailed study of the causes, major figures, and consequences of the American Revolution, with a focus on main events and figures, as well as these questions: What caused the colonists to break away and become an independent nation? What significant ideas and values are at the heart of the American Revolution?

#### A. BACKGROUND: THE FRENCH AND INDIAN WAR

- Also known as the Seven Years’ War, part of an ongoing struggle between Britain and France for control of colonies in various regions around the world (in this case, in North America)
- Alliances with Native Americans
- The Battle of Quebec
- British victory gains territory but leaves Britain financially weakened.

#### B. CAUSES AND PROVOCATIONS

- British taxes, “No taxation without representation”
- Boston Massacre, Crispus Attucks
- Boston Tea Party
- The Intolerable Acts close the port of Boston and require Americans to provide quarters for British troops
- First Continental Congress protests to King George III
- Thomas Paine’s *Common Sense*

#### C. THE REVOLUTION

- Paul Revere’s ride, “One if by land, two if by sea”
- Lexington and Concord  
The “shot heard ’round the world”  
Redcoats and Minute Men
- Bunker Hill
- Second Continental Congress: George Washington appointed commander in chief of Continental Army
- Declaration of Independence  
Primarily written by Thomas Jefferson  
Adopted July 4, 1776  
“We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness.”
- Women in the Revolution: Elizabeth Freeman, Deborah Sampson, Phillis Wheatley, Molly Pitcher
- Loyalists (Tories)
- Victory at Saratoga, alliance with France
- European helpers (Lafayette, the French fleet, Bernardo de Galvez, Kosciusko, von Steuben)
- Valley Forge
- Benedict Arnold

See also Language Arts 4:  
stories by Washington Irving,  
and speech by Patrick Henry,  
“Give me liberty. . .”

- John Paul Jones: “I have not yet begun to fight.”
- Nathan Hale: “I only regret that I have but one life to lose for my country.”
- Cornwallis: surrender at Yorktown

## II. Making a Constitutional Government

**Teachers:** Examine some of the basic values and principles of American democracy, in both theory and practice, as defined in the Declaration of Independence and the U. S. Constitution, both in historical context and in terms of present-day practice. In examining the significance of the U. S. Constitution, introduce students to the unique nature of the American experiment, the difficult task of establishing a democratic government, the compromises the framers of the Constitution were willing to make, and the persistent threats to success. In order to appreciate the boldness and fragility of the American attempt to establish a republican government based on a constitution, students should know that republican governments were rare at this time. Discuss with students basic questions and issues about government, such as: Why do societies need government? Why does a society need laws? Who makes the laws in the United States? What might happen in the absence of government and laws?

### A. MAIN IDEAS BEHIND THE DECLARATION OF INDEPENDENCE

- The proposition that “All men are created equal”
- The responsibility of government to protect the “unalienable rights” of the people
- Natural rights: “Life, liberty, and the pursuit of happiness”
- The “right of the people ... to institute new government”

### B. MAKING A NEW GOVERNMENT: FROM THE DECLARATION TO THE CONSTITUTION

- Definition of “republican” government: republican = government by elected representatives of the people
- Articles of Confederation: weak central government
- “Founding Fathers”: James Madison as “Father of the Constitution”
- Constitutional Convention
  - Arguments between small and large states
  - The divisive issue of slavery, “three-fifths” compromise

### C. THE CONSTITUTION OF THE UNITED STATES

- Preamble to the Constitution: “We the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.”
- The separation and sharing of powers in American government: three branches of government
  - Legislative branch: Congress = House of Representatives and Senate, makes laws
  - Executive branch: headed by the president, carries out laws
  - Judicial branch: a court system headed by the Supreme Court (itself headed by the Chief Justice), deals with those who break laws and with disagreements about laws
- Checks and balances, limits on government power, veto
- The Bill of Rights: first ten amendments to the Constitution, including:
  - Freedom of religion, speech, and the press (First Amendment)
  - Protection against “unreasonable searches and seizures”
  - The right to “due process of law”
  - The right to trial by jury
  - Protection against “cruel and unusual punishments”

**Note:** The National Standards for Civics and Government recommend that students address the issue of power vs. authority: “Where do people in government get the authority to make, apply, and enforce rules and laws and manage disputes about them?” “Identify examples of authority, e.g., the authority of teachers and administrators to make rules for schools, the authority of a crossing guard to direct traffic, the authority of the president to represent the United States in dealing with other nations.” “Identify examples of power without authority, e.g., a neighborhood bully forcing younger children to give up their lunch money, a robber holding up a bank, a gang leader ordering members to injure others.” Available from the Center for Civic Education, 5145 Douglas Fir Road, Calabasas, CA 91302; tel. (818) 591-9321.

**D. LEVELS AND FUNCTIONS OF GOVERNMENT (NATIONAL, STATE, LOCAL)**

- Identify current government officials, including  
President and vice-president of the U.S.  
State governor
- State governments: established by state constitutions (which are subordinate to the U.S. Constitution, the highest law in the land), like the national government, each state government has its legislative, executive, and judicial branches
- Local governments: purposes, functions, and officials
- How government services are paid for (taxes on individuals and businesses, fees, tolls, etc.)
- How people can participate in government

**III. Early Presidents and Politics**

- Define: cabinet and administration
- George Washington as first President, Vice-President John Adams
- John Adams, second president, Abigail Adams
- National capitol established at Washington, D.C.
- Growth of political parties  
Arguments between Thomas Jefferson and Alexander Hamilton: two opposed visions of America, as an agricultural or industrial society  
Present-day system: two main parties (Democrats and Republicans), and independents
- Thomas Jefferson, third president  
Correspondence between Jefferson and Benjamin Banneker  
Jefferson as multifaceted leader (architect, inventor, musician, etc.)  
The Louisiana Purchase (review from grade 1) doubles the nation's size and gains control of Mississippi River.
- James Madison, fourth president  
War of 1812 (briefly review from grade 2)
- James Monroe, fifth president, the Monroe Doctrine
- John Quincy Adams, sixth president
- Andrew Jackson, seventh president  
Popular military hero, Battle of New Orleans in War of 1812  
Presidency of "the common man"  
Indian removal policies

See also Visual Arts 4:  
The Art of a New Nation,  
Architecture of Monticello;  
and Science Biographies 4:  
Benjamin Banneker.

**IV. Reformers**

**Teachers: Introduce children to some prominent people and movements in the ferment of social change in America prior to the Civil War:**

- Abolitionists
- Dorothea Dix and the treatment of the insane
- Horace Mann and public schools
- Women's rights  
Seneca Falls convention  
Elizabeth Cady Stanton  
Lucretia Mott  
Amelia Bloomer  
Sojourner Truth

See also Language Arts 4:  
Speeches, Sojourner Truth's  
"Ain't I a woman?"

**V. Symbols and Figures**

- Recognize and become familiar with the significance of  
*Spirit of '76* (painting)  
White House and Capitol Building  
Great Seal of the United States

## Visual Arts: Grade 4

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

In studying the works of art specified below, and in creating their own art, students should review, develop, and apply concepts introduced in previous grades, such as line, shape, form, space, texture, color, light, design, symmetry, etc.

### I. Art of the Middle Ages in Europe

**Teachers:** Study of the following works of art may be integrated with study of related topics in fourth grade World History: Europe in the Middle Ages.

- Note the generally religious nature of European art in the Middle Ages, including Examples of medieval Madonnas (such as *Madonna and Child on a Curved Throne*—13th century Byzantine)  
Illuminated manuscripts (such as *The Book of Kells*)  
Tapestries (such as the Unicorn tapestries)
- Become familiar with features of Gothic architecture (spires, pointed arches, flying buttresses, rose windows, gargoyles and statues) and famous cathedrals, including Notre Dame (Paris).

### II. Islamic Art and Architecture

**Teachers:** Study of the following works of art may be integrated with study of related topics in fourth grade World History: The Spread of Islam.

- Become familiar with examples of Islamic art, including illuminated manuscript and illumination of the Qur’an (Koran).
- Note characteristic features of Islamic architecture, such as domes and minarets, in Dome of the Rock (Mosque of Omar), Jerusalem  
Alhambra Palace, Spain  
Taj Mahal, India

### III. The Art of Africa

**Teachers:** Study of the following works of art may be integrated with study of related topics in fourth grade World History: Early and Medieval African Kingdoms.

- Note the spiritual purposes and significance of many African works of art, such as masks used in ceremonies for planting, harvesting, or hunting.
- Become familiar with examples of art from specific regions and peoples in Africa, such as  
Antelope headdresses of Mali  
Sculptures by Yoruba artists in the city of Ife  
Ivory carvings and bronze sculptures of Benin



#### IV. The Art of China

**Teachers:** Study of the following works of art may be integrated with study of related topics in fourth grade World History, China: Dynasties and Conquerors.

- Become familiar with examples of Chinese art, including
  - Silk scrolls
  - Calligraphy (the art of brush writing and painting)
  - Porcelain

#### V. The Art of a New Nation: The United States

**Teachers:** Study of the following works of art may be integrated with study of related topics in fourth grade American History.

**Note:** While *Washington Crossing the Delaware* is not in origin an American work of art—it was painted by Emanuel Leutze, a German, some seventy-five years after the event it depicts—it has become widely recognized and embraced as a symbol of the American Revolution.

- Become familiar with famous portraits and paintings, including
  - John Singleton Copley, *Paul Revere*
  - Gilbert Stuart, *George Washington*
  - Washington Crossing the Delaware*
- Become familiar with the architecture of Thomas Jefferson's Monticello.

# Music: Grade 4

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).



## I. Elements of Music

- Through participation, become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  - Recognize a steady beat, accents, and the downbeat; play a steady beat and a simple rhythm pattern.
  - Discriminate between fast and slow; gradually slowing down and getting faster.
  - Discriminate between differences in pitch: high and low.
  - Discriminate between loud and soft; gradually increasing and decreasing volume.
  - Understand *legato* (smoothly flowing progression of notes) and *staccato* (crisp, distinct notes).
  - Sing unaccompanied, accompanied, and in unison.
  - Recognize harmony; sing simple rounds and canons.
  - Recognize verse and refrain; also, introduction and coda.
  - Continue work with timbre and phrasing.
  - Recognize theme and variations, and listen to Mozart, *Variations on “Ah! vous dirai-je Maman”* (famously known as “Twinkle Twinkle Little Star”).
  - Sing or play simple melodies.
- Understanding the following notation:
  - names of lines and spaces in the treble clef; middle C
  - ♩ treble clef, ≡ staff, | bar line, || double bar line, measure, repeat signs
  - whole note    ½ half note    ¼ quarter note    ⅛ eighth note
  - whole rest, half rest, quarter rest
  - tied notes and dotted notes
  - ♯ sharps    ♭ flats
  - Da capo* [*DC*] *al fine*
  - meter signature  $\frac{4}{4}$      $\frac{2}{4}$      $\frac{3}{4}$
  - soft *pp*    *p*    *mp*    loud *mf*    *f*    *ff*

## II. Listening and Understanding

**Teachers:** Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

### A. THE ORCHESTRA

- Review the orchestra, including families of instruments and specific instruments, by listening to Benjamin Britten, *The Young Person’s Guide to the Orchestra*.

**B. VOCAL RANGES**

**Teachers:** Students should learn to recognize and name the different vocal ranges, and apply their knowledge by beginning part singing.

See below, Composers and Their Music: Mozart, *Magic Flute*.

Recognize vocal ranges of the female voice:

- high = soprano
- middle = mezzo soprano
- low = alto

Recognize vocal ranges of the male voice:

- high = tenor
- middle = baritone
- low = bass

**C. COMPOSERS AND THEIR MUSIC**

**Teachers:** Provide brief, child-friendly biographical profiles of the following composers, and listen to representative works.

**Note:** Children were introduced to Mozart and the first movement of *A Little Night Music* in first grade.

- George Frederick Handel, “Hallelujah Chorus” from *The Messiah*
- Franz Joseph Haydn, *Symphony No. 94* (“*Surprise*”)
- Wolfgang Amadeus Mozart, *The Magic Flute*, selections, including:
  - Overture; Introduction, “Zu Hilfe! Zu Hilfe!” (Tamino, Three Ladies); Aria, “Der Vogelfänger bin ich ja” (Papageno); Recitative and Aria, “O zittre nicht, mein lieber Sohn!” (Queen of the Night); Aria, “Ein Mädchen oder Weibchen” (Papageno); Duet, “Pa-pa-gena! Pa-pa-geno!” (Papageno and Papagena); Finale, Recitative and Chorus, “Die Strahlen der Sonne” (Sarastro and Chorus)

**D. MUSICAL CONNECTIONS**

**Teachers:** Introduce children to the following in connection with topics in other disciplines:

See also World History 4: The Middle Ages, re Gregorian chant.

- Gregorian chant

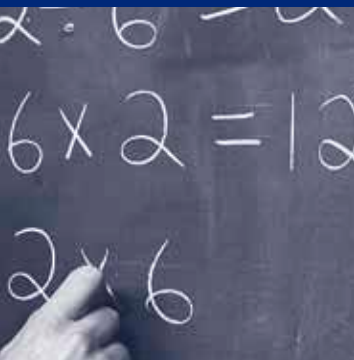
**III. Songs**

- Auld Lang Syne
- Blow the Man Down
- Cockles and Mussels
- Comin’ Through the Rye
- I Love the Mountains (round) ?
- Loch Lomond
- My Grandfather’s Clock
- Taps
- The Yellow Rose of Texas
- Waltzing Matilda

Songs of the U.S. Armed Forces:

- Air Force Song
- Navy Song (Anchors Aweigh)
- The Army Goes [The Caissons Go] Rolling Along
- The Marine’s Hymn

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



### I. Numbers and Number Sense

- Read and write numbers (in digits and words) up to nine digits.
- Recognize place value up to hundred millions.
- Order and compare numbers to 999,999,999 using the signs  $<$ ,  $>$ , and  $=$ .
- Write numbers in expanded form.
- Use a number line; locate positive and negative whole numbers on a number line.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand.
- Identify perfect squares (and square roots) to 144; recognize the square root sign:  $\sqrt{\quad}$
- Identify Roman numerals from 1 to 1,000 (I - M), and identify years as written in Roman numerals.
- Create and interpret bar graphs and line graphs.
- Plot points on a coordinate plane (grid), using ordered pairs of positive whole numbers.
- Know the meanings of multiple, factor, prime number, and composite number.

### II. Fractions and Decimals

#### A. FRACTIONS

- Recognize fractions to one-twelfth.
- Identify numerator and denominator.
- Write mixed numbers; change improper fractions to mixed numbers and vice versa.
- Recognize equivalent fractions (for example,  $\frac{1}{2} = \frac{3}{6}$ ).
- Put fractions in lowest terms.
- Rename fractions with unlike denominators to fractions with common denominators.
- Compare fractions with like and unlike denominators, using the signs  $<$ ,  $>$ , and  $=$ .
- Solve problems in the form of  $\frac{2}{3} = \frac{\quad}{12}$ .
- Add and subtract fractions with like denominators.
- Express simple outcomes as fractions (for example, 3 out of 4 as  $\frac{3}{4}$ ).

#### B. DECIMALS

- Read and write decimals to the nearest thousandth.
- Read and write decimals as fractions (for example,  $0.39 = 39/100$ ).
- Write decimal equivalents for halves, quarters, eighths, and tenths.
- Compare fractions to decimals using the signs  $<$ ,  $>$ , and  $=$ .
- Write decimals in expanded form.
- Round decimals to the nearest tenth; to the nearest hundredth.
- Compare decimals, using the signs  $<$ ,  $>$ , and  $=$ .
- Read and write decimals on a number line.
- Add and subtract with decimal numbers to two places.

### III. Money

- Solve problems involving making change in amounts up to \$100.00.
- Solve multiplication and division problems with money.

### IV. Computation

**Teachers:** By this grade level, children should have mastered all basic whole number operations for addition and subtraction. Review and reinforce topics from previous grades as necessary.

#### A. MULTIPLICATION

- Review and reinforce basic multiplication facts to  $10 \times 10$ .
- Mentally multiply by 10, 100, and 1,000.
- Identify multiples of a given number; common multiples of two given numbers.
- Multiply by two-digit and three-digit numbers.
- Write numbers in expanded form using multiplication.
- Estimate a product.
- Use mental computation strategies for multiplication, such as breaking a problem into partial products, for example:  $3 \times 27 = (3 \times 20) + (3 \times 7) = 60 + 21 = 81$ .
- Check multiplication by changing the order of the factors.
- Multiply three factors in any given order.
- Solve word problems involving multiplication.

#### B. DIVISION

- Understand multiplication and division as inverse operations.
- Review the meaning of dividend, divisor, and quotient.
- Review and reinforce basic division facts to  $100 \div 10$ .
- Identify different ways of writing division problems:  $28 \div 7$     $7 \overline{)28}$     $28/7$
- Identify factors of a given number; common factors of two given numbers.
- Review: you cannot divide by 0; any number divided by 1 = that number.
- Estimate the quotient.
- Divide dividends up to four-digits by one-digit and two-digit divisors.
- Solve division problems with remainders.
- Check division by multiplying (and adding remainder).

#### C. SOLVING PROBLEMS AND EQUATIONS

- Solve two-step word problems.
- Solve equations in the form of  $\_\_ \times 9 = 63$ ;  $81 \div \_\_ = 9$ .
- Solve problems with more than one operation, as in  $(72 \div 9) \times (36 \div 4) = \_\_$
- Equality properties
  - Know that equals added to equals are equal.
  - Know that equals multiplied by equals are equal.
- Use letters to stand for any number, as in working with a formula (for example, area of rectangle:  $A = L \times W$ ).



## V. Measurement

- Linear measure: estimate and make linear measurements in yards, feet, and inches (to  $\frac{1}{8}$  in.); and in meters, centimeters, and millimeters.
- Weight: estimate and measure weight in pounds and ounces; grams and kilograms.
- Capacity (volume): estimate and measure liquid capacity in teaspoons, tablespoons, cups, pints, quarts, gallons; and in milliliters and liters.
- Know the following equivalences among U. S. customary units of measurement, and solve problems involving changing units of measurement:

### Linear measure

$$1 \text{ ft.} = 12 \text{ in.}$$

$$1 \text{ yd.} = 3 \text{ ft.} = 36 \text{ in.}$$

$$1 \text{ mi.} = 5,280 \text{ ft.}$$

$$1 \text{ mi.} = 1,760 \text{ yd.}$$

### Weight

$$1 \text{ lb.} = 16 \text{ oz.}$$

$$1 \text{ ton} = 2,000 \text{ lb.}$$

### Capacity (volume)

$$1 \text{ cup} = 8 \text{ fl. oz. (fluid ounces)}$$

$$1 \text{ pt.} = 2 \text{ c.}$$

$$1 \text{ qt.} = 2 \text{ pt.}$$

$$1 \text{ gal.} = 4 \text{ qt.}$$

- Know the following equivalences among metric units of measurement, and solve problems involving changing units of measurement:

### Linear measure

$$1 \text{ cm} = 10 \text{ mm (millimeters)}$$

$$1 \text{ m} = 1,000 \text{ mm}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ km} = 1,000 \text{ m}$$

### Mass

$$1 \text{ cg (centigram)} = 10 \text{ mg (milligrams)}$$

$$1 \text{ g} = 1,000 \text{ mg}$$

$$1 \text{ g} = 100 \text{ cg}$$

$$1 \text{ kg} = 1,000 \text{ g}$$

### Capacity (volume)

$$1 \text{ cl (centiliter)} = 10 \text{ ml (milliliters)}$$

$$1 \text{ liter} = 1,000 \text{ ml}$$

$$1 \text{ liter} = 100 \text{ cl}$$

- Time: solve problems on elapsed time.

## VI. Geometry

- Identify and draw points, segments, rays, lines.
- Identify and draw lines: horizontal; vertical; perpendicular; parallel; intersecting.
- Identify angles; identify angles as right, acute, or obtuse.
- Identify polygons:
  - Triangle, quadrilateral, pentagon, hexagon, and octagon (regular)
  - Parallelogram, trapezoid, rectangle, square
- Identify and draw diagonals of quadrilaterals.
- Circles: Identify radius (plural: radii) and diameter;  $\text{radius} = \frac{1}{2} \text{ diameter}$
- Recognize similar and congruent figures.
- Know the formula for the area of a rectangle ( $\text{Area} = \text{length} \times \text{width}$ ) and solve problems involving finding area in a variety of square units (such as  $\text{mi}^2$ ;  $\text{yd}^2$ ;  $\text{ft}^2$ ;  $\text{in}^2$ ;  $\text{km}^2$ ;  $\text{m}^2$ ;  $\text{cm}^2$ ;  $\text{mm}^2$ )
- Compute volume of rectangular prisms in cubic units ( $\text{cm}^3$ ,  $\text{in}^3$ ).

## Science: Grade 4

**Teachers:** Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, “From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc.”

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child’s scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child’s development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.



**Note:** The lymphatic system will be studied in grade 6.

See below, Science Biographies, Charles Drew.

### I. The Human Body

#### A. THE CIRCULATORY SYSTEM

- Pioneering work of William Harvey
- Heart: four chambers (atrium/atria or atriums [plural] and ventricle/ventricles), aorta
- Blood
  - Red blood cells (corpuscles), white blood cells (corpuscles), platelets, hemoglobin, plasma, antibodies
  - Blood vessels: arteries, veins, capillaries
  - Blood pressure, pulse
  - Coagulation (clotting)
- Filtering function of liver and spleen
- Fatty deposits can clog blood vessels and cause a heart attack.
- Blood types (four basic types: A, B, AB, O) and transfusions

#### B. THE RESPIRATORY SYSTEM

- Process of taking in oxygen and getting rid of carbon dioxide
- Nose, throat, voice box, trachea (windpipe)
- Lungs, bronchi, bronchial tubes, diaphragm, ribs, alveoli (air sacs)
- Smoking: damage to lung tissue, lung cancer

### II. Chemistry: Basic Terms and Concepts

#### A. ATOMS

- All matter is made up of particles too small for the eye to see, called atoms.
- Scientists have developed models of atoms; while these models have changed over time as scientists make new discoveries, the models help us imagine what we cannot see.
- Atoms are made up of even tinier particles: protons, neutrons, electrons.
- The concept of electrical charge
  - Positive charge (+): proton
  - Negative charge (-): electron
  - Neutral (neither positive nor negative): neutron
  - “Unlike charges attract, like charges repel” (relate to magnetic attraction and repulsion)

#### B. PROPERTIES OF MATTER

- Mass: the amount of matter in an object, similar to weight
- Volume: the amount of space a thing fills
- Density: how much matter is packed into the space an object fills
- Vacuum: the absence of matter



### C. ELEMENTS

- Elements are the basic kinds of matter, of which there are a little more than one hundred. There are many different kinds of atoms, but an element has only one kind of atom. Familiar elements, such as gold, copper, aluminum, oxygen, iron  
Most things are made up of a combination of elements.

### D. SOLUTIONS

- A solution is formed when a substance (the solute) is dissolved in another substance (the solvent), such as when sugar or salt is dissolved in water; the dissolved substance is present in the solution even though you cannot see it.
- Concentration and saturation (as demonstrated through simple experiments with crystallization)

## III. Electricity

**Teachers:** Through reading, observation, and experiment, examine the following:

- Electricity as the charge of electrons
- Static electricity
- Electric current
- Electric circuits, and experiments with simple circuits (battery, wire, light bulb, filament, switch, fuse)  
Closed circuit, open circuit, short circuit
- Conductors and insulators
- Electromagnets: how they work and common uses
- Using electricity safely

See above, Chemistry, re electrons.

**Note:** Students will study electricity in more detail in grade 8.

## IV. Geology: The Earth and Its Changes

### A. THE EARTH'S LAYERS

- Crust, mantle, core (outer core and inner core)
- Movement of crustal plates
- Earthquakes  
Faults, San Andreas fault  
Measuring intensity: seismograph and Richter scale  
Tsunamis
- Volcanoes  
Magma  
Lava and lava flow  
Active, dormant, or extinct  
Famous volcanoes: Vesuvius, Krakatoa, Mount St. Helens
- Hot springs and geysers: Old Faithful (in Yellowstone National Park)
- Theories of how the continents and oceans were formed: Pangaea and continental drift

### B. HOW MOUNTAINS ARE FORMED

- Volcanic mountains, folded mountains, fault-block mountains, dome-shaped mountains
- Undersea mountain peaks and trenches (Mariana Trench)

### C. ROCKS

- Formation and characteristics of metamorphic, igneous, and sedimentary rock

See also Geography 4: Major Mountain Ranges.



**D. WEATHERING AND EROSION**

- Physical and chemical weathering
- Weathering and erosion by water, wind, and glaciers
- The formation of soil: topsoil, subsoil, bedrock

**V. Meteorology**

- The water cycle (review from grade 2): evaporation, condensation, precipitation
- Clouds: cirrus, stratus, cumulus (review from grade 2)
- The atmosphere
  - Troposphere, stratosphere, mesosphere, thermosphere, exosphere
  - How the sun and the earth heat the atmosphere
- Air movement: wind direction and speed, prevailing winds, air pressure, low and high pressure, air masses
- Cold and warm fronts: thunderheads, lightning and electric charge, thunder, tornadoes, hurricanes
- Forecasting the weather: barometers (relation between changes in atmospheric pressure and weather), weather maps, weather satellites
- Weather and climate: “weather” refers to daily changes in temperature, rainfall, sunshine, etc., while “climate” refers to weather trends that are longer than the cycle of the seasons.

**VI. Science Biographies**

Benjamin Banneker (published almanac; reproduced plans to build Washington, D.C. entirely from memory)

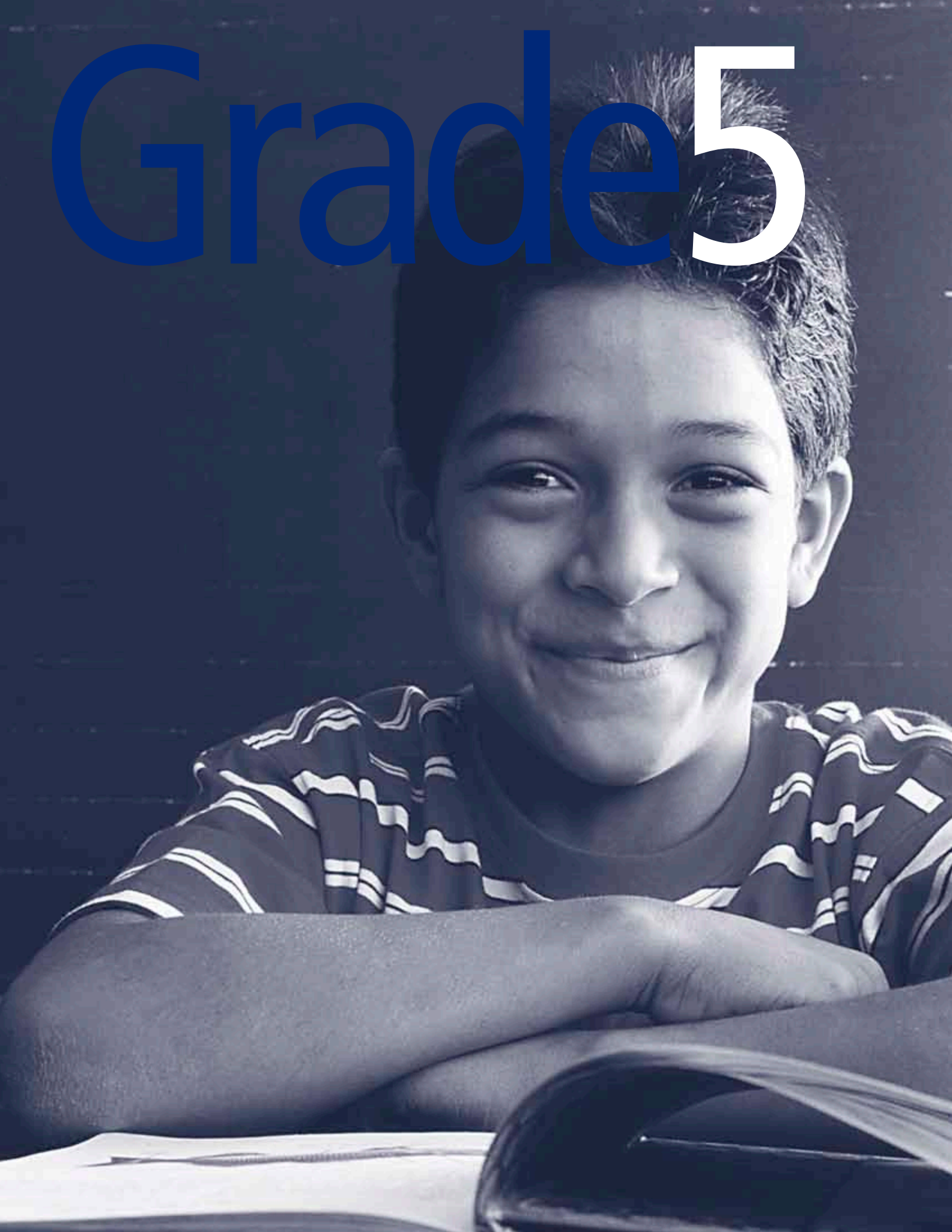
Elizabeth Blackwell (first female to graduate from medical school in the United States)

Charles Drew (pioneered work in blood research, blood transfusions, and the development of blood banks)

Michael Faraday (chemist and physicist whose work led to the development of the electric motor and electric generator)



# Grade 5



# Overview of Topics

## Grade 5

### Language Arts

- I. Writing, Grammar, and Usage
  - A. Writing and Research
  - B. Grammar and Usage
  - C. Vocabulary
- II. Poetry
  - A. Poems
  - B. Terms
- III. Fiction and Drama
  - A. Stories
  - B. Drama
  - C. Myths and Legends
  - D. Literary Terms
- IV. Speeches
- V. Sayings and Phrases

### History and Geography

#### World:

- I. World Geography
  - A. Spatial Sense
  - B. Great Lakes of the World
- II. Early American Civilizations
  - A. Geography
  - B. Maya, Aztec and Inca Civilizations
  - C. Spanish Conquerors
- III. European Exploration, Trade, and the Clash of Cultures
  - A. Background
  - B. European Exploration, Trade, and Colonization
  - C. Trade and Slavery
- IV. The Renaissance and the Reformation
  - A. The Renaissance
  - B. The Reformation
- V. England from the Golden Age to the Glorious Revolution
  - A. England in the Golden Age
  - B. From the English Revolution to the Glorious Revolution
- VI. Russia: Early Growth and Expansion
  - A. Geography
  - B. History and Culture
- VII. Feudal Japan
  - A. Geography
  - B. History and Culture

#### American:

- I. Westward Expansion
  - A. Westward Expansion before the Civil War
  - B. Westward Expansion after the Civil War
- II. The Civil War: Causes, Conflicts, Consequences
  - A. Toward the Civil War
  - B. The Civil War
  - C. Reconstruction

- III. Native Americans: Cultures and Conflicts
  - A. Culture and Life
  - B. American Government Policies
  - C. Conflicts
- IV. U. S. Geography

### Visual Arts

- I. Art of the Renaissance
- II. American Art: Nineteenth-Century United States
- III. Art of Japan

### Music

- I. Elements of Music
- II. Listening and Understanding
  - A. Composers and Their Music
  - B. Musical Connections
- III. American Musical Traditions (Spirituals)
- IV. Songs

### Mathematics

- I. Numbers and Number Sense
- II. Ratio and Percent
  - A. Ratio
  - B. Percent
- III. Fractions and Decimals
  - A. Fractions
  - B. Decimals
- IV. Computation
  - A. Addition
  - B. Multiplication
  - C. Division
  - D. Solving Problems and Equations
- V. Measurement
- VI. Geometry
- VII. Probability and Statistics
- VIII. Pre-Algebra

### Science

- I. Classifying Living Things
- II. Cells: Structures and Processes
- III. Plant Structures and Processes
  - A. Structure: Non-Vascular and Vascular Plants
  - B. Photosynthesis
  - C. Reproduction
- IV. Life Cycles and Reproduction
  - A. The Life Cycle and Reproduction
  - B. Sexual Reproduction in Animals
- V. The Human Body
  - A. Changes in Human Adolescence
  - B. The Endocrine System
  - C. The Reproductive System
- VI. Chemistry: Matter and Change
  - A. Atoms, Molecules, and Compounds
  - B. Elements
  - C. Chemical and Physical Change
- VII. Science Biographies

## Language Arts: Grade 5



The *Common Core State Standards for English Language Arts* emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the *Core Knowledge Sequence* into the language arts block. Note that in the *Sequence*, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**For Grade 5, domains include:** Early American Civilizations; European Exploration, Trade, and the Clash of Cultures; The Renaissance and the Reformation; England from the Golden Age to the Glorious Revolution; Russia: Early Growth and Expansion; Feudal Japan; Westward Expansion; The Civil War: Causes, Conflicts, Consequences; Native Americans: Cultures and Conflicts; Classifying Living Things; Cells: Structures and Processes; Plant Structures and Processes; Life Cycles and Reproduction; The Human Body.

**NOTE:** The objectives listed in I. Writing, Grammar, and Usage are currently under revision, as part of the *Core Knowledge Language Arts* program development for Grades 3–5. The revised Grade 5 goals and objectives will be conceptually consistent with the K–2 language arts sections of the 2010 edition of the *Sequence* and will be posted at [www.coreknowledge.org](http://www.coreknowledge.org) as part of the online *Sequence* as soon as they are available.

### I. Writing, Grammar, and Usage

**Teachers:** Students should be given many opportunities for writing with teacher guidance that strikes a balance between encouraging creativity and requiring correct use of conventions. Continue imaginative writing but place a stronger emphasis than in previous grades on expository writing, including, for example, summaries, book reports, essays that explain a process, and descriptive essays. In fifth grade, it is appropriate to place a greater emphasis on revision, with the expectation that students will revise and edit to produce (in some cases) a finished product that is thoughtful, well-organized, and reasonably correct in grammar, mechanics, and spelling. In fifth grade, students should be reasonably competent spellers, and in the habit of using a dictionary to check and correct words that present difficulty. They should receive regular practice in vocabulary enrichment.

**Note:** Review from grade 4: how to use a topic sentence; how to develop a paragraph with examples and details.

#### A. WRITING AND RESEARCH

- Produce a variety of types of writing—including reports, summaries, letters, descriptions, research essays, essays that explain a process, stories, poems—with a coherent structure or story line.
- Know how to gather information from different sources (such as an encyclopedia, magazines, interviews, observations, atlas, on-line), and write short reports synthesizing information from at least three different sources, presenting the information in his or her own words, with attention to the following:
  - understanding the purpose and audience of the writing
  - defining a main idea and sticking to it
  - providing an introduction and conclusion
  - organizing material in coherent paragraphs
  - illustrating points with relevant examples
  - documenting sources in a rudimentary bibliography

**Note:** Punctuation studied in earlier grades includes: end punctuation (period, question mark, or exclamation point); comma (between day and year when writing a date, between city and state in an address, in a series, after yes and no, before conjunctions that combine sentences, inside quotation marks in dialogue); apostrophe (in contractions, in singular and plural possessive nouns); and quotation marks (in dialogue, and for titles of poems, songs, short stories, magazine articles).

**Note:** A brief review of prefixes and suffixes introduced in earlier grades is recommended. Prefixes: *re*, *un*, *dis*, *im* (*in*), *non*, *mis*, *en*, *pre*. Suffixes: *er* and *or*, *less*, *ly*, *ily*, *y*, *ful*, *able*, *ible*, *ment*.

## B. GRAMMAR AND USAGE

- Understand what a complete sentence is, and identify subject and predicate  
correct fragments and run-ons
- Identify subject and verb in a sentence and understand that they must agree.
- Know the following parts of speech and how they are used: nouns, verbs (action verbs and auxiliary verbs), adjectives (including articles), adverbs, conjunctions, interjections.
- Understand that pronouns must agree with their antecedents in case (nominative, objective, possessive), number, and gender.
- Correctly use punctuation studied in earlier grades, as well as the colon before a list  
commas with an appositive
- Use underlining or italics for titles of books.

## C. VOCABULARY

- Know how the following prefixes and suffixes affect word meaning:

Prefixes:

*anti* (as in antisocial, antibacterial)

*co* (as in coeducation, co-captain)

*fore* (as in forefather, foresee)

*il*, *ir* (as in illegal, irregular)

*inter* (as in interstate)

*mid* (as in midnight, Midwest)

*post* (as in postseason, postwar)

*semi* (as in semicircle, semiprecious)

Suffixes:

*ist* (as in artist, pianist)

*ish* (as in stylish, foolish)

*ness* (as in forgiveness, happiness)

*tion*, *sion* (as in relation, extension)

## II. Poetry

**Teachers:** The poems listed here constitute a selected core of poetry for this grade. Expose children to more poetry, old and new, and have children write their own poems. To bring children into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words. At this grade, poetry should be primarily a source of delight. This is also an appropriate grade at which to begin looking at poems in more detail, asking questions about the poet's use of language, noting the use of devices such as simile, metaphor, alliteration, etc.

### A. POEMS

The Arrow And The Song (Henry Wadsworth Longfellow)

Barbara Frietchie (John Greenleaf Whittier)

Battle Hymn of the Republic (Julia Ward Howe)

A bird came down the walk (Emily Dickinson)

Casey at the Bat (Ernest Lawrence Thayer)

The Eagle (Alfred Lord Tennyson)

I Hear America Singing (Walt Whitman)

I like to see it lap the miles (Emily Dickinson)

I, too, sing America (Langston Hughes)

Jabberwocky (Lewis Carroll)

Narcissa (Gwendolyn Brooks)

O Captain! My Captain! (Walt Whitman)

A Poison Tree (William Blake)

The Road Not Taken (Robert Frost)

The Snowstorm (Ralph Waldo Emerson)

Some Opposites (Richard Wilbur)

The Tiger (William Blake)

A Wise Old Owl (Edward Hersey Richards)

**Note:** See also below, III. D, Literary Terms: Literal and figurative language.

- B. TERMS**  
 onomatopoeia  
 alliteration

### III. Fiction and Drama

**Teachers:** In fifth grade, students should be fluent, competent readers of appropriate materials. Regular independent silent reading should continue. Students should read outside of school at least 25 minutes daily.

The titles below constitute a selected core of stories for this grade. Expose children to many more stories, and encourage children to write their own stories. Children should also be exposed to nonfiction prose: biographies, books about science and history, books on art and music, etc.

Some of the works below, such as *Don Quixote*, *Narrative of the Life of Frederick Douglass*, or *A Midsummer Night's Dream* are available in editions adapted for young readers.

#### A. STORIES

- The Adventures of Tom Sawyer* (Mark Twain)
- episodes from *Don Quixote* (Miguel de Cervantes)
- Little Women* (Part First) (Louisa May Alcott)
- Narrative of the Life of Frederick Douglass* (Frederick Douglass)
- The Secret Garden* (Frances Hodgson Burnett)
- Tales of Sherlock Holmes, including “The Red-Headed League” (Arthur Conan Doyle)

See also World History 5: The Renaissance, re *Don Quixote*.

#### B. DRAMA

- *A Midsummer Night's Dream* (William Shakespeare)
- Terms:
  - tragedy and comedy
  - act, scene
  - Globe Theater

See also World History 5: The Renaissance, re *A Midsummer Night's Dream*.

#### C. MYTHS AND LEGENDS

- A Tale of the Oki Islands (a legend from Japan, also known as “The Samurai’s Daughter”)
- Morning Star and Scarface: the Sun Dance (a Plains Native American legend, also known as “The Legend of Scarface”)
- Native American trickster stories (for example, tales of Coyote, Raven, or Grandmother Spider)

See also World History 5: Feudal Japan, re “A Tale of the Oki Islands.”

See also American History 5: Native American Cultures, re “Morning Star and Scarface” and Native American trickster stories.

#### D. LITERARY TERMS

- Pen name (pseudonym)
- Literal and figurative language
  - imagery
  - metaphor and simile
  - symbol
  - personification

### IV. Speeches

- Abraham Lincoln: The Gettysburg Address
- Chief Joseph (High’moot Tooyalakekt): “I will fight no more forever”

See also American History 5: Civil War; and, Native Americans: Cultures and Conflicts.

## V. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

Birthday suit  
Bite the hand that feeds you.  
Chip on your shoulder  
Count your blessings.  
Eat crow  
Eleventh hour  
Eureka!  
Every cloud has a silver lining.  
Few and far between  
Forty winks  
The grass is always greener on the  
    other side (of the hill).  
To kill two birds with one stone  
Lock, stock and barrel  
Make a mountain out of a molehill

A miss is as good as a mile.  
It's never too late to mend.  
Out of the frying pan and into the fire.  
A penny saved is a penny earned.  
Read between the lines.  
Sit on the fence  
Steal his/her thunder  
Take the bull by the horns.  
Till the cows come home  
Time heals all wounds.  
Tom, Dick and Harry  
Vice versa  
A watched pot never boils.  
Well begun is half done.  
What will be will be.



## History and Geography: Grade 5

## WORLD HISTORY AND GEOGRAPHY

## I. World Geography

**Teachers:** The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures. Many geographic topics are listed below in connection with historical topics.

## A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Review as necessary map-reading skills and concepts, as well as geographic terms, from previous grades.

- Read maps and globes using longitude and latitude, coordinates, degrees.
- Tropic of Cancer and Tropic of Capricorn: relation to seasons and temperature
- Climate zones: Arctic, Tropical, Temperate
- Time zones (review from Grade 4): Prime Meridian (0 degrees); Greenwich, England; 180° Line (International Date Line)
- Arctic Circle (imaginary lines and boundaries) and Antarctic Circle
- From a round globe to a flat map: Mercator projection, conic and plane projections

## B. GREAT LAKES OF THE WORLD

- Eurasia: Caspian Sea
- Asia: Aral Sea
- Africa: Victoria, Tanganyika, Chad
- North America: Superior, Huron, Michigan
- South America: Maracaibo, Titicaca

## II. Early American Civilizations

**Teachers:** Discuss with students: How do we know about these ancient civilizations? (Through archaeological findings; ancient artifacts and writings; writings by European missionaries and conquerors, etc.).

## A. GEOGRAPHY

- Identify and locate Central America and South America on maps and globes.  
Largest countries in South America: Brazil and Argentina
- Amazon River
- Andes Mountains

## B. MAYA, AZTEC, AND INCA CIVILIZATIONS

- The Mayas  
Ancient Mayas lived in what is now southern Mexico and parts of Central America; their descendants still live there today.  
Accomplishments as architects and artisans: pyramids and temples  
Development of a system of hieroglyphic writing  
Knowledge of astronomy and mathematics; development of a 365-day calendar;  
early use of concept of zero

See also below, II.A: Geography of Early American Civilizations; III.C: Trade and Slavery; VI.B: Geography of Russia; VII.B: Geography of Japan.

- The Aztecs
    - A warrior culture, at its height in the 1400s and early 1500s, the Aztec empire covered much of what is now central Mexico.
    - The island city of Tenochtitlan: aqueducts, massive temples, etc.
    - Moctezuma (also spelled Montezuma)
    - Ruler-priests; practice of human sacrifice
  - The Inca
    - Ruled an empire stretching along the Pacific coast of South America
    - Built great cities (Machu Picchu, Cuzco) high in the Andes, connected by a system of roads
- C. SPANISH CONQUERORS**
- Conquistadors: Cortés and Pizzaro
    - Advantage of Spanish weapons (guns, cannons)
    - Diseases devastate native peoples

### III. European Exploration, Trade, and the Clash of Cultures

**Teachers:** It is recommended that you use timelines to place these people and events in the context of the students' previous studies (especially in grade 3) of the early exploration and settlement of North America. Fifth grade teachers should examine the third grade guidelines for American History in order to use the familiar topics as a foundation upon which to build knowledge of the new topics.

**Note:** Place the great wave of exploration by Europeans in the context of various peoples exploring beyond their own borders, including Islamic traders and (recall from Grade 4) Zheng He of China.

#### A. BACKGROUND

- Beginning in the 1400s Europeans set forth in a great wave of exploration and trade.
- European motivations
  - Muslims controlled many trade routes.
  - Profit through trade in goods such as gold, silver, silks, sugar, and spices
  - Spread of Christianity: missionaries
- Geography of the spice trade
  - The Moluccas, also called the "Spice Islands": part of present-day Indonesia
  - Locate: the region known as Indochina, the Malay Peninsula, the Philippines
  - Definition of "archipelago"
  - "Ring of Fire": earthquakes and volcanic activity

#### B. EUROPEAN EXPLORATION, TRADE, AND COLONIZATION

- Portugal
  - Prince Henry the Navigator, exploration of the West African coast
  - Bartolomeu Dias rounds the Cape of Good Hope
  - Vasco da Gama: spice trade with India, exploration of East Africa
  - Portuguese conquer East African Swahili city-states
  - Cabral claims Brazil
- Spain
  - Two worlds meet: Christopher Columbus and the Tainos
  - Bartolomé de las Casas speaks out against enslavement and mistreatment of native peoples
  - Treaty of Tordesillas between Portugal and Spain
  - Balboa reaches the Pacific
  - Magellan crosses the Pacific, one of his ships returns to Spain, making the first round-the-world voyage
- England and France
  - Search for Northwest Passage (review from grade 3)
  - Colonies in North America and West Indies
  - Trading posts in India

**Note:** Briefly review from American History 3: "Early Spanish Exploration and Settlement." Also, see above, II.C, Spanish Conquerors.

**Note:** Briefly review from American History 3: search for Northwest Passage. You may also want to introduce other explorers, such as Verrazano and Cartier.

- Holland (The Netherlands)
  - The Dutch take over Portuguese trade routes and colonies in Africa and the East Indies
  - The Dutch in South Africa, Cape Town
  - The Dutch in North America: New Netherland (review from grade 3), later lost to England

### C. TRADE AND SLAVERY

- The sugar trade
  - African slaves on Portuguese sugar plantations on islands off West African coast, such as São Tomé
  - Sugar plantations on Caribbean islands
  - West Indies: Cuba, Puerto Rico, Bahamas, Dominican Republic, Haiti, Jamaica
- Transatlantic slave trade: the “triangular trade” from Europe to Africa to colonies in the Caribbean and the Americas
  - The “Slave Coast” in West Africa
  - The Middle Passage

## IV. The Renaissance and the Reformation

### A. THE RENAISSANCE

- Islamic scholars translate Greek works and so help preserve classical civilization.
- A “rebirth” of ideas from ancient Greece and Rome
- New trade and new wealth
- Italian city states: Venice, Florence, Rome
- Patrons of the arts and learning
  - The Medici Family and Florence
  - The Popes and Rome
- Leonardo da Vinci, Michelangelo
- Renaissance ideals and values as embodied in
  - The Courtier* by Castiglione: the “Renaissance man”
  - The Prince* by Machiavelli: real-world politics

### B. THE REFORMATION

- Gutenberg’s printing press: the Bible made widely available
- The Protestant Reformation
  - Martin Luther and the 95 Theses
  - John Calvin
- The Counter-Reformation
- Copernicus and Galileo: Conflicts between science and the church
  - Ptolemaic (earth-centered) vs. sun-centered models of the universe

## V. England from the Golden Age to the Glorious Revolution

### A. ENGLAND IN THE GOLDEN AGE

- Henry VIII and the Church of England
- Elizabeth I
- British naval dominance
  - Defeat of the Spanish Armada
  - Sir Francis Drake
  - British exploration and North American settlements

See also Visual Arts 5: The Art of the Renaissance; and Language Arts 5: Shakespeare, *A Midsummer Night’s Dream*; Cervantes, *Don Quixote*.

See also Language Arts 5: Shakespeare.

**B. FROM THE ENGLISH REVOLUTION TO THE GLORIOUS REVOLUTION**

- The English Revolution
  - King Charles I, Puritans and Parliament
  - Civil War: Cavaliers and Roundheads
  - Execution of Charles I
  - Oliver Cromwell and the Puritan regime
  - The Restoration (1660): Charles II restored to the English throne, many Puritans leave England for America
- The “Glorious Revolution” (also called the Bloodless Revolution)
  - King James II replaced by William and Mary
  - Bill of Rights: Parliament limits the power of the monarchy

**VI. Russia: Early Growth and Expansion**

**A. GEOGRAPHY**

- Moscow and St. Petersburg
- Ural Mountains, Siberia, steppes
- Volga and Don Rivers
- Black, Caspian, and Baltic Seas
- Search for a warm-water port

**B. HISTORY AND CULTURE**

- Russia as successor to Byzantine Empire: Moscow as new center of Eastern Orthodox Church and of Byzantine culture (after the fall of Constantinople in 1453)
- Ivan III (the Great), czar (from the Latin “Caesar”)
- Ivan IV (the Terrible)
- Peter the Great: modernizing and “Westernizing” Russia
- Catherine the Great
  - Reforms of Peter and Catherine make life even harder for peasants

**VII. Feudal Japan**

**A. GEOGRAPHY**

- Pacific Ocean, Sea of Japan
- Four main islands: Hokkaido, Honshu (largest), Shikoku, Kyushu
- Tokyo
- Typhoons, earthquakes
- The Pacific Rim

**B. HISTORY AND CULTURE**

- Emperor as nominal leader, but real power in the hands of shoguns
- Samurai, code of Bushido
- Rigid class system in feudal Japanese society
- Japan closed to outsiders
- Religion
  - Buddhism: the four Noble Truths and the Eightfold Path, Nirvana
  - Shintoism: reverence for ancestors, reverence for nature, *kami*

See also Language Arts 5:  
“A Tale of the Oki Islands.”

**Note:** Review from grade 2:  
Buddhism’s origins in India,  
spread throughout Asia.

# American History and Geography

## AMERICAN HISTORY AND GEOGRAPHY

### I. Westward Expansion

**Teachers:** Guidelines for the study of Westward Expansion are divided into two parts, with part A focusing on the decades before the Civil War, and part B focusing on the years after the Civil War. You may wish to plan a single unit on Westward Expansion, or divide your studies with a unit on the Civil War (see II below).

#### A. WESTWARD EXPANSION BEFORE THE CIVIL WAR

- Geography
  - Rivers: James, Hudson, St. Lawrence, Mississippi, Missouri, Ohio, Columbia, Rio Grande
  - Erie Canal connecting the Hudson River and Lake Erie
  - Appalachian and Rocky Mountains
  - Continental Divide and the flow of rivers: east of Rockies to the Arctic or Atlantic Oceans, west of Rockies to the Pacific Ocean
  - Great Plains stretching from Canada to Mexico
- Early exploration of the west
  - Daniel Boone, Cumberland Gap, Wilderness Trail
  - Lewis and Clark, Sacagawea
  - “Mountain men,” fur trade
  - Zebulon Pike, Pike’s Peak
- Pioneers
  - Getting there in wagon trains, flatboats, steamboats
  - Many pioneers set out from St. Louis (where the Missouri and Mississippi Rivers meet).
  - Land routes: Santa Fe Trail and Oregon Trail
  - Mormons (Latter-day Saints) settle in Utah, Brigham Young, Great Salt Lake
  - Gold Rush, ’49ers
- Native American resistance
  - More and more settlers move onto Native American lands, treaties made and broken
  - Tecumseh (Shawnee): attempted to unite tribes in defending their land
  - Battle of Tippecanoe
  - Osceola, Seminole leader
- “Manifest Destiny” and conflict with Mexico
  - The meaning of “manifest destiny”
  - Early settlement of Texas: Stephen Austin
  - General Antonio Lopez de Santa Anna
  - Battle of the Alamo (“Remember the Alamo”), Davy Crockett, Jim Bowie
- The Mexican-American War
  - General Zachary Taylor (“Old Rough and Ready”)
  - Some Americans strongly oppose the war, Henry David Thoreau’s “Civil Disobedience”
  - Mexican lands ceded to the United States (California, Nevada, Utah, parts of Colorado, New Mexico, Arizona)

#### B. WESTWARD EXPANSION AFTER THE CIVIL WAR

- Homestead Act (1862), many thousands of Americans and immigrants start farms in the West
- “Go west, young man” (Horace Greeley’s advice)
- Railroads, Transcontinental Railroad links east and west, immigrant labor
- Cowboys, cattle drives
- The “wild west,” reality versus legend: Billy the Kid, Jesse James, Annie Oakley, Buffalo Bill
- “Buffalo Soldiers,” African American troops in the West
- U. S. purchases Alaska from Russia, “Seward’s folly”
- 1890: the closing of the American frontier (as acknowledged in the U. S. Census), the symbolic significance of the frontier

**Note:** Fifth grade students who have been through earlier grades of the *Core Knowledge Sequence* have been introduced to exploration and pioneers in grades 1 and 2.

See also Language Arts 5:  
*Narrative of the Life of  
Frederick Douglass.*

See also Language Arts /  
Music 5: "The Battle Hymn  
of the Republic"; and  
Language Arts 5: Gettysburg  
Address.

**Note:** Those who wish to  
examine other battles may  
want to include Vicksburg  
(and Lincoln's famous words,  
"The Father of Waters again  
goes unvexed to the sea")  
and the Battle of Mobile  
Bay (with Admiral David  
Farragut's famous words,  
"Damn the torpedoes, full  
speed ahead!").

See also Language Arts 5:  
Walt Whitman's poem "O  
Captain! My Captain!" *re*  
the assassination of Lincoln.

See also Language Arts 5:  
American Indian trickster  
myths; and, Chief Joseph, "I  
will fight no more forever."

## II. The Civil War: Causes, Conflicts, Consequences

### A. TOWARD THE CIVIL WAR

- Abolitionists: William Lloyd Garrison and *The Liberator*, Frederick Douglass
- Slave life and rebellions
- Industrial North versus agricultural South
- Mason-Dixon Line
- Controversy over whether to allow slavery in territories and new states
  - Missouri Compromise of 1820
  - Dred Scott decision allows slavery in the territories
- Importance of Harriet Beecher Stowe's *Uncle Tom's Cabin*
- John Brown, Harper's Ferry
- Lincoln: "A house divided against itself cannot stand."
  - Lincoln-Douglas debates
  - Lincoln elected president, Southern states secede

### B. THE CIVIL WAR

- Fort Sumter
- Confederacy, Jefferson Davis
- Yankees and Rebels, Blue and Gray
- First Battle of Bull Run
- Robert E. Lee and Ulysses S. Grant
- General Stonewall Jackson
- Ironclad ships, battle of the USS *Monitor* and the CSS *Virginia* (formerly the USS *Merrimack*)
- Battle of Antietam Creek
- The Emancipation Proclamation
- Gettysburg and the Gettysburg Address
- African-American troops, Massachusetts Regiment led by Colonel Shaw
- Sherman's march to the sea, burning of Atlanta
- Lincoln re-elected, concluding words of the Second Inaugural Address ("With malice toward none, with charity for all. . .")
- Richmond (Confederate capital) falls to Union forces
- Surrender at Appomattox
- Assassination of Lincoln by John Wilkes Booth

### C. RECONSTRUCTION

- The South in ruins
- Struggle for control of the South, Radical Republicans vs. Andrew Johnson, impeachment
- Carpetbaggers and scalawags
- Freedmen's Bureau, "40 acres and a mule"
- 13th, 14th, and 15th Amendments to the Constitution
- Black Codes, the Ku Klux Klan and "vigilante justice"
- End of Reconstruction, Compromise of 1877, all federal troops removed from the South

## III. Native Americans: Cultures and Conflicts

### A. CULTURE AND LIFE

- Great Basin (for example, Nez Perce)
- Plateau (for example, Shoshone and Ute)
- Plains (for example, Arapaho, Cheyenne, Lakota [Sioux], Blackfeet, Crow)
  - Extermination of buffalo (review from grade 2)
- Pacific Northwest (for example, Chinook, Kwakiutl, Yakima)

**B. AMERICAN GOVERNMENT POLICIES**

- Bureau of Indian Affairs
- Forced removal to reservations
- Attempts to break down tribal life, assimilation policies, Carlisle School

**C. CONFLICTS**

- Sand Creek Massacre
- Little Big Horn: Crazy Horse, Sitting Bull, Custer's Last Stand
- Wounded Knee
  - Ghost Dance

**IV. U. S. Geography**

- Locate: Western Hemisphere, North America, Caribbean Sea, Gulf of Mexico
- The Gulf Stream, how it affects climate
- Regions and their characteristics: New England, Mid-Atlantic, South, Midwest, Great Plains, Southwest, West, Pacific Northwest
- Fifty states and capitals

## Visual Arts: Grade 5

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

In studying the works of art specified below, and in creating their own art, students should review, develop, and apply concepts introduced in previous grades, such as line, shape, form, space, texture, color, light, design, and symmetry.

### I. Art of the Renaissance

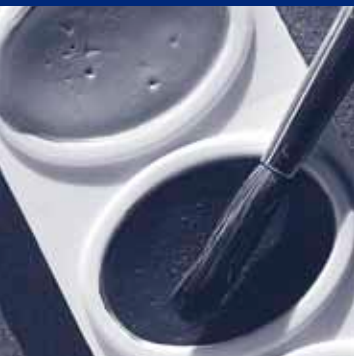
**Teachers:** Study of the following artists and works of art may be integrated with study of related topics in World History 5: The Renaissance.

- The shift in world view from medieval to Renaissance art, a new emphasis on humanity and the natural world
- The influence of Greek and Roman art on Renaissance artists (classical subject matter, idealization of human form, balance and proportion)
- The development of linear perspective during the Italian Renaissance
  - The vantage point or point-of-view of the viewer
  - Convergence of lines toward a vanishing point, the horizon line
- Observe and discuss works in different genres—such as portrait, fresco, Madonna—by Italian Renaissance artists, including
  - Sandro Botticelli, *The Birth of Venus*
  - Leonardo da Vinci: *The Proportions of Man*, *Mona Lisa*, *The Last Supper*
  - Michelangelo, Ceiling of the Sistine Chapel, especially the detail known as *The Creation of Adam*
  - Raphael: *The Marriage of the Virgin*, examples of his Madonnas (such as *Madonna and Child with the Infant St. John*, *The Alba Madonna*, or *The Small Cowper Madonna*)
- Become familiar with Renaissance sculpture, including
  - Donatello, *Saint George*
  - Michelangelo, *David*
- Become familiar with Renaissance architecture, including
  - The Florence Cathedral, dome designed by Filippo Brunelleschi
  - St. Peter’s in Rome
- Observe and discuss paintings of the Northern Renaissance, including
  - Pieter Bruegel, *Peasant Wedding*
  - Albrecht Dürer, *Self-Portrait* (such as from 1498 or 1500)
  - Jan van Eyck, *Giovanni Arnolfini and His Wife* (also known as *Arnolfini Wedding*)

### II. American Art: Nineteenth-Century United States

- Become familiar with the Hudson River School of landscape painting, including
  - Thomas Cole, *The Oxbow (The Connecticut River Near Northampton)* (also known as *View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm*)
  - Albert Bierstadt, *Rocky Mountains, Lander’s Peak*
- Become familiar with genre paintings, including
  - George Caleb Bingham, *Fur Traders Descending the Missouri*
  - William Sidney Mount, *Eel Spearing at Setauket*

**Note:** When you study perspective, review from grade 3 foreground, middle ground, and background; and, for contrast, examine paintings that do not attempt to create an illusion of depth, for example, *Madonna and Child on a Curved Throne* (see Visual Arts 4: Art of the Middle Ages).





See also American History 5: Civil War, *re* photographs by Brady; and African American troops in the Civil War: Shaw and the Massachusetts 54th, *re* Saint-Gaudens's *Shaw Memorial*.

See also World History 5: Feudal Japan.

- Become familiar with art related to the Civil War, including Civil War photography of Mathew Brady and his colleagues  
*The Shaw Memorial* sculpture of Augustus Saint-Gaudens
- Become familiar with popular prints by Currier and Ives.

### III. Art of Japan

- Become familiar with  
The Great Buddha (also known as the Kamakura Buddha)  
Landscape gardens

# Music: Grade 5

SEE INTRODUCTION, "The Arts in the Curriculum."

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.



The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

## I. Elements of Music

- Through participation, become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).  
 Recognize a steady beat, accents, and the downbeat; play a steady beat, a simple rhythm pattern, simultaneous rhythm patterns, and syncopation patterns.  
 Discriminate between fast and slow; gradually slowing down and getting faster; *accelerando* and *ritardando*.  
 Discriminate between differences in pitch: high and low.  
 Discriminate between loud and soft; gradually increasing and decreasing volume; *crescendo* and *decrescendo*.  
 Understand *legato* (smoothly flowing progression of notes) and *staccato* (crisp, distinct notes).  
 Sing unaccompanied, accompanied, and in unison.  
 Recognize harmony; sing rounds and canons; two- and three-part singing.  
 Recognize introduction, interlude, and coda in musical selections.  
 Recognize verse and refrain.  
 Continue work with timbre and phrasing.  
 Recognize theme and variations.  
 Sing or play simple melodies while reading scores.


- Understand the following notation and terms:

names of lines and spaces in the treble clef; middle C



 treble clef,  staff, bar line, double bar line, measure, repeat signs

 whole note  half note  quarter note  eighth note

whole rest, half rest, quarter rest, eighth rest

 grouped sixteenth notes

tied notes and dotted notes

 sharps  flats

*Da capo* [*dc.*] *al fine*

meter signature  $\frac{4}{4}$   $\frac{2}{4}$   $\frac{3}{4}$  or common time  $\frac{2}{4}$   $\frac{3}{4}$   $\frac{6}{8}$

soft *pp* *p* *mp* loud *mf* *f* *ff*

## II. Listening and Understanding

**Teachers:** Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

**Note:** Children were introduced to Beethoven in grade 2.

See also below, Songs, “Greensleeves”; and see World History 5: The Renaissance.

See also Language Arts 5: Shakespeare’s *A Midsummer Night’s Dream*.

**Note:** Spirituals introduced in earlier grades include “Swing Low, Sweet Chariot,” “He’s Got the Whole World in His Hands,” and “This Little Light of Mine.”

See also above, III. American Musical Traditions, Spirituals.

See also American History 5: Civil War, re “Battle Hymn of the Republic.” Also, you may wish to recall songs from grade 2: “Dixie,” “Follow the Drinking Gourd,” and “When Johnny Comes Marching Home.”

### A. COMPOSERS AND THEIR MUSIC

**Teachers:** Provide brief, child-friendly biographical profiles of the following composers, and listen to representative works:

- Ludwig van Beethoven, *Symphony No. 5*
- Modest Mussorgsky, *Pictures at an Exhibition* (as orchestrated by Ravel)

### B. MUSICAL CONNECTIONS

**Teachers:** Introduce children to the following works in connection with topics in other disciplines:

- Music from the Renaissance (such as choral works of Josquin Desprez; lute songs by John Dowland)
- Felix Mendelssohn, Overture, Scherzo, and Wedding March from *A Midsummer Night’s Dream*

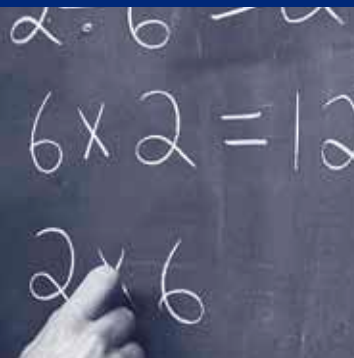
## III. American Musical Traditions

- Spirituals  
Originated by African-Americans, many spirituals go back to the days of slavery. Familiar spirituals, such as:  
Down by the Riverside  
Sometimes I Feel Like a Motherless Child  
Wayfaring Stranger  
We Shall Overcome

## IV. Songs

Battle Hymn of the Republic  
Danny Boy  
Dona Nobis Pacem (round)  
Git Along Little Dogies  
God Bless America  
Greensleeves  
The Happy Wanderer  
Havah Nagilah  
If I Had a Hammer  
Red River Valley  
Sakura  
Shenandoah  
Sweet Betsy from Pike

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



### I. Numbers and Number Sense

- Read and write numbers (in digits and words) up to the billions.
- Recognize place value up to billions.
- Order and compare numbers to 999,999,999 using the signs  $<$ ,  $>$ , and  $=$ .
- Write numbers in expanded form.
- Integers
  - Locate positive and negative integers on a number line.
  - Compare integers using the symbols  $<$ ,  $>$ ,  $=$ .
  - Know that the sum of an integer and its opposite is 0.
  - Add and subtract positive and negative integers.
- Using a number line, locate positive and negative whole numbers.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand; to the nearest hundred thousand.
- Exponents
  - Review perfect squares and square roots to 144; recognize the square root sign,  $\sqrt{\quad}$ .
  - Using the terms *squared* and *cubed* and *to the  $n$ th power*, read and evaluate numerical expressions with exponents.
  - Identify the powers of ten up to  $10^6$ .
- Identify a set and the members of a set, as indicated by  $\{ \}$ .
- Identify numbers under 100 as prime or composite.
- Identify prime factors of numbers to 100 and write using exponential notation for multiple primes.
- Determine the greatest common factor (GCF) of given numbers.
- Determine the least common multiple (LCM) of given numbers.

### II. Ratio and Percent

#### A. RATIO

- Determine and express simple ratios.
- Use ratio to create a simple scale drawing.
- Ratio and rate: solve problems on speed as a ratio, using the formula  $S = D/T$  (or  $D = R \times T$ ).

#### B. PERCENT

- Recognize the percent sign (%) and understand percent as “per hundred.”
- Express equivalences between fractions, decimals, and percents, and know common equivalences:
  - $\frac{1}{10} = 10\%$
  - $\frac{1}{4} = 25\%$
  - $\frac{1}{2} = 50\%$
  - $\frac{3}{4} = 75\%$
- Find the given percent of a number.

### III. Fractions and Decimals

#### A. FRACTIONS

- Determine the least common denominator (LCD) of fractions with unlike denominators.
- Recognize equivalent fractions (for example,  $\frac{1}{2} = \frac{3}{6}$ ).
- Put fractions in lowest terms.
- Compare fractions with like and unlike denominators, using the signs  $<$ ,  $>$ , and  $=$ .
- Identify the reciprocal of a given fraction; know that the product of a given number and its reciprocal = 1.
- Add and subtract mixed numbers and fractions with like and unlike denominators.
- Multiply and divide fractions.
- Add and subtract fractions with like and unlike denominators.
- Add and subtract mixed numbers and fractions; multiply mixed numbers and fractions.
- Round fractions to the nearest whole number.
- Write fractions as decimals (e.g.,  $\frac{1}{4} = 0.25$ ;  $\frac{17}{25} = 0.68$ ;  $\frac{1}{3} = 0.3333 \dots$  or 0.33, rounded to the nearest hundredth).

#### B. DECIMALS

- Read, write, and order decimals to the nearest ten-thousandth.
- Write decimals in expanded form.
- Read and write decimals on a number line.
- Round decimals (and decimal quotients) to the nearest tenth; to the nearest hundredth; to the nearest thousandth.
- Estimate decimal sums, differences, and products by rounding.
- Add and subtract decimals through ten-thousandths.
- Multiply decimals: by 10, 100, and 1,000; by another decimal.
- Divide decimals by whole numbers and decimals.

### IV. Computation

#### A. ADDITION

- Commutative and associative properties: know the names and understand the properties.

#### B. MULTIPLICATION

- Commutative, associative, and distributive properties: know the names and understand the properties.
- Multiply two factors of up to four digits each.
- Write numbers in expanded form using multiplication.
- Estimate a product.
- Use mental computation strategies for multiplication, such as breaking a problem into partial products, for example:  $3 \times 27 = (3 \times 20) + (3 \times 7) = 60 + 21 = 81$ .
- Solve word problems involving multiplication.

#### C. DIVISION

- Understand multiplication and division as inverse operations.
- Know what it means for one number to be “divisible” by another number.
- Know that you cannot divide by 0; that any number divided by 1 = that number.
- Estimate the quotient.
- Know how to move the decimal point when dividing by 10, 100, or 1,000.
- Divide dividends up to four digits by one-digit, two-digit, and three-digit divisors.
- Solve division problems with remainders; round a repeating decimal quotient.
- Check division by multiplying (and adding remainder).

#### D. SOLVING PROBLEMS AND EQUATIONS

- Solve word problems with multiple steps.
- Solve problems with more than one operation.



## V. Measurement

**Teachers:** Review and reinforce as necessary from grade 4 topics on linear measure, weight, and capacity (volume). Also review various equivalences, which students should be able to recall from memory.

- Convert to common units in problems involving addition and subtraction of different units.
- Time: Solve problems on elapsed time; regroup when multiplying and dividing amounts of time.

## VI. Geometry

- Identify and draw points, segments, rays, lines.
- Identify and draw lines: horizontal; vertical; perpendicular; parallel; intersecting.
- Measure the degrees in angles, and know that  
right angle =  $90^\circ$                       acute angle: less than  $90^\circ$   
obtuse angle: greater than  $90^\circ$               straight angle =  $180^\circ$
- Identify and construct different kinds of triangles: equilateral, right, and isosceles.
- Know what it means for triangles to be congruent.
- Identify polygons:  
triangle, quadrilateral, pentagon, hexagon, and octagon  
parallelogram, trapezoid, rhombus, rectangle, square
- Know that regular polygons have sides of equal length and angles of equal measure.
- Identify and draw diagonals of polygons.
- Circles  
Identify arc, chord, radius (plural: radii), and diameter (radius =  $\frac{1}{2}$  diameter).  
Using a compass, draw circles with a given diameter or radius.  
Find the circumference of a circle using the formulas  $C = \pi d$ , and  $C = 2 \pi r$ ,  
using 3.14 as the value of  $\pi$ .
- Area  
Review the formula for the area of a rectangle (Area = length x width) and solve problems involving finding area in a variety of square units (such as  $\text{mi}^2$ ;  $\text{yd}^2$ ;  $\text{ft}^2$ ;  $\text{in}^2$ ;  $\text{km}^2$ ;  $\text{m}^2$ ;  $\text{cm}^2$ ;  $\text{mm}^2$ ).  
Find the area of triangles, using the formula  $A = \frac{1}{2}(b \times h)$ .  
Find the area of a parallelogram using the formula  $A = b \times h$ .  
Find the area of an irregular figure (such as a trapezoid) by dividing into regular figures for which you know how to find the area.  
Compute volume of rectangular prisms in cubic units ( $\text{cm}^3$ ,  $\text{in}^3$ ), using the formula  $V = l \times w \times h$ .  
Find the surface area of a rectangular prism.

## VII. Probability and Statistics

- Understand probability as a measure of the likelihood that an event will happen; using simple models, express probability of a given event as a fraction, as a percent, and as a decimal between 0 and 1.
- Collect and organize data in graphic form (bar, line, and circle graphs).
- Solve problems requiring interpretation and application of graphically displayed data.
- Find the average (mean) of a given set of numbers.
- Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers.
- Graph simple functions.

## VIII. Pre-Algebra

- Recognize variables and solve basic equations using variables.
- Write and solve equations for word problems.
- Find the value of an expression given the replacement values for the variables, for example: What is  $7 - c$  if  $c$  is 3.5?

## Science: Grade 5

Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, *Benchmarks for Science Literacy*, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask questions about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

### I. Classifying Living Things

Teachers: As the children study animal classification, discuss: *Why do we classify? How does classification help us understand the natural world?*

- Scientists have divided living things into five large groups called kingdoms, as follows:
  - Plant
  - Animal
  - Fungus (mushrooms, yeast, mold, mildew)
  - Protist (algae, protozoans, amoeba, euglena)
  - Moneran, also called Prokaryote (bacteria, blue-green algae/cyano bacteria)
- Each kingdom is divided into smaller groupings as follows:
  - Kingdom
  - Phylum
  - Class
  - Order
  - Family
  - Genus
  - Species
  - (Variety)
- When classifying living things, scientists use special names made up of Latin words (or words made to sound like Latin words), which help scientists around the world understand each other and ensure that they are using the same names for the same living things.
  - Homo sapiens*: the scientific name for the species to which human beings belong (genus *Homo*, species *sapiens*)
  - Taxonomists: biologists who specialize in classification
- Different classes of vertebrates and major characteristics: fish, amphibians, reptiles, birds, mammals (review from grade 3)

Teachers: Introduce an example of how an animal is classified, in order for students to become familiar with the system of classification, not to memorize specific names. For example, a collie dog is classified as follows:

Kingdom: Animalia  
 Phylum: Chordata (Subphylum: Vertebrata)  
 Class: Mammalia (mammal)  
 Order: Carnivora (eats meat)

**Note:** A useful mnemonic device is "King Philip Came Over For Good Spaghetti."



Family: Canidae (a group with doglike characteristics)  
Genus: *Canis* (a coyote, wolf, or dog)  
Species: *familiaris* (a domestic dog)  
Variety: Collie

## II. Cells: Structures and Processes

**Note:** Students will study cell division in more detail, including the processes of mitosis and meiosis, in grade 7.

See below, III. B, Photosynthesis re plant cells.

- All living things are made up of cells.
- Structure of cells (both plant and animal)
  - Cell membrane: selectively allows substances in and out
  - Nucleus: surrounded by nuclear membrane, contains genetic material, divides for reproduction
  - Cytoplasm contains organelles, small structures that carry out the chemical activities of the cell, including mitochondria (which produce the cell's energy) and vacuoles (which store food, water, or wastes).
- Plant cells, unlike animal cells, have cell walls and chloroplasts.
- Cells without nuclei: monerans (bacteria)
- Some organisms consist of only a single cell: for example, amoeba, protozoans, some algae.
- Cells are shaped differently in order to perform different functions.
- Organization of cells into tissues, organs, and systems:
  - In complex organisms, groups of cells form tissues (for example, in animals, skin tissue or muscle tissue; in plants, the skin of an onion or the bark of a tree).
  - Tissues with similar functions form organs (for example, in some animals, the heart, stomach, or brain; in some plants, the root or flower).
  - In complex organisms, organs work together in a system (recall, for example, from earlier studies of the human body, the digestive, circulatory, and respiratory systems).

## III. Plant Structures and Processes

### A. STRUCTURE: NON-VASCULAR AND VASCULAR PLANTS

- Non-vascular plants (for example, algae)
- Vascular plants
  - Vascular plants have tubelike structures that allow water and dissolved nutrients to move through the plant.
  - Parts and functions of vascular plants: roots, stems and buds, leaves

### B. PHOTOSYNTHESIS

- Photosynthesis is an important life process that occurs in plant cells, but not animal cells (photo = light; synthesis = putting together). Unlike animals, plants make their own food, through the process of photosynthesis.
- Role in photosynthesis of: energy from sunlight, chlorophyll, carbon dioxide and water, xylem and phloem, stomata, oxygen, sugar (glucose)

### C. REPRODUCTION

- Asexual reproduction
  - Example of algae
  - Vegetative reproduction: runners (for example, strawberries) and bulbs (for example, onions), growing plants from eyes, buds, leaves, roots, and stems
- Sexual reproduction by spore-bearing plants (for example, mosses and ferns)
- Sexual reproduction of non-flowering seed plants: conifers (for example, pines), male and female cones, wind pollination
- Sexual reproduction of flowering plants (for example, peas)
  - Functions of sepals and petals, stamen (male), anther, pistil (female), ovary (or ovule)

See below, IV. Life Cycles and Reproduction: asexual and sexual reproduction.



Process of seed and fruit production: pollen, wind, insect and bird pollination, fertilization, growth of ovary, mature fruit

Seed germination and plant growth: seed coat, embryo and endosperm, germination (sprouting of new plant), monocots (for example, corn) and dicots (for example, beans)

#### IV. Life Cycles and Reproduction

##### A. THE LIFE CYCLE AND REPRODUCTION

- Life cycle: development of an organism from birth to growth, reproduction, death  
Example: Growth stages of a human: embryo, fetus, newborn, infancy, childhood, adolescence, adulthood, old age
- All living things reproduce themselves. Reproduction may be asexual or sexual.  
Examples of asexual reproduction: fission (splitting) of bacteria, spores from mildews, molds, and mushrooms, budding of yeast cells, regeneration and cloning  
Sexual reproduction requires the joining of special male and female cells, called gametes, to form a fertilized egg.

##### B. SEXUAL REPRODUCTION IN ANIMALS

- Reproductive organs: testes (sperm) and ovaries (eggs)
- External fertilization: spawning
- Internal fertilization: birds, mammals
- Development of the embryo: egg, zygote, embryo, growth in uterus, fetus, newborn

#### V. The Human Body

##### A. CHANGES IN HUMAN ADOLESCENCE

- Puberty  
Glands and hormones (see below, Endocrine System), growth spurt, hair growth, breasts, voice change

##### B. THE ENDOCRINE SYSTEM

- The human body has two types of glands: duct glands (such as the salivary glands), and ductless glands, also known as endocrine glands.
- Endocrine glands secrete (give off) chemicals called hormones. Different hormones control different body processes.
- Pituitary gland: located at the bottom of the brain; secretes hormones that control other glands, and hormones that regulate growth
- Thyroid gland: located below the voice box; secretes a hormone that controls the rate at which the body burns and uses food
- Pancreas: both a duct and ductless gland; secretes a hormone called insulin that regulates how the body uses and stores sugar; when the pancreas does not produce enough insulin, a person has a sickness called diabetes (which can be controlled)
- Adrenal glands: secrete a hormone called adrenaline, especially when a person is frightened or angry, causing rapid heartbeat and breathing

##### C. THE REPRODUCTIVE SYSTEM

- Females: ovaries, fallopian tubes, uterus, vagina, menstruation
- Males: testes, scrotum, penis, urethra, semen
- Sexual reproduction: intercourse, fertilization, zygote, implantation of zygote in the uterus, pregnancy, embryo, fetus, newborn

**Note:** There is some flexibility in the grade-level placement of the study of topics relating to human reproduction, as different schools and districts have differing local requirements, typically introducing these topics in either fifth or sixth grade.



## VI. Chemistry: Matter and Change

### A. ATOMS, MOLECULES, AND COMPOUNDS

- Basics of atomic structure: nucleus, protons (positive charge), neutrons (neutral), electrons (negative charge)
- Atoms are constantly in motion, electrons move around the nucleus in paths called shells (or energy levels).
- Atoms may join together to form molecules and compounds.
- Common compounds and their formulas:  
water  $\text{H}_2\text{O}$   
salt  $\text{NaCl}$   
carbon dioxide  $\text{CO}_2$

### B. ELEMENTS

- Elements have atoms of only one kind, having the same number of protons. There are a little more than 100 different elements.
- The Periodic Table: organizes elements with common properties  
Atomic symbol and atomic number
- Some well-known elements and their symbols:  
Hydrogen H  
Helium He  
Carbon C  
Nitrogen N  
Oxygen O  
Sodium Na  
Aluminum Al  
Silicon Si  
Chlorine Cl  
Iron Fe  
Copper Cu  
Silver Ag  
Gold Au
- Two important categories of elements: metals and non-metals  
Metals comprise about  $\frac{2}{3}$  of the known elements.  
Properties of metals: most are shiny, ductile, malleable, conductive

### C. CHEMICAL AND PHYSICAL CHANGE

- Chemical change changes what a molecule is made up of and results in a new substance with a new molecular structure. Examples of chemical change: rusting of iron, burning of wood, milk turning sour
- Physical change changes only the properties or appearance of the substance, but does not change what the substance is made up of. Examples of physical change: cutting wood or paper, breaking glass, freezing water

**Note:** Students will examine the relation between the periodic table and atomic structure in more detail in grade 7.

**Note:** Qualitative description and investigation of chemical change is sufficient at this grade level.

See also World History 5: The Renaissance, *re* Galileo. See above, Classifying Living Things, *re* Linnaeus; Cells, *re* Ernest Just; Human Body—Endocrine System (Hormones), *re* Percy Lavon Julian.

## VII. Science Biographies

Galileo (“Father of modern science” who provided scientific support for Copernicus’s sun-centered universe)

Percy Lavon Julian (biologist and inventor who developed synthetic cortisone to treat arthritis pain)

Ernest Just (biologist and medical pioneer who specialized in studying cells and reproduction in marine animals)

Carl Linnaeus (botanist and “Father of taxonomy” who standardized the classification system)

# Grade 6



# Overview of Topics

## Grade 6

### English

- I. Writing, Grammar, and Usage
  - A. Writing and Research
  - B. Speaking and Listening
  - C. Grammar and Usage
  - D. Spelling
  - E. Vocabulary
- II. Poetry
  - A. Poems
  - B. Terms
- III. Fiction and Drama
  - A. Stories
  - B. Drama
  - C. Classical Mythology
  - D. Literary Terms
- IV. Sayings and Phrases

### History and Geography

#### World:

- I. World Geography
  - A. Spatial Sense
  - B. Great Deserts of the World
- II. Lasting Ideas from Ancient Civilizations
  - A. Judaism and Christianity
  - B. Ancient Greece
  - C. Ancient Rome
- III. The Enlightenment
- IV. The French Revolution
- V. Romanticism
- VI. Industrialism, Capitalism, and Socialism
  - A. The Industrial Revolution
  - B. Capitalism
  - C. Socialism
- VII. Latin American Independence Movements
  - A. History
  - B. Geography of Latin America

#### American:

- I. Immigration, Industrialization, and Urbanization
  - A. Immigration
  - B. Industrialization and Urbanization
- II. Reform

### Visual Arts

- I. Art History: Periods and Schools
  - A. Classical Art: The Art of Ancient Greece and Rome
  - B. Gothic Art
  - C. The Renaissance
  - D. Baroque
  - E. Rococo
  - F. Neoclassical
  - G. Romantic
  - H. Realism

### Music

- I. Elements of Music
- II. Classical Music: From Baroque to Romantic
  - A. Baroque
  - B. Classical
  - C. Romantic

### Mathematics

- I. Numbers and Number Sense
- II. Ratio, Percent, and Proportion
  - A. Ratio and Proportion
  - B. Percent
- III. Computation
  - A. Addition
  - B. Multiplication
  - C. Division
  - D. Solving Problems and Equations
- IV. Measurement
- V. Geometry
- VI. Probability and Statistics
- VII. Pre-Algebra

### Science

- I. Plate Tectonics
- II. Oceans
- III. Astronomy: Gravity, Stars, and Galaxies
- IV. Energy, Heat, and Energy Transfer
  - A. Energy
  - B. Heat
  - C. Physical Change: Energy Transfer
- V. The Human Body: Lymphatic and Immune Systems
- VI. Science Biographies



## I. Writing, Grammar, and Usage

**Teachers:** Students should be given many opportunities for writing, both imaginative and expository, with teacher guidance that strikes a balance between encouraging creativity and requiring correct use of conventions. In sixth grade, it is appropriate to emphasize revision, with the expectation that students will revise and edit to produce (in some cases) a finished product that is thoughtful, well-organized, and reasonably correct in grammar, mechanics, and spelling. Continue imaginative writing but place a stronger emphasis than in previous grades on expository writing, including, for example, summaries, book reports, essays that explain a process, and descriptive essays. Note also the requirement below for writing persuasive essays, a research essay, and a standard business letter.

### A. WRITING AND RESEARCH

- Learn strategies and conventions for writing a persuasive essay, with attention to
  - defining a thesis (that is, a central proposition, a main idea)
  - supporting the thesis with evidence, examples, and reasoning
  - distinguishing evidence from opinion
  - anticipating and answering counter-arguments
  - maintaining a reasonable tone
- Write a research essay, with attention to
  - asking open-ended questions
  - gathering relevant data through library and field research
  - summarizing, paraphrasing, and quoting accurately when taking notes
  - defining a thesis
  - organizing with an outline
  - integrating quotations from sources
  - acknowledging sources and avoiding plagiarism
  - preparing a bibliography
- Write a standard business letter.

### B. SPEAKING AND LISTENING

- Participate civilly and productively in group discussions.
- Give a short speech to the class that is well-organized and well-supported.
- Demonstrate an ability to use standard pronunciation when speaking to large groups and in formal circumstances, such as a job interview.

### C. GRAMMAR AND USAGE

- Understand what a complete sentence is, and
  - identify subject and predicate
  - identify independent and dependent clauses
  - correct fragments and run-ons
- Identify different sentence types, and write for variety by using
  - simple sentences
  - compound sentences
  - complex sentences
  - compound-complex sentences
- Correctly use punctuation introduced in earlier grades, and learn how to use a semi-colon or comma with *and*, *but*, or *or* to separate the sentences that form a compound sentence.
- Recognize verbs in active voice and passive voice, and avoid unnecessary use of passive voice.



- Recognize the following troublesome verbs and how to use them correctly:  
sit, set  
rise, raise  
lie, lay
- Correctly use the following:  
good / well  
between / among  
bring / take  
accept / except  
fewer / less  
like / as  
affect / effect  
who / whom  
imply / infer  
principle / principal  
their / there / they're

**D. SPELLING**

- Review spelling rules for use of *ie* and *ei*; for adding prefixes and suffixes
- Continue work with spelling, with special attention to commonly misspelled words, including:

**Note:** More commonly misspelled words are listed in grades 7 and 8.

acquaintance	develop	naturally	separate
amateur	embarrassed	occurrence	similar
analyze	exaggerate	parallel	sophomore
answer	exercise	peasant	substitute
athlete	fulfill	philosopher	success
Britain	gymnasium	possess	suspicion
characteristic	hypocrite	privilege	tragedy
committee	innocence	receipt	woman
conscious	interrupt	recommendation	writing
cooperate	license	repetition	
criticize	marriage	restaurant	
dependent	minimum	rhythm	

**E. VOCABULARY**

**Teachers:** Students should know the meaning of these Latin and Greek words that form common word roots and be able to give examples of English words that are based on them.

**Note:** More Latin and Greek words and roots are listed in grades 7 and 8. In the listings here, L = Latin, G = Greek. No single form of the Latin or Greek words is consistently used here, but rather the form that is most similar to related English words.

<u>Latin/Greek Word</u>	<u>Meaning</u>	<u>Examples</u>
annus [L]	year	annual, anniversary
ante [L]	before	antebellum, antecedent
aqua [L]	water	aquarium
astron [G]	star	astronaut, astronomy
bi [L]	two	bisect, bipartisan
bios [G]	life	biology, biography
centum [L]	hundred	cent, percent
decem [L]	ten	decade, decimal
dico, dictum [L]	say, thing said	dictation, dictionary
duo [G, L]	two	duplicate
ge [G]	earth	geology, geography
hydor [G]	water	hydrant, hydroelectric
magnus [L]	large, great	magnificent, magnify
mega [G]	large, great	megaphone, megalomania
mikros [G]	small	microscope, microfilm
minus [L]	smaller	diminish, minor
monos [G]	single	monologue, monarch, monopoly

omnis [L]	all	omnipotent, omniscient
phileo [G]	to love	philosophy, philanthropist
phone [G]	sound, voice	phonograph, telephone
photo [from G <i>phos</i> ]	light	photograph, photocopy
poly [G]	many	polygon
post [L]	after	posthumous, posterity
pre [L]	before	predict, prepare
primus [L]	first	primary, primitive
protos [G]	first	prototype, protozoa
psyche[G]	soul, mind	psychology
quartus [L]	fourth	quadrant, quarter
tele [G]	at a distance	telephone, television, telepathy
thermos [G]	heat	thermometer, thermostat
tri [G, L]	three	trilogy, triangle
unus [L]	one	unanimous, unilateral
video, visum [L]	see, seen	evident, visual
vita [L]	life	vitality, vitamin

## II. Poetry

### A. POEMS

**Teachers:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose students to more poetry, old and new, and to have students write their own poems. To bring students into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words. At this grade, poetry should be a source of delight, and, upon occasion, the subject of close attention. Students should examine some poems in detail, discussing what the poems mean as well as asking questions about the poet’s use of language.

- All the world’s a stage [from *As You Like It*] (William Shakespeare)
- Apostrophe to the Ocean [from *Childe Harold’s Pilgrimage*, Canto 4, Nos. 178-184] (George Gordon Byron)
- I Wandered Lonely as a Cloud (William Wordsworth)
- If (Rudyard Kipling)
- Mother to Son (Langston Hughes)
- Lift Ev’ry Voice and Sing (James Weldon Johnson)
- A narrow fellow in the grass (Emily Dickinson)
- A Psalm of Life (Henry Wadsworth Longfellow)
- The Raven (Edgar Allan Poe)
- A Song of Greatness (a Chippewa song, trans. Mary Austin)
- Stopping by Woods on a Snowy Evening (Robert Frost)
- Sympathy (Paul Laurence Dunbar)
- There is no frigate like a book (Emily Dickinson)
- The Walloping Window-blind (Charles E. Carryl)
- Woman Work (Maya Angelou)

### B. TERMS

- meter
- iamb
- couplet
- rhyme scheme
- free verse

See also World History 6: Romanticism, re “Apostrophe to the Ocean” and “I Wandered Lonely as a Cloud.”

### III. Fiction and Drama

**Teachers:** *The Iliad*, *The Odyssey*, and *Julius Caesar* are available in editions adapted for young readers.

#### A. STORIES

*The Iliad* and *The Odyssey* (Homer)  
*The Prince and the Pauper* (Mark Twain)

#### B. DRAMA

*Julius Caesar* (William Shakespeare)

#### C. CLASSICAL MYTHOLOGY

Apollo and Daphne  
Orpheus and Eurydice  
Narcissus and Echo  
Pygmalion and Galatea

#### D. LITERARY TERMS

- Epic
- Literal and figurative language (review from grade 5)
  - imagery
  - metaphor and simile
  - symbol
  - personification

See also World History 6:  
Ancient Greece, re *The Iliad*  
and *The Odyssey*.

See also World History 6:  
Ancient Rome, re *Julius*  
*Caesar*.

See also World History 6:  
Ancient Greece and Rome.  
Students who are not familiar  
with classical myths specified  
in grades 2 and 3 of the *Core*  
*Knowledge Sequence* should  
read those selections as well.

### IV. Sayings and Phrases

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many children, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with children from home cultures that differ from the standard culture of literate American English.

All for one and one for all.  
All's well that ends well.  
Bee in your bonnet  
The best-laid plans of mice and men oft go awry.  
A bird in the hand is worth two in the bush.  
Bite the dust  
Catch-as-catch-can  
Don't cut off your nose to spite your face.  
Don't lock the stable door after the horse is stolen.  
Don't look a gift horse in the mouth.  
Eat humble pie  
A fool and his money are soon parted.  
A friend in need is a friend indeed.  
Give the devil his due.  
Good fences make good neighbors.  
He who hesitates is lost.  
He who laughs last laughs best.  
Hitch your wagon to a star.  
If wishes were horses, beggars would ride.  
The leopard doesn't change his spots.  
Little strokes fell great oaks.  
Money is the root of all evil.

Necessity is the mother of invention.  
It's never over till it's over.  
Nose out of joint  
Nothing will come of nothing.  
Once bitten, twice shy.  
On tenterhooks  
Pot calling the kettle black  
Procrastination is the thief of time.  
The proof of the pudding is in the eating.  
RIP  
The road to hell is paved with good intentions.  
Rome wasn't built in a day.  
Rule of thumb  
A stitch in time saves nine.  
Strike while the iron is hot.  
Tempest in a teapot  
Tenderfoot  
There's more than one way to skin a cat.  
Touché!  
Truth is stranger than fiction.



## History and Geography: Grade 6

**Teachers:** The World History guidelines for sixth grade begin with a study of ancient civilizations introduced in earlier grades in the *Core Knowledge Sequence*. Topics include Judaism, Christianity, and the civilizations of ancient Greece and Rome. The focus in sixth grade should be on the legacy of enduring ideas from these civilizations—ideas about democracy and government, for example, or about right and wrong. After this study of lasting ideas from ancient civilizations, the World History guidelines pick up the chronological thread from earlier grades with a study of the Enlightenment. You are encouraged to use timelines and engage students in a brief review of some major intervening events in order to help students make a smooth transition across the gap in centuries between the ancient civilizations and the Enlightenment.

In sixth grade, the World History guidelines catch up chronologically with the American History guidelines. The World History guidelines take students up to the consequences of industrialization in the mid-nineteenth century, and this is where the American History guidelines begin.

### WORLD HISTORY AND GEOGRAPHY

#### I. World Geography

**Teachers:** By sixth grade, children should have a good working knowledge of map-reading skills, as well as geographic terms and features introduced in earlier grades. The study of geography embraces many topics throughout the *Core Knowledge Sequence*, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures. Many geographic topics are listed below in connection with historical topics.

##### A. SPATIAL SENSE (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** As necessary, review and reinforce topics from earlier grades, including:

- Continents and major oceans
- How to read maps and globes using longitude and latitude, coordinates, degrees
- Tropic of Cancer and Tropic of Capricorn: relation to seasons and temperature
- Climate zones: Arctic, Tropic, Temperate
- Time zones (review from Grade 4): Prime Meridian (0 degrees); Greenwich, England; 180° Line (International Date Line)
- Arctic Circle (imaginary lines and boundaries) and Antarctic Circle

##### B. GREAT DESERTS OF THE WORLD

- What is a desert? Hot and cold deserts
- Major deserts in
  - Africa: Sahara, Kalahari
  - Australia: a mostly desert continent
  - Asia: Gobi; much of Arabian Peninsula
  - North America: Mojave, Chihuahuan, Sonoran
  - South America: Atacama Desert

**Note:** In earlier grades, children were introduced to major rivers (see Geography 3), mountains (see Geography 4), and lakes (see Geography 5) of the world.

## II. Lasting Ideas from Ancient Civilizations

### A. JUDAISM AND CHRISTIANITY

**Teachers:** Since religion is a shaping force in the story of civilization, the *Core Knowledge Sequence* introduces children in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. Here in the sixth grade the focus is on history, geography, and ideas. The purpose is not to explore matters of theology but to understand the place of religion and religious ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past.

A review of major religions introduced in earlier grades in the *Core Knowledge Sequence* is recommended: Judaism/Christianity/Islam (grade 1), Hinduism/Buddhism (grade 2), Islam (grade 4), and Buddhism/Shintoism (grade 5).

- Basic ideas in common
  - The nature of God and of humanity
  - Hebrew Bible and Old Testament of Christian Bible
- Judaism: central ideas and moral teachings
  - Torah, monotheism
  - The idea of a “covenant” between God and man
  - Concepts of law, justice, and social responsibility: the Ten Commandments
- Christianity: central ideas and moral teachings
  - New Testament
  - The Sermon on the Mount and the two “great commandments” (Matthew 22: 37-40)
- Geography of the Middle East
  - Birthplace of major world religions: Judaism, Christianity, Islam
  - Anatolian Peninsula, Arabian Peninsula
  - Mesopotamia, Tigris and Euphrates Rivers
  - Atlas Mountains, Taurus Mountains
  - Mediterranean Sea, Red Sea, Black Sea, Arabian Sea, Persian Gulf
  - The “silk road”
  - Climate and terrain: vast deserts (Sahara, Arabian)

**Note:** Students will examine the political and physical geography of the present-day Middle East in grade 8.

See also English 6: Homer, *The Iliad* and *The Odyssey* and Classical Mythology.

### B. ANCIENT GREECE

**Teachers:** Briefly review from grade 2: religion, art, architecture, daily life of ancient Greece.

- The Greek polis (city-state) and patriotism
- Beginnings of democratic government: Modern American democratic government has its roots in Athenian democracy (despite the obvious limitations on democracy in ancient Greece, for example, slavery, vote denied to women)
  - The Assembly
  - Suffrage, majority vote
- The “classical” ideal of human life and works
  - The ideal of the well-rounded individual and worthy citizen
  - Pericles and the “Golden Age”
  - Architecture: the Parthenon
  - Games: The Olympics
- Greek wars: victory and hubris, defeat and shame
  - Persian Wars: Marathon, Thermopylae, Salamis
  - The Peloponnesian War: Sparta defeats Athens
- Socrates and Plato
  - Socrates was Plato’s teacher; we know of him through Plato’s writings.
  - For Socrates, wisdom is knowing that you do not know.
  - The trial of Socrates

See also Visual Arts 6: Raphael’s *School of Athens*. You may also want to examine David’s *Death of Socrates*.

- Plato and Aristotle  
Plato was Aristotle's teacher.  
They agreed that reason and philosophy should rule our lives, not emotion and rhetoric.  
They disagreed about where true "reality" is: Plato says it is beyond physical things in ideas (cf. the "allegory of the cave"); Aristotle says reality is only in physical things.
- Alexander the Great and the spread of Greek ("Hellenistic") culture: the library at Alexandria

### C. ANCIENT ROME

**Teachers: Briefly review from grade 3: Romulus and Remus, Roman gods, legends, daily life, etc.**

- The Roman Republic  
Builds upon Greek and classical ideals  
Class and status: patricians and plebeians, slaves  
Roman government: consuls, tribunes, and senators
- The Punic Wars: Rome vs. Carthage
- Julius Caesar
- Augustus Caesar  
Pax Romana  
Roman law and the administration of a vast, diverse empire  
Virgil, *The Aeneid*: epic on the legendary origins of Rome
- Christianity under the Roman Empire  
Jesus's instruction to "Render unto Caesar the things which are Caesar's, and unto God the things that are God's" [Matthew 22:21]  
Roman persecution of Christians  
Constantine: first Christian Roman emperor
- The "decline and fall" of the Roman Empire  
Causes debated by historians for many hundreds of years (outer forces such as shrinking trade, attacks and invasions vs. inner forces such as disease, jobless masses, taxes, corruption and violence, rival religions and ethnic groups, weak emperors)  
Rome's "decline and fall" perceived as an "object lesson" for later generations and societies

See also English 6:  
Shakespeare's *Julius Caesar*.

### III. The Enlightenment

**Teachers: You are encouraged to use timelines and engage students in a brief review of some major intervening events in order to help students make a smooth transition across the gap in centuries between the ancient civilizations and the Enlightenment. Place the Enlightenment (17th and 18th centuries) in chronological context, in relation to eras and movements studied in earlier grades (Middle Ages, Age of Exploration & Renaissance, American Revolution, etc.).**

- Faith in science and human reason, as exemplified by  
Isaac Newton and the laws of nature  
Descartes: "cogito ergo sum"
- Two ideas of "human nature": Thomas Hobbes and John Locke  
Hobbes: the need for a strong governing authority as a check on "the condition of man . . . [which] is a condition of war of everyone against everyone"  
Locke: the idea of man as a "tabula rasa" and the optimistic belief in education; argues against doctrine of divine right of kings and for government by consent of the governed
- Influence of the Enlightenment on the beginnings of the United States  
Thomas Jefferson: the idea of "natural rights" in the Declaration of Independence  
Montesquieu and the idea of separation of powers in government

See also Science 6: Science  
Biographies: Isaac Newton.

## IV. The French Revolution

**Teachers:** While the focus here is on the French Revolution, make connections with what students already know about the American Revolution, and place the American and French Revolutions in the larger global context of ideas and movements.

- The influence of Enlightenment ideas and of the English Revolution on revolutionary movements in America and France
- The American Revolution: the French alliance and its effect on both sides
- The Old Regime in France (*L'Ancien Régime*)
  - The social classes: the three Estates
  - Louis XIV, the “Sun King”: Versailles
  - Louis XV: “*Après moi, le déluge*”
  - Louis XVI: the end of the Old Regime
  - Marie Antoinette: the famous legend of “Let them eat cake”
- 1789: from the Three Estates to the National Assembly
  - July 14, Bastille Day
  - Declaration of the Rights of Man
  - October 5, Women’s March on Versailles
  - “Liberty, Equality, Fraternity”
- Louis XVI and Marie Antoinette to the guillotine
- Reign of Terror: Robespierre, the Jacobins, and the “Committee of Public Safety”
- Revolutionary arts and the new classicism
- Napoleon Bonaparte and the First French Empire
  - Napoleon as military genius
  - Crowned Emperor Napoleon I: reinventing the Roman Empire
  - The invasion of Russia
  - Exile to Elba
  - Wellington and Waterloo

See also Visual Arts 6: David, *Oath of the Horatii*; Delacroix, *Liberty Leading the People*.

## V. Romanticism

- Beginning in early nineteenth century Europe, Romanticism refers to the cultural movement characterized by:
  - The rejection of classicism and classical values
  - An emphasis instead on emotion and imagination (instead of reason)
  - An emphasis on nature and the private self (instead of society and man in society)
- The influence of Jean-Jacques Rousseau’s celebration of man in a state of nature (as opposed to man in society): “Man is born free and everywhere he is in chains”; the idea of the “noble savage”
- Romanticism in literature, the visual arts, and music

See also English 6: Wordsworth, “I Wandered Lonely as a Cloud”; Byron, “Apostrophe to the Ocean” (from *Childe Harold’s Pilgrimage*); Visual Arts 6, Romantic Art; and Music 6, Romantic Music.

## VI. Industrialism, Capitalism, and Socialism

### A. THE INDUSTRIAL REVOLUTION

- Beginnings in Great Britain
  - Revolution in transportation: canals, railroads, new highways
  - Steam power: James Watt
- Revolution in textiles: Eli Whitney and the cotton gin, factory production
- Iron and steel mills
- The early factory system
  - Families move from farm villages to factory towns
  - Unsafe, oppressive working conditions in mills and mines
  - Women and child laborers
  - Low wages, poverty, slums, disease in factory towns
  - Violent resistance: Luddites

**Note:** In sixth grade, the World History guidelines catch up chronologically with the American History guidelines. The World History guidelines take students up to the consequences of industrialization in the mid-nineteenth century, and this is where the American History guidelines begin. See American History 6, Industrialization and Urbanization.

**B. CAPITALISM**

- Adam Smith and the idea of laissez faire vs. government intervention in economic and social matters
- Law of supply and demand
- Growing gaps between social classes: Disraeli's image of "two nations" (the rich and the poor)

**C. SOCIALISM**

- An idea that took many forms, all of which had in common their attempt to offer an alternative to capitalism
  - For the public ownership of large industries, transport, banks, etc., and the more equal distribution of wealth
- Marxism: the Communist form of Socialism
  - Karl Marx and Friedrich Engels, The Communist Manifesto: "Workers of the world, unite!"
  - Class struggle: bourgeoisie and proletariat
  - Communists, in contrast to Socialists, opposed all forms of private property.

See also American History 6:  
Labor, International Workers  
of the World; Eugene Debs.

**VII. Latin American Independence Movements****A. HISTORY**

- The name "Latin America" comes from the Latin origin of the languages now most widely spoken (Spanish and Portuguese).
- Haitian revolution
  - Toussaint L'Ouverture
  - Abolition of West Indian slavery
- Mexican revolutions
  - Miguel Hidalgo
  - José María Morelos
  - Santa Anna vs. the United States
  - Benito Juárez
  - Pancho Villa, Emiliano Zapata
- Liberators
  - Simon Bolivar
  - José de San Martín
  - Bernardo O'Higgins
- New nations in Central America: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
- Brazilian independence from Portugal

**B. GEOGRAPHY OF LATIN AMERICA**

- Mexico: Yucatan Peninsula, Mexico City
- Panama: isthmus, Panama Canal
- Central America and South America: locate major cities and countries including
  - Caracas (Venezuela)
  - Bogota (Colombia)
  - Quito (Ecuador)
  - Lima (Peru)
  - Santiago (Chile)
  - La Paz (Bolivia)
- Andes Mountains
- Brazil: largest country in South America, rain forests, Rio de Janeiro, Amazon River
- Argentina: Rio de la Plata, Buenos Aires, Pampas

Teachers: The sixth grade American History guidelines pick up chronologically with the World History guidelines on mid-nineteenth century industrialism and its consequences.



See below, Reform: Jane Addams, settlement houses; Jacob Riis, ghettos in the modern city.

See also World History 6: Industrial Revolution.

See also World History 6: Capitalism, laissez-faire.

### I. Immigration, Industrialization, and Urbanization

#### A. IMMIGRATION

- Waves of new immigrants from about 1830 onward
  - Great migrations from Ireland (potato famine) and Germany
  - From about 1880 on, many immigrants arrive from southern and eastern Europe.
  - Immigrants from Asian countries, especially China
  - Ellis Island, “The New Colossus” (poem on the Statue of Liberty, written by Emma Lazarus)
  - Large populations of immigrants settle in major cities, including New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, San Francisco
- The tension between ideals and realities
  - The metaphor of America as a “melting pot”
  - America perceived as “land of opportunity” vs. resistance, discrimination, and “nativism”
  - Resistance to Catholics and Jews
  - Chinese Exclusion Act

#### B. INDUSTRIALIZATION AND URBANIZATION

- The post-Civil War industrial boom
  - The “Gilded Age”
  - The growing gap between social classes
  - Horatio Alger and the “rags to riches” story
  - Growth of industrial cities: Chicago, Cleveland, Pittsburgh
  - Many thousands of African-Americans move north.
  - Urban corruption, “machine” politics: “Boss” Tweed in New York City, Tammany Hall
- The condition of labor
  - Factory conditions: “sweat shops,” long work hours, low wages, women and child laborers
  - Unions: American Federation of Labor, Samuel Gompers
  - Strikes and retaliation: Haymarket Square; Homestead, Pennsylvania
  - Labor Day
- The growing influence of big business: industrialists and capitalists
  - “Captains of industry” and “robber barons”: Andrew Carnegie, J. P. Morgan, Cornelius Vanderbilt
  - John D. Rockefeller and the Standard Oil Company as an example of the growing power of monopolies and trusts
  - Capitalists as philanthropists (funding museums, libraries, universities, etc.)
- “Free enterprise” vs. government regulation of business: Interstate Commerce Act and Sherman Antitrust Act attempt to limit power of monopolies

### II. Reform

- Populism
  - Discontent and unrest among farmers
  - The gold standard vs. “free silver”
  - William Jennings Bryan
- The Progressive Era
  - “Muckraking”: Ida Tarbell on the Standard Oil Company; Upton Sinclair, *The Jungle*, on the meat packing industry
  - Jane Addams: settlement houses

See also English 6: Poetry,  
Paul Laurence Dunbar,  
"Sympathy."

**Note:** Briefly review people  
and ideas studied in grade 4,  
American History, Reformers:  
Women's Rights.

See also World History 6:  
Socialism and Capitalism.

- Jacob Riis, *How the Other Half Lives*: tenements and ghettos in the modern city
- President Theodore (Teddy) Roosevelt: conservation and trust-busting
- Reform for African-Americans
  - Ida B. Wells: campaign against lynching
  - Booker T. Washington: Tuskegee Institute, Atlanta Exposition Address,  
"Cast down your bucket where you are"
  - W. E. B. DuBois: founding of NAACP, "The problem of the twentieth century is the  
problem of the color line," *The Souls of Black Folk*
- Women's suffrage
  - Susan B. Anthony
  - Nineteenth Amendment (1920)
- The Socialist critique of America: Eugene V. Debs

## Visual Arts: Grade 6

SEE INTRODUCTION, “The Arts in the Curriculum.”

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

In studying the works of art specified below, and in creating their own art, students should review, develop, and apply concepts introduced in previous grades, such as line, shape, form, space, texture, color, light, design, and symmetry.

### I. Art History: Periods and Schools

**Teachers:** The focus here is intended to combine art history with analysis of specific illustrative works. Introduce the idea of classifying Western art by periods and schools, with major characteristics of each period and school. Timelines may help students situate the periods and schools. Note that the periods and characteristics are not absolute distinctions but generally helpful categories (to which there are always exceptions) often used in discussions of art. The following topics extend to the mid-nineteenth century. In later grades, students will examine late-nineteenth and twentieth-century art movements.

#### A. CLASSICAL ART: THE ART OF ANCIENT GREECE AND ROME

- Observe characteristics considered “classic”—emphasis on balance and proportion, idealization of human form—in  
The Parthenon and the Pantheon  
*The Discus Thrower* and *Apollo Belvedere*

#### B. GOTHIC ART (ca. 12th - 15th centuries)

- Briefly review the religious inspiration and characteristic features of Gothic cathedrals.

#### C. THE RENAISSANCE (ca. 1350-1600)

- Briefly review main features of Renaissance art (revival of classical subjects and techniques, emphasis on humanity, discovery of perspective) and examine representative works, including  
Raphael, *The School of Athens*  
Michelangelo, *David* (review from grade 5)

#### D. BAROQUE (ca. 17th century)

- Note the dramatic use of light and shade, turbulent compositions, and vivid emotional expression in  
El Greco, *View of Toledo* (also known as *Toledo in a Storm*)  
Rembrandt: a self-portrait, such as *Self-Portrait, 1659*

#### E. ROCOCO (ca. mid- to late-1700's)

- Note the decorative and “pretty” nature of Rococo art, the use of soft pastel colors, and the refined, sentimental, or playful subjects in  
Jean Honoré Fragonard, *The Swing*

See also World History 6: Lasting Ideas from Greece and Rome, re Classical art.

See Visual Arts 4 for more detailed guidelines on Gothic architecture.

See Visual Arts 5 for more detailed guidelines on Renaissance art. See also World History 6: Lasting Ideas from Greece and Rome, re Raphael's *School of Athens*.



See also World History 6: French Revolution, *re* David. You may also wish to introduce David's *Death of Socrates* when you study Lasting Ideas from Greece and Rome. See World History 6.

See also World History 6: Romanticism, *re* Romantic art; and French Revolution, *re* Delacroix's *Liberty Leading the People*.

**F. NEOCLASSICAL (ca. late 18th - early 19th century)**

- Note as characteristic of Neoclassical art the reaction against Baroque and Rococo, the revival of classical forms and subjects, belief in high moral purpose of art, and balanced, clearly articulated forms in  
Jacques Louis David, *Oath of the Horatii*

**G. ROMANTIC (ca. late 18th - 19th century)**

- Note how Romantic art is in part a reaction against Neoclassicism, with a bold, expressive, emotional style, and a characteristic interest in the exotic or in powerful forces in nature, in  
Francisco Goya, *The Bullfight*  
Eugene Delacroix, *Liberty Leading the People*  
Caspar David Friedrich, *The Chalk Cliffs on Rugen*












**H. REALISM (ca. mid- to late-19th century)**

- Note the Realist's characteristic belief that art should represent ordinary people and activities, that art does not have to be uplifting, edifying, or beautiful, in  
Jean Millet, *The Gleaners*  
Gustave Courbet, *The Stone Breakers*
- Become familiar with examples of American realism, including  
Winslow Homer, *Northeaster*  
Thomas Eakins, *The Gross Clinic*  
Henry O. Tanner, *The Banjo Lesson*

SEE INTRODUCTION, "The Arts in the Curriculum."

## I. Elements of Music

**Teachers:** The Music guidelines for grades 6–8 share a basic vocabulary of the elements of music that can inform the discussion, appreciation, and study of selected musical works. Following these guidelines are recommendations in each grade for a core of musical content, broadly organized as a history of music from early to modern times, with attention to specific periods, composers, and genres. While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as local resources allow.

- Review as necessary from earlier grades:
  - The orchestra and families of instruments (strings, wind, brass, percussion); keyboard instruments
  - Vocal ranges: soprano, mezzo-soprano, alto; tenor, baritone, bass
- Recognize frequently used Italian terms:
  - grave* (very very slow)
  - largo* (very slow)
  - adagio* (slow)
  - andante* (moderate; "walking")
  - moderato* (medium)
  - allegro* (fast)
  - presto* (very fast)
  - prestissimo* (as fast as you can go)
  - ritardando* and *accelerando* (gradually slowing down and getting faster)
  - crescendo* and *decrescendo* (gradually increasing and decreasing volume)
  - legato* (smoothly flowing progression of notes), *staccato* (crisp, distinct notes)
- Recognize introduction, interlude, and coda in musical selections.
- Recognize theme and variations.
- Identify chords [such as I (tonic), IV (subdominant), V (dominant); V7]; major and minor chords; chord changes; intervals (third, fourth, fifth).
- Understand what an octave is.
- Understand the following notation and terms:
  - names of lines and spaces in the treble clef; middle C
  -  treble clef  bass clef  staff, bar line, double bar line, measure, repeat signs
  -  whole note  half note  quarter note  eighth note
  - whole rest, half rest, quarter rest, eighth rest
  -  grouped sixteenth notes
  - tied notes and dotted notes
  -  sharps  flats  naturals
  - Da capo* [*Da Capo*] *al fine*
  - meter signature:  $\frac{4}{4}$  or common time  $\frac{2}{4}$   $\frac{3}{4}$   $\frac{6}{8}$
  - soft *pp* *p* *mp* loud *mf* *f* *ff*

## II. Classical Music: From Baroque to Romantic

**Teachers:** While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as resources allow. The focus here combines music history with appreciation of illustrative works, and introduces the idea of classifying Western music by periods, with examples of specific composers and works, as well as some associated musical terms. Timelines may help students situate the periods. The periods and their characteristics are not absolute distinctions but generally helpful categories often used in discussions of music. A brief review of Medieval (grade 4) and Renaissance (grade 5) music is suggested.

**Note:** re Baroque music, recall from grade 2, Antonio Vivaldi, *The Four Seasons*.

**Note:** re classical symphony, recall from grade 4, Haydn, *Symphony No. 94* (“Surprise”); and, from grade 5, Beethoven, *Symphony No. 5*.

**Note:** Beethoven and Schubert are often considered transitional figures between Classic and Romantic. Students will study other Romantic composers in seventh grade, including Brahms, Berlioz, Liszt, and Wagner.

### A. BAROQUE (ca. 1600-1750)

- Counterpoint, fugue, oratorio
- Johann Sebastian Bach: selections from *Brandenburg Concertos*, selections from *The Well-Tempered Clavier*, selections from the *Cantatas* such as *BWV 80*, *BWV 140*, or *BWV 147*
- George Frederick Handel: selections from *Water Music*, “Hallelujah Chorus” from *The Messiah*

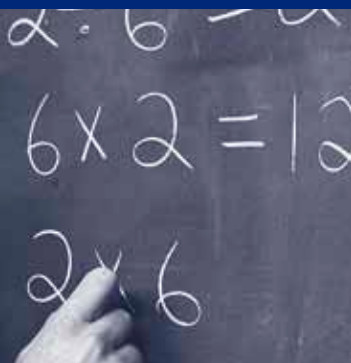
### B. CLASSICAL (ca. 1750-1825)

- The classical symphony (typically in four movements)  
Wolfgang Amadeus Mozart, *Symphony No. 40*
- The classical concerto: soloist, cadenza  
Wolfgang Amadeus Mozart, *Piano Concerto No. 21*
- Chamber music: string quartet, sonata  
Franz Joseph Haydn, *String Quartet Opus 76 No. 3, “Emperor”*  
Ludwig van Beethoven, *Piano Sonata No. 14 (“Moonlight” Sonata)*

### C. ROMANTIC (ca. 1800-1900)

- Beethoven as a transitional figure: *Symphony No. 9* (fourth movement)
- Romantic composers and works:  
Franz Schubert, lieder (art songs): *Die Forelle* (“The Trout”), *Gretchen am Spinnrade* (“Gretchen at the Spinning Wheel”)  
Frederic Chopin: “Funeral March” from *Piano Sonata No. 2 in B flat minor, “Minute” Waltz*, “*Revolutionary*” *Etude in C minor*  
Robert Schumann, *Piano Concerto in A Minor*

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics requires incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of “higher-order problem-solving skills,” it is equally important—indeed, it is prerequisite to achieving “higher order” skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.



## I. Numbers and Number Sense

- Read and write numbers (in digits and words) up to the trillions.
- Recognize place value up to hundred-billions.
- Integers (review):
  - Locate positive and negative integers on a number line.
  - Compare integers using  $<$ ,  $>$ ,  $=$ .
  - Know that the sum of an integer and its opposite is 0.
  - Add and subtract positive and negative integers.
- Determine whether a number is a prime number or composite number.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand; to the nearest hundred thousand; to the nearest million.
- Compare and order whole numbers, mixed numbers, fractions, and decimals, using the symbols  $<$ ,  $>$ ,  $=$ .
- Determine the greatest common factor (GCF) of given numbers.
- Determine the least common multiple (LCM) of given numbers.
- Exponents:
  - Review squares and square roots.
  - Using the terms *squared* and *cubed* and *to the  $n$ th power*, read and evaluate numerical expressions with exponents.
  - Review powers of ten.
  - Write numbers in expanded notation using exponents.

**Note:** See Math 5: Fractions and Decimals; review these topics as needed.

## II. Ratio, Percent, and Proportion

### A. RATIO AND PROPORTION

- Solve proportions, including word problems involving proportions with one unknown.
- Use ratios and proportions to interpret map scales and scale drawings.
- Set up and solve proportions from similar triangles.
- Understand the justification for solving proportions by cross-multiplication.

### B. PERCENT

- Convert between fractions, decimals, and percents.
- Find the given percent of a number, and find what percent a given number is of another number.
- Solve problems involving percent increase and decrease.
- Find an unknown number when a percent of the number is known.
- Use expressions with percents greater than 100% and less than 1%.

### III. Computation

#### A. ADDITION

- Addition, commutative and associative properties: know the names and understand the properties.  
Understand addition and subtraction as inverse operations.  
Add and subtract with integers, fractions and decimals, both positive and negative.

#### B. MULTIPLICATION

- Commutative, associative, and distributive properties: know the names and understand the properties.
- Multiply multi-digit factors, with and without a calculator.
- Estimate a product.
- Multiply with integers, fractions, and decimals, both positive and negative.
- Distributive property for multiplication over addition or subtraction, that is,  $A \times (B+C)$  or  $A \times (B-C)$ : understand its use in procedures such as multi-digit multiplication.

#### C. DIVISION

- Understand multiplication and division as inverse operations.
- Estimate the quotient.
- Divide multi-digit dividends by up to three-digit divisors, with and without a calculator.
- Divide with integers, fractions, or decimals, both positive and negative.

#### D. SOLVING PROBLEMS AND EQUATIONS

- Solve word problems with multiple steps.
- Solve problems with more than one operation, according to order of operations (with and without a calculator).

### IV. Measurement

**Teachers:** Students should know all information regarding measurement presented in grades 4 and 5; review and reinforce as necessary.

- Solve problems requiring conversion of units within the U. S. Customary System, and within the metric system.
- Associate prefixes used in metric system with quantities:  
kilo = thousand  
hecto = hundred  
deka = ten  
deci = tenth  
centi = hundredth  
milli = thousandth
- Time: solve problems on elapsed time; express parts of an hour in fraction or decimal form.

### V. Geometry

- Identify and use signs that mean  
congruent  $\cong$   
similar  $\sim$   
parallel  $\parallel$   
perpendicular  $\perp$
- Construct parallel lines and a parallelogram.
- Construct a perpendicular bisector.
- Know that if two lines are parallel, any line perpendicular to one is also perpendicular to the other; and, that two lines perpendicular to the same line are parallel.



- **Angles:**
  - Identify and measure the degrees in angles (review terms: right, acute, obtuse, straight).
  - Bisect an angle.
  - Construct an angle congruent to a given angle.
  - Construct a figure congruent to a given figure, using reflection over a line of symmetry, and identify corresponding parts.
  - Show how congruent plane figures can be made to correspond through reflection, rotation, and translation.
- **Triangles:**
  - Know that the sum of the measures of the angles of a triangle is  $180^\circ$ .
  - Construct different kinds of triangles.
  - Know terms by which we classify kinds of triangles:
    - by length of sides: equilateral, isosceles, scalene
    - by angles: right, acute, obtuse
- Identify congruent angles and sides, and axes of symmetry, in parallelograms, rhombuses, rectangles, and squares.
- Find the area (A) and perimeter (P) of plane figures, or given the area or perimeter find the missing dimension, using the following formulas:
  - rectangle
    - $A = lw$
    - $P = 2(l + w)$
  - square
    - $A = s^2$
    - $P = 4s$
  - triangle
    - $A = \frac{1}{2}bh$
    - $P = s_1 + s_2 + s_3$
  - parallelogram
    - $A = bh$
    - $P = 2(b + s)$
- **Circles:**
  - Identify arc, chord, radius (plural: radii), and diameter; know that radius =  $\frac{1}{2}$  diameter.
  - Using a compass, draw circles with a given diameter or radius.
  - Solve problems involving application of the formulas for finding the circumference of a circle:  $C = \pi d$ , and  $C = 2\pi r$ , using 3.14 as the value of  $\pi$ .
  - Find the area of a circle using the formula  $A = \pi r^2$
- Find volume of rectangular solids, or given the volume find a missing dimension, using the formulas  $V = lwh$ , or  $V = bh$  (in which  $b$  = area of base).

## VI. Probability and Statistics

- Find the range and measures of central tendency (mean, median, and mode) of a given set of numbers.
- Understand the differences among the measures of central tendency and when each might be used.
- Understand the use of a sample to estimate a population parameter (such as the mean), and that larger samples provide more stable estimates.
- Represent all possible outcomes of independent compound events in an organized way and determine the theoretical probability of each outcome.
- Compute the probability of any one of a set of disjoint events as the sum of their individual probabilities.
- Solve problems requiring interpretation and application of graphically displayed data.
- Given a set of data, find the mean, median, range, and mode.
- Construct a histogram; a tree diagram.

- Coordinate plane:
  - Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers.
  - Use the terms *origin* (0,0), *x-axis*, and *y-axis*.
  - Graph simple functions and solve problems involving use of a coordinate plane.

## VII. Pre-Algebra

- Recognize uses of variables and solve linear equations in one variable.
- Solve word problems by assigning variables to unknown quantities, writing appropriate equations, and solving them.
- Find the value for an expression, given replacement values for the variables; for example, what is  $7/x - y$  when  $x$  is 2 and  $y$  is 10?
- Simplify expressions with variables by combining like terms.
- Understand the use of the distributive property in variable expressions such as  $2x(2y + 3)$ .

Teachers: Effective instruction in science requires not only hands-on experience and observation but also book learning, which helps bring coherence and order to a student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in their scientific learning. The Science sequence for the middle school grades aims for more intensive and selective study of topics, a number of which were introduced in earlier grades. It also continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings.



## I. Plate Tectonics

- The surface of the earth
  - The surface of the earth is in constant movement.
  - The present features of earth come from its ongoing history. After the sun was formed, matter cooled creating the planets. The continents were once joined (Pangaea).
- Layered structure of the earth
  - Crust: surface layer of mainly basalt or granite, 5 to 25 miles thick
  - Mantle: 1,800 miles thick, rock of intermediate density, moves very slowly
  - Outer core: liquid iron and nickel
  - Inner core: solid iron and nickel, 800 miles thick, about 7,000 degrees C
- Crust movements
  - The surface of earth is made up of rigid plates that are in constant motion.
  - Plates move because molten rock rises and falls under the crust causing slowly flowing currents under the plates.
  - Plates move at speeds ranging from 1 to 4 inches (5-10 centimeters) per year.
  - Earthquakes usually occur where stress has been built up by plates moving in opposite directions against each other. Earthquakes cause waves (vibrations) which have:
    - focus, the point below the surface where the quake begins
    - epicenter, the point on the surface above the focus
  - Severity of ground shaking is measured on the Richter scale; each unit on the scale represents a tenfold severity increase
- Volcanoes usually occur where plates are pulling apart or coming together, but some occur at holes (hot spots) in the crust away from plate boundaries. As plates move over these hot spots, they cause chains of volcanoes and island chains like the Hawaiian Islands.
- Evidence for long-term movement of plates includes fit of continents and matches of rock types, fossils, and structures; ocean floor age and topography; ancient climate zones; locations of earthquakes, volcanoes, and mountain ranges; magnetic directions in ancient rocks.

## II. Oceans

- Surface
  - The world ocean covers most of the earth's surface (71 per cent).
  - Three major subdivisions of the world ocean: Atlantic, Pacific, and Indian Oceans
  - Islands consist of high parts of submerged continents, volcanic peaks, coral atolls.
- Subsurface land features
  - Continental shelf, continental slope, continental rise, abyssal plains
  - Mid-ocean ridges and trenches, plate tectonics
  - Mid-Atlantic Ridge, Mariana Trench
- Ocean bottom: average depth of sediment .3 mile, consists of rock particles and organic remains
- Composition of seawater: dilute solution of salts which come from weathering and erosion of continental rocks.
  - Sodium chloride is the main salt.



- **Currents, tides, and waves**
  - Surface currents: large circular streams kept in motion by prevailing winds and rotation of the earth; Gulf Stream (North Atlantic), Kuroshio (North Pacific)
  - Subsurface currents are caused by upwelling from prevailing offshore winds (Peru, Chile) and density differences (Antarctica); the upwelling pushes up nutrients from the ocean floor.
  - Tides are caused by gravitational forces of the sun and moon; there are two tides daily.
  - Waves are caused by wind on the ocean's surface.
    - Water molecules tend to move up and down in place and not move with the wave.
    - Crest and trough, wave height and wavelength, shoreline friction
    - Tsunamis: destructive, fast-moving large waves caused mainly by earthquakes
- **Marine life**
  - Life zones are determined by the depth to which light can penetrate making photosynthesis possible, and by the availability of nutrients.
    - The bottom (benthic zone) extends from sunlit continental shelf to dark sparsely populated depths. Shallow lighted water extending over continental shelf contains 90% of marine species.
    - Pelagic zone: water in open oceans
  - Classification of marine life
    - Bottom-living (benthic) such as kelp and mollusks
    - Free-swimming (nekton) such as fish and whales
    - Small drifting plants and animals (plankton), which are the dominant life and food source of the ocean
  - The basis for most marine life is phytoplankton (plant-plankton), which carry on photosynthesis near surface; contrast zooplankton (animal plankton).
  - Most deepwater life depends on rain of organic matter from above. The densest concentration of marine life is found in surface waters, such as those off Chile, where nutrient-rich water wells up to the bright surface.

### III. Astronomy: Gravity, Stars, and Galaxies

- **Gravity: an attractive force between objects**
  - Newton's law of universal gravitation: Between any two objects in the universe there is an attractive force, gravity, which grows greater as the objects move closer to each other.
  - How gravity keeps the planets in orbit
- **Stars**
  - The sun is a star.
  - Kinds of stars (by size): giants, dwarfs, pulsars
  - Supernova; black holes
  - Apparent movement of stars caused by rotation of the earth
  - Constellations: visual groupings of stars, for example, Big Dipper, Orion
  - Astronomical distance measured in light years
- **Galaxies**
  - The Milky Way is our galaxy; the Andromeda Galaxy is closest to the Milky Way.
  - Quasars are the most distant visible objects (because the brightest).

See below, Energy: Nuclear energy, re Stars.

### IV. Energy, Heat, and Energy Transfer

#### A. ENERGY

- Six forms of energy: mechanical, heat, electrical, wave, chemical, nuclear
- The many forms of energy are interchangeable, for example, gasoline in a car, windmills, hydroelectric plants.
- Sources of energy: for example, heat (coal, natural gas, solar, atomic, geothermal, and thermonuclear), mechanical motion (such as falling water, wind)



- Fossil fuels: a finite resource  
Carbon, coal, oil, natural gas  
Environmental impact of fossil fuels: carbon dioxide and global warming theory, greenhouse effect, oil spills, acid rain
- Nuclear energy  
Uranium, fission, nuclear reactor, radioactive waste  
Nuclear power plants: safety and accidents (for example, Three Mile Island, Chernobyl)

## B. HEAT

- Heat and temperature: how vigorously atoms are moving and colliding
- Three ways that heat energy can be transferred: conduction, convection, radiation  
The direction of heat transfer

## C. PHYSICAL CHANGE: ENERGY TRANSFER

- States of matter (solid, liquid, gas) in terms of molecular motion  
In gases, loosely packed atoms and molecules move independently and collide often. Volume and shape change readily.  
In liquids, atoms and molecules are more loosely packed than in solids and can move past each other. Liquids change shape readily but resist change in volume.  
In solids, atoms and molecules are more tightly packed and can only vibrate. Solids resist change in shape and volume.
- Most substances are solid at low temperatures, liquid at medium temperatures, and gaseous at high temperatures.
- A change of phase is a physical change (no new substance is produced).
- Matter can be made to change phases by adding or removing energy.
- Expansion and contraction  
Expansion is adding heat energy to a substance, which causes the molecules to move more quickly and the substance to expand.  
Contraction is when a substance loses heat energy, the molecules slow down, and the substance contracts.  
Water as a special case: water expands when it changes from a liquid to a solid.
- Changing phases: condensation; freezing; melting; boiling  
Different amounts of energy are required to change the phase of different substances.  
Each substance has its own melting and boiling point.  
The freezing point and boiling point of water (in degrees Celsius and Fahrenheit)
- Distillation: separation of mixtures of liquids with different boiling points.

## V. The Human Body

- The circulatory and lymphatic systems  
Briefly review from grade 4: circulatory system  
Lymph, lymph nodes, white cells, tonsils  
Blood pressure, hardening and clogging of arteries
- The immune system fights infections from bacteria, viruses, fungi.  
White cells, antibodies, antigens  
Vaccines, communicable and non-communicable diseases, epidemics  
Bacterial diseases: tetanus, typhoid, tuberculosis; antibiotics like penicillin, discovered by Alexander Fleming  
Viral diseases: common cold, chicken pox, mononucleosis, rabies, polio, AIDS

**Note:** See Science 5 for the human reproductive system. There is some flexibility in the grade-level placement of the study of topics relating to human reproduction, as different schools and districts have differing local requirements, typically introducing these topics in either fifth or sixth grade.

See above, Plate Tectonics  
re Wegener; Energy re  
Curie; Astronomy, Gravity,  
re Newton. See also World  
History 6, The Enlightenment,  
re Newton.

## VI. Science Biographies

Marie Curie (advances in science of radioactivity; discovered the elements polonium and radium)

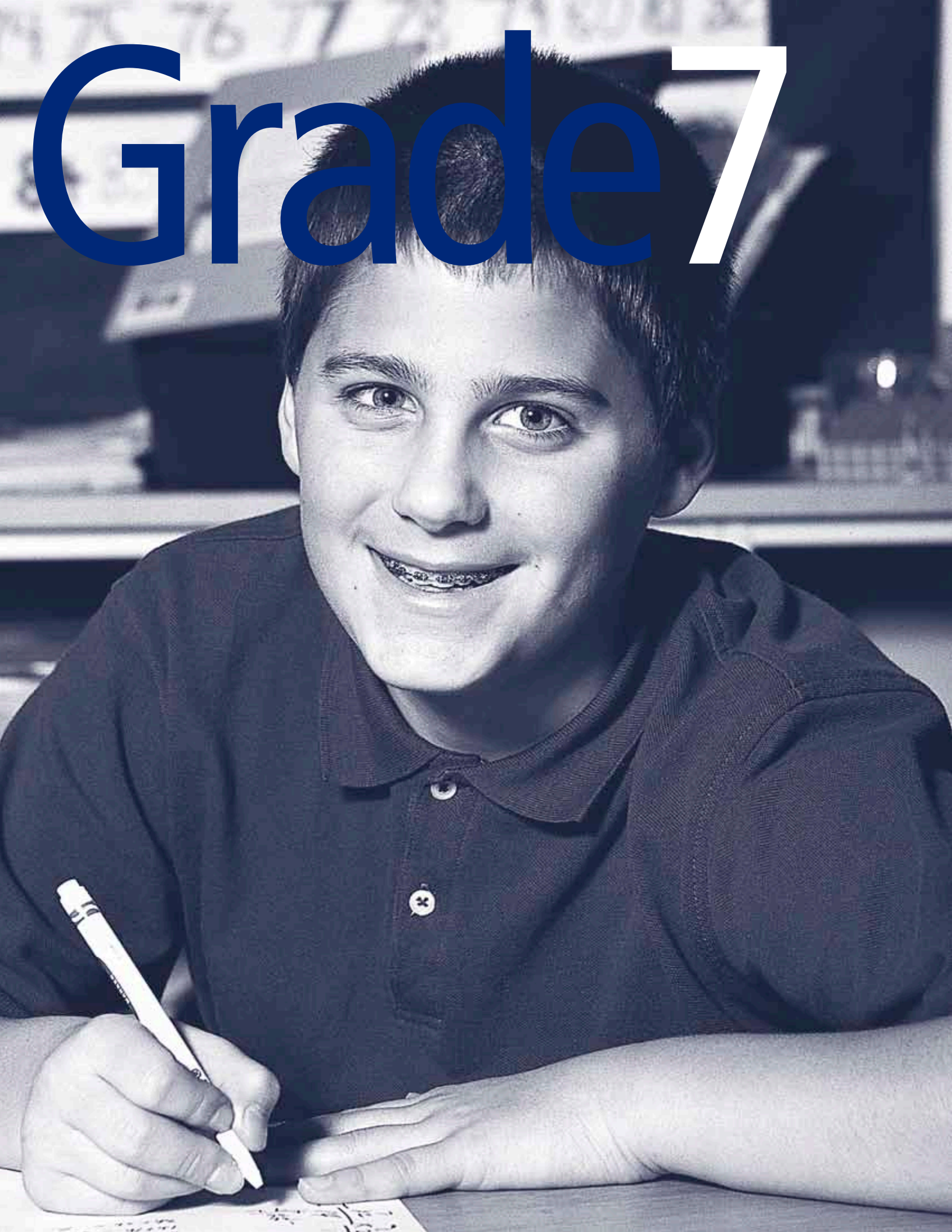
Lewis Howard Latimer (worked with Alexander Graham Bell on drawings of Bell's invention, the telephone; improved Thomas Edison's light bulb)

Isaac Newton (known for advances in physics; outlined laws of gravity and invented the telescope)

Alfred Wegener (known for theory that the continents were once joined together and split apart to form the continents; now known as "the continental drift")



# Grade 7



# Overview of Topics

## Grade 7

### English

- I. Writing, Grammar, and Usage
  - A. Writing and Research
  - B. Speaking and Listening
  - C. Grammar
  - D. Spelling
  - E. Vocabulary
- II. Poetry
  - A. Poems
  - B. Elements of Poetry
- III. Fiction, Nonfiction, and Drama
  - A. Short Stories
  - B. Novels
  - C. Elements of Fiction
  - D. Essays and Speeches
  - E. Autobiography
  - F. Drama
  - G. Literary Terms
- IV. Foreign Phrases Commonly Used in English

### History and Geography

- I. America Becomes a World Power
- II. World War I: "The Great War," 1914–1918
  - A. History
  - B. Geography of Western and Central Europe
- III. The Russian Revolution
  - A. History
  - B. Geography
- IV. America from the Twenties to the New Deal
  - A. America in the Twenties
  - B. The Great Depression
  - C. Roosevelt and the New Deal
- V. World War II
  - A. The Rise of Totalitarianism in Europe
  - B. World War II in Europe and at Home, 1939–45
  - C. World War II in the Pacific, and the End of the War
- VI. Geography of the United States

### Visual Arts

- I. Art History: Periods and Schools
  - A. Impressionism
  - B. Post-Impressionism
  - C. Expressionism and Abstraction
  - D. Modern American Painting

### Music

- I. Elements of Music
- II. Classical Music: Romantics and Nationalists
  - A. Romantic Composers and Works
  - B. Music and National Identity
- III. American Musical Traditions (Blues and Jazz)

### Mathematics

- I. Pre-Algebra
  - A. Properties of the Real Numbers
  - B. Linear Applications and Proportionality
  - C. Polynomial Arithmetic
  - D. Equivalent Equations and Inequalities
  - E. Integer Exponents
- II. Geometry
  - A. Three-Dimensional Objects
  - B. Angle Pairs
  - C. Triangles
  - D. Measurement
- III. Probability and Statistics

### Science

- I. Atomic Structure
- II. Chemical Bonds and Reactions
- III. Cell Division and Genetics
- IV. History of the Earth and Life Forms
  - A. Paleontology
  - B. Geologic Time
- V. Evolution
  - A. Evolution
  - B. Natural Selection
  - C. Extinction and Speciation
- VI. Science Biographies

## I. Writing, Grammar, and Usage

**Teachers:** Students should be given opportunities to write fiction, poetry, or drama, but instruction should emphasize repeated expository writing. Students should examine their work with attention to unity, coherence, and emphasis. Expository essays should have a main point and stick to it, and have a coherent structure, typically following the pattern of introduction, body, and conclusion. Paragraphs should have a unified focus, be developed with evidence and examples, and have transitions between them. Essays should have appropriate tone and diction, as well as correct spelling and grammar in their final form. Standards for writing apply across the disciplines.

### A. WRITING AND RESEARCH

- Expository writing: Write nonfiction essays that describe, narrate, persuade, and compare and contrast.
- Write research essays, with attention to
  - asking open-ended questions
  - gathering relevant data through library and field research
  - summarizing, paraphrasing, and quoting accurately when taking notes
  - defining a thesis (that is, a central proposition, a main idea)
  - organizing with an outline
  - integrating quotations from sources
  - acknowledging sources and avoiding plagiarism
  - preparing a bibliography

### B. SPEAKING AND LISTENING

- Participate civilly and productively in group discussions.
- Give a short speech to the class that is well-organized and well-supported.
- Demonstrate an ability to use standard pronunciation when speaking to large groups and in formal circumstances, such as a job interview.

### C. GRAMMAR

**Teachers:** Students should have a working understanding of the following terms and be able to use them to discuss and analyze writing.

#### Parts of the Sentence

- Prepositional phrases
  - Identify as adjectival or adverbial
  - Identify word(s) modified by the prepositional phrase
  - Object of preposition (note that pronouns are in objective case)
  - Punctuation of prepositional phrases
- Subject and verb
  - Find complete subject and complete predicate
  - Identify simple subject and simple verb (after eliminating prepositional phrases):
    - in statements
    - in questions
    - in commands (you understood)
    - with there and here
  - Auxiliary verbs
  - Noun of direct address
  - Subject-verb agreement:
    - with compound subjects
    - with compound subjects joined by *or*
    - with indefinite pronouns (for example, everyone, anyone, some, all)



See also English 6 for more guidelines on writing persuasive essays.



- Complements
  - Find direct and indirect objects
  - Review linking vs. action verbs
  - Predicate nominative
  - Predicate adjective
- Appositives
  - Identify and tell which noun is renamed
  - Use of commas with appositive phrases
- Participles
  - Identify past, present participles
  - Identify participial phrases
  - Find the noun modified
  - Commas with participial phrases
- Gerunds and gerund phrases
  - Identify and tell its use in the sentence (subject, direct object, indirect object, appositive, predicate nominative, object of preposition)
- Infinitives and infinitive phrases
  - Adjective and adverb: find the word it modifies
  - Noun: tell its use in the sentence

Clauses

- Review: sentences classified by structure
  - Simple; compound (coordinating conjunctions v. conjunctive adverbs); complex; compound-complex
- Review independent (main) v. dependent (subordinate) clauses
- Kinds of dependent clauses
  - Adjective clauses
    - Identify and tell noun modified
    - Introductory words: relative pronouns, relative adverbs (where, when)
    - Implied “that”
    - Commas with nonrestrictive (nonessential) adjective clause
  - Adverb clauses
    - Identify and tell the word(s) modified
    - Subordinating conjunctions (for example, because, although, when, since, before, after, as soon as, where)
    - Comma after introductory adverbial clause
  - Noun clauses
    - Identify and tell use in the sentence (subject, predicate nominative, direct object, indirect object, object of preposition, appositive, objective complement, noun of direct address)

**D. SPELLING**

- Continue work with spelling, with special attention to commonly misspelled words, including:

achievement	despise	muscular	scholar
address	doesn't	occasionally	shepherd
analysis	environment	offense	sincerely
anonymous	excellent	particularly	sponsor
argument	existence	persuade	succeed
beginning	grammar	politician	surprise
business	hypocrisy	prejudice	tendency
college	immediately	probably	thorough
conscience	interpret	recognize	truly
control	knowledge	remembrance	women
criticism	lieutenant	responsibility	written
definite	medieval	rhyme	
description	muscle	sacrifice	

**Note:** More commonly misspelled words are listed in grades 6 and 8.



## E. VOCABULARY

**Teachers:** Students should know the meaning of these Latin and Greek words that form common word roots and be able to give examples of English words that are based on them.

**Note:** More Latin and Greek words and roots are listed in grades 6 and 8. In the listings here, L = Latin, G = Greek. No single form of the Latin or Greek words is consistently used here, but rather the form that is most similar to related English words.

<u>Latin/Greek Word</u>	<u>Meaning</u>	<u>Examples</u>
ab [L]	away from	abnormal, absent
ad [L]	to, forward	advocate, advance
amo [L]	love	amiable, amorous
audio [L]	hear	audience, inaudible
auto [G]	self	automobile, autocrat
bene [L]	good/well	beneficial, benefit
circum [L]	around	circulate, circumference
celer [L]	swift	accelerate
chronos [G]	time	chronological
cresco [L]	grow	increase, decrease
cum [L]	with	compose, accommodate
curro [L]	run	current, cursive, course
demos [G]	people	democracy, epidemic
erro [L]	wander, stray	error, erratic
ex [L]	from, out of	exclaim, exhaust
extra [L]	outside	extravagant, extraordinary
facio [L]	make	effect, affect
fero [L]	bring, bear	confer, defer
fragilis [L]	breakable	fragile, fragment
finis [L]	end	confine, finality
homos [G]	same	homogenous
hyper [G]	over, beyond	hypertension, hyperactive
hypo [G]	under, beneath	hypodermic, hypothesis
jacio [L]	throw	eject, interject
judex [L]	a judge	judge, prejudice
juro [L]	swear	jury, perjury
makros [G]	long	macrocosm
malus [L]	bad	malady, malice
manus [L]	hand	manufacture, manuscript
morphe [G]	form	metamorphosis, amorphous
neos [G]	new	neophyte
pan [G]	all	panorama, panacea
pedis [L]	foot	pedal, biped
polis [G]	city	metropolis
pro [L]	before, for	proceed, propose, prodigy
pseudos [G]	a lie	pseudonym
re [L]	back, again	react, reply, revise
scribo [L]	write	scribble, inscribe
sentio [L]	feel (with senses)	sensation, sensual, sentry
sequor [L]	follow	subsequent, sequel
solvo [L]	loosen	solution, dissolve, solvent
specto [L]	look at	inspect, speculate, perspective
strictus [L]	drawn tight	strict, constricted
sub [L]	under	subdue, subject, subtract
super [L]	above	superficial, superlative, supreme
syn [G]	together	synchronize, synthesis
tendo [L]	stretch	tension, intense, detention
teneo [L]	hold, keep	contain, content, maintain
trans [L]	across	transfer, transcontinental
valeo [L]	be strong	prevail, valiant
venio [L]	come	event, advent
voco [L]	call	vocal, voice, vociferous
volvo [L]	revolve	evolve, revolution
zoon, zoe [G]	animal, life	zoology, protozoa

See also History 7: World War I, re Wilfred Owen; and, America in the Twenties, Harlem Renaissance, re Langston Hughes and Countee Cullen.

## II. Poetry

**Teachers:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose students to more poetry, old and new, and to have students write their own poems. Students should examine some poems in detail, discussing what the poems mean as well as asking questions about the poet's use of language.

### A. POEMS

Annabel Lee (Edgar Allan Poe)  
 Because I could not stop for Death (Emily Dickinson)  
 The Charge of the Light Brigade (Alfred Lord Tennyson)  
 The Chimney Sweeper (both versions from *The Songs of Innocence* and *The Songs of Experience*; William Blake)  
 The Cremation of Sam McGee (Robert Service)  
 Dulce et Decorum Est (Wilfred Owen)  
 Fire and Ice; Nothing Gold Can Stay (Robert Frost)  
 Heritage (Countee Cullen)  
 Macavity: The Mystery Cat (T.S. Eliot)  
 The Negro Speaks of Rivers; Harlem; Life is Fine (Langston Hughes)  
 This Is Just to Say; The Red Wheelbarrow (William Carlos Williams)

### B. ELEMENTS OF POETRY

- Review: meter, iamb, rhyme scheme, free verse, couplet, onomatopoeia, alliteration
- Stanzas and refrains
- Forms
  - ballad
  - sonnet
  - lyric
  - narrative
  - limerick
  - haiku
- Types of rhyme: end, internal, slant, eye

## III. Fiction, Nonfiction, and Drama

### A. SHORT STORIES

"The Gift of the Magi" (O. Henry)  
 "The Necklace" (Guy de Maupassant)  
 "The Secret Life of Walter Mitty" (James Thurber)  
 "The Tell-Tale Heart"; "The Purloined Letter" (Edgar Allan Poe)

### B. NOVELS / NOVELLAS

*The Call of the Wild* (Jack London)  
*Dr. Jekyll and Mr. Hyde* (Robert Louis Stevenson)

### C. ELEMENTS OF FICTION

- Review aspects of plot and setting
- Theme
- Point of view in narration
  - omniscient narrator
  - unreliable narrator
  - third person limited
  - first person
- Conflict: external and internal
- Suspense and climax

See also History 7: World War II, re Roosevelt's "Declaration of War" and Anne Frank's *Diary of a Young Girl*.

#### D. ESSAYS AND SPEECHES

- "Shooting an Elephant" (George Orwell)
- "The Night the Bed Fell" (James Thurber)
- "Declaration of War on Japan" (Franklin D. Roosevelt)

#### E. AUTOBIOGRAPHY

*Diary of a Young Girl* (Anne Frank)

#### F. DRAMA

- *Cyrano de Bergerac* (Edmond Rostand)
- Elements of drama
  - Tragedy and comedy (review)
  - Aspects of conflict, suspense, and characterization
  - Soliloquies and asides

#### G. LITERARY TERMS

- Irony: verbal, situational, dramatic
- Flashbacks and foreshadowing
- Hyperbole; oxymoron; parody

### IV. Foreign Phrases Commonly Used in English

**Teachers:** Students should learn the meaning of the following Latin phrases that are commonly used in English speech and writing.

**Note:** In eighth grade, students will learn French phrases commonly used in English speech and writing.

ad hoc - concerned with a particular purpose; improvised [literally, "to the thing"]  
 bona fides - good faith; sincere, involving no deceit or fraud  
 carpe diem - seize the day, enjoy the present  
 caveat emptor - let the buyer beware, buy at your own risk  
 de facto - in reality, actually existing  
 in extremis - in extreme circumstances, especially at the point of death  
 in medias res - in the midst of things  
 in toto - altogether, entirely  
 modus operandi - a method of procedure  
 modus vivendi - a way of living, getting along  
 persona non grata - an unacceptable or unwelcome person  
 prima facie - at first view, apparently; self-evident  
 pro bono publico - for the public good  
 pro forma - for the sake of form, carried out as a matter of formality  
 quid pro quo - something given or received in exchange for something else  
 requiescat in pace, R I P - may he or she rest in peace [seen on tombstones]  
 sic transit gloria mundi - thus passes away the glory of the world  
 sine qua non - something absolutely indispensable [literally, "without which not"]  
 sub rosa - secretly

## History and Geography: Grade 7

Teachers: In earlier grades, the history guidelines in the *Core Knowledge Sequence* were organized into separate strands on World History and American History. Because the World and American History strands merged chronologically in sixth grade, here in seventh grade the Sequence presents a unified section on History and Geography. Central themes of the history guidelines in grades seven and eight are growth and change in American democracy, and interactions with world forces, particularly nationalism and totalitarianism. Fundamental principles and structure of American government will be reviewed in a civics unit in eighth grade.

The study of geography aims at understanding the spatial relationship between nature and human culture and processes that change environments. Following the main outline of the history curriculum, seventh grade students study the geography of Europe, the United States, and Japan, while eighth graders will study the Middle East, South Asia, China, Canada, Mexico, and post-Cold War changes. Students should learn locations as well as the relationships between physical and human systems.

### I. America Becomes a World Power

- Expansion of the U.S. Navy, Captain Alfred T. Mahan
- U.S. annexation of Hawaii
- The Spanish-American War
  - Cuban War for Independence, José Martí
  - Teddy Roosevelt and the Rough Riders
  - Spain gives the U.S. Guam, Puerto Rico, and the Philippines
- Complications of imperialism: War with the Philippines, Anti-Imperialist League
- Building the Panama Canal: “Roosevelt Corollary” to the Monroe Doctrine, “Speak softly and carry a big stick.”

### II. World War I: “The Great War,” 1914–1918

#### A. HISTORY

- National pride and greed as causes: European nationalism, militarism, and colonialism
  - The British Empire: Queen Victoria
  - Italy becomes a nation: Garibaldi
  - German nationalism and militarism: Bismarck unifies Germany, war against France, France cedes Alsace-Lorraine to Germany
  - European imperialism and rivalries in Africa
    - Stanley and Livingstone
    - British invade Egypt to protect Suez Canal
    - French in North Africa
    - Berlin Conference and the “scramble for Africa”
- Entangling defense treaties: Allies vs. Central Powers, Archduke Ferdinand assassinated
- The Western Front and Eastern Front, Gallipoli, Lawrence of Arabia
- War of attrition and the scale of losses: Battle of the Marne (1914), new war technologies (for example, machine guns, tanks, airplanes, submarines), trench warfare
- U.S. neutrality ends: sinking of the Lusitania, “Make the world safe for democracy”
- Armistice Day, Nov. 11, 1918, abdication of Kaiser Wilhelm II
- Treaty of Versailles
  - New central European states and national boundaries
  - German reparations and disarmament
- Woodrow Wilson’s 14 Points
  - League of Nations, concept of collective security

## B. GEOGRAPHY OF WESTERN AND CENTRAL EUROPE

**Teachers:** Students should regularly consult maps in reference to the following topics.

- Physical features
  - Mountains: Alps, Apennines, Carpathians, Pyrenees
  - Danube and Rhine Rivers
  - Seas: Adriatic, Aegean, Baltic, Black, Mediterranean, North
- Population and natural resources, acid rain damage
- Languages, major religions
- Legacy of Roman Empire: city sites, transportation routes
- Industrial Revolution leads to urbanization (review from grade 6)
- Scandinavia: comprised of Denmark, Norway, Sweden, sometimes also includes Finland and Iceland
  - Cities: Copenhagen (Denmark), Oslo (Norway), Stockholm (Sweden), Helsinki (Finland)
- United Kingdom: comprised of Great Britain (England, Scotland, Wales) and Northern Ireland
  - Irish Sea, English Channel
  - North Sea: gas and oil
  - England: London, Thames River
  - Scotland: Glasgow, Edinburgh
  - Northern Ireland: Ulster and Belfast, Catholic-Protestant strife
  - Ireland: Dublin (review from grade 6: famine of 1840s, mass emigration)
- France
  - Alps, Mont Blanc
  - Seine and Rhone Rivers
  - Bay of Biscay, Strait of Dover
  - Corsica (island)
  - Major cities: Paris, Lyon, Marseilles
- Belgium, Netherlands (Holland), and Luxembourg
  - Cities: Brussels (Belgium), Amsterdam, Rotterdam, The Hague (Netherlands)
- Germany
  - Cities: Berlin, Bonn, Hamburg, Munich
  - Ruhr Valley: mining region, industrial cities including Essen
  - Largest population in Europe, highly urbanized
- Austria and Switzerland
  - Mostly mountainous (the Alps)
  - Cities: Vienna (Austria), Bern, Geneva (Switzerland)
- Italy
  - Apennines
  - Sardinia and Sicily (islands)
  - Cities: Milan, Rome, Venice, Florence
  - Vatican City: independent state within Rome
- Iberian Peninsula: Spain and Portugal
  - Cities: Madrid (Spain), Lisbon (Portugal)

## III. The Russian Revolution

### A. HISTORY

- Tensions in the Russian identity: Westernizers vs. traditionalists
- Revolution of 1905, “Bloody Sunday,” Russo-Japanese War
- The last czar: Nicholas II and Alexandra
- Economic strains of World War I
- Revolutions of 1917
  - March Revolution ousts Czar
  - October Revolution: Bolsheviks, Lenin and revolutionary Marxism
- Civil War: Bolsheviks defeat Czarist counterrevolution, Bolsheviks become the Communist Party, creation of the Soviet Union

**B. GEOGRAPHY**

**Teachers:** Students should regularly consult maps in reference to the following topics.

- Overview
  - Territorially the largest state in the world
  - All parts exposed to Arctic air masses
  - Little moisture reaches Russia, because of distance from Atlantic Ocean, and because Himalayas block movement of warm, moist air from south
  - Population concentrated west of Ural Mountains
  - Siberia: rich in resources
  - Mongolia: Russian-dominated buffer state with China
  - Few well-located ports
  - Rich oil and natural gas regions
- Physical features:
  - Volga and Don Rivers (connected by canal)
  - Caspian Sea, Aral Sea (being drained by irrigation projects)
  - Sea of Japan, Bering Strait
- Cities: Moscow, Petersburg (formerly Leningrad), Vladivostok, Volgograd (formerly Stalingrad)

**IV. America from the Twenties to the New Deal**

**A. AMERICA IN THE TWENTIES**

- Isolationism: restrictions on immigration, Red Scare, Sacco and Vanzetti, Ku Klux Klan
- The “Roaring Twenties”: flappers, prohibition and gangsterism, St. Valentine’s Day Massacre, Al Capone
- The Lost Generation: Ernest Hemingway, F. Scott Fitzgerald
- Scopes “Monkey Trial”
- Women’s right to vote: 19th Amendment
- “New Negro” movement, Harlem Renaissance
  - African American exodus from segregated South to northern cities
  - W. E. B. Du Bois: *The Souls of Black Folk*, NAACP (review from grade 6)
  - Zora Neal Hurston, Countee Cullen, Langston Hughes
  - “The Jazz Age”: Duke Ellington, Louis Armstrong
  - Marcus Garvey, black separatist movement
- Technological advances
  - Henry Ford’s assembly line production, Model T
  - Residential electrification: mass ownership of radio, Will Rogers
  - Movies: from silent to sound, Charlie Chaplin
  - Pioneers of flight: Charles Lindbergh, Amelia Earhart
  - Decline of rural population

**B. THE GREAT DEPRESSION**

- Wall Street stock market Crash of ’29, “Black Tuesday”
- Hoover insists on European payment of war debts, Smoot-Hawley Tariff Act
- Mass unemployment
  - Agricultural prices collapse following European peace
  - Factory mechanization eliminates jobs
  - Bonus Army
  - “Hoovervilles”
- The Dust Bowl, “Okie” migrations
- Radicals: Huey Long, American Communist Party, Sinclair Lewis

See below, VII. Geography of the United States: New York City.

See also Music 7: American Musical Traditions: Jazz.

### C. ROOSEVELT AND THE NEW DEAL

- Franklin Delano Roosevelt: “The only thing we have to fear is fear itself”  
Eleanor Roosevelt
- The New Deal
  - Growth of unions: John L. Lewis and the CIO (Congress of Industrial Organizations),  
A. Philip Randolph, Memorial Day Massacre
  - New social welfare programs: Social Security
  - New regulatory agencies: Securities and Exchange Commission, National Labor  
Relations Board
  - Tennessee Valley Authority
- Roosevelt’s use of executive power: “Imperial Presidency”, “court packing”

**Note:** re growth of unions, recall from grade 6, American Federation of Labor.

## V. World War II

### A. THE RISE OF TOTALITARIANISM IN EUROPE

- Italy
  - Mussolini establishes fascism
  - Attack on Ethiopia
- Germany
  - Weimar Republic, economic repercussions of WWI
  - Adolf Hitler and the rise of Nazi totalitarianism: cult of the *Führer* (“leader”),  
*Mein Kampf*
  - Nazism and the ideology of fascism, in contrast to communism and democracy
  - Racial doctrines of the Nazis: anti-Semitism, the concept of *Lebensraum* (literally, “living space”) for the “master race,” *Kristallnacht*
  - The Third Reich before the War: Gestapo, mass propaganda, book burning
- The Soviet Union
  - Communist totalitarianism: Josef Stalin, “Socialism in one country”
  - Collectivization of agriculture
  - Five-year plans for industrialization
  - The Great Purge
- Spanish Civil War
  - Franco, International Brigade, Guernica

See also Visual Arts 7:  
Picasso’s *Guernica*.

### B. WORLD WAR II IN EUROPE AND AT HOME, 1939–45

- Hitler defies Versailles Treaty: reoccupation of Rhineland, *Anschluss*, annexation of Austria
- Appeasement: Munich Agreement, “peace in our time”
- Soviet-Nazi Nonaggression Pact
- *Blitzkrieg*: invasion of Poland, fall of France, Dunkirk
- Battle of Britain: Winston Churchill, “nothing to offer but blood, toil, tears, and sweat”
- The Home Front in America
  - American Lend-Lease supplies, Atlantic Charter
  - America First movement
  - U.S. mobilization for war: desegregation of defense industries, “Rosie the Riveter,”  
rationing, war bonds
  - America races Germany to develop the atomic bomb: the Manhattan Project
- Hitler invades Soviet Union: battles of Leningrad and Stalingrad
- The Holocaust: “Final Solution,” concentration camps (Dachau, Auschwitz)
- North Africa Campaign: El Alamein
- D-Day: Allied invasion of Normandy, General Dwight Eisenhower
- Battle of the Bulge, bombing of Dresden
- Yalta Conference
- Surrender of Germany, Soviet Army takes Berlin

See also English 7:  
Autobiography, Anne Frank’s  
*Diary of a Young Girl*.

### C. WORLD WAR II IN THE PACIFIC, AND THE END OF THE WAR

- Historical background: Japan's rise to power
  - Geography of Japan (review all topics from grade 5)
  - Sea of Japan and Korea Strait
  - High population density, very limited farmland, heavy reliance on imported raw materials and food
  - End of Japanese isolation, Commodore Matthew Perry
  - Meiji Restoration: end of feudal Japan, industrialization and modernization
  - Japanese imperialism: occupation of Korea, invasion of Manchuria, Rape of Nanking
  - Japanese-Soviet neutrality treaty
- Pearl Harbor, Dec. 7, 1941: "A day that will live in infamy."
- Internment of Japanese-Americans
- Fall of the Philippines: Bataan Death March, General Douglas MacArthur, "I shall return."
- Battle of Midway
- Island amphibious landings: Guadalcanal, Iwo Jima
- Surrender of Japan
  - Atom bombs dropped on Hiroshima and Nagasaki, the Enola Gay
  - U.S. dictates pacifist constitution for Japan, Emperor Hirohito
- Potsdam Conference, Nuremberg war crimes trials
- Creation of United Nations: Security Council, Universal Declaration of Human Rights

See also English 7: Essays and Speeches, Roosevelt's "Declaration of War."

## VI. Geography of the United States

**Teachers:** Students should regularly consult maps in reference to the following topics:

- Physical features
  - General forms: Gulf/Atlantic coastal plain, Appalachian highlands and Piedmont, Midwest lowlands, Great Plains, Rocky Mountains, Intermountain Basin and Range, Pacific coast ranges, Arctic coastal plain
  - Mountains: Rockies, Appalachians, Sierra Nevada, Cascades, Adirondacks, Ozarks
  - Peaks: McKinley, Rainier, Whitney
  - Main water features: Gulf of Mexico, Chesapeake Bay, San Francisco Bay, Puget Sound, Great Salt Lake, Great Lakes (freshwater)—Erie, Huron, Michigan, Ontario, Superior
  - Rivers: Mississippi, Missouri, Ohio, Colorado, Hudson, Columbia, Potomac, Rio Grande, Tennessee
  - Niagara Falls, Grand Canyon, Mojave Desert, Death Valley
- Political, economic, and social features
  - The fifty states and their capitals (review), Washington, D. C., Commonwealth of Puerto Rico, Virgin Islands, Guam
- Cities: Atlanta, Baltimore, Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Kansas City, Los Angeles, Memphis, Miami, Milwaukee, Minneapolis, New Orleans, Norfolk, Philadelphia, Phoenix, Pittsburgh, Portland, St. Louis, San Antonio, San Diego, San Francisco, Seattle, Tampa
- Population
  - Expansion of settlement
  - Population density



- Regions
  - New England
  - Mid-Atlantic
  - South: “Dixie,” Mason-Dixon Line, Bible Belt
  - Middle West: Rust Belt, Corn Belt
  - Southwest: Sun Belt
  - Mountain States
  - West Coast: San Andreas fault, California aqueduct (water supply) system
  - Coal, oil, and natural gas deposits
  - Agricultural crop regions
- New York City
  - Bronx, Brooklyn, Manhattan, Queens, Staten Island
  - Broadway, Fifth Avenue, Madison Avenue, Park Avenue, Times Square, Wall Street
  - Central Park, Harlem, Greenwich Village

## Visual Arts: Grade 7

SEE INTRODUCTION, “The Arts in the Curriculum.”

Teachers: In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

In studying the works of art specified below, and in creating their own art, students should review, develop, and apply concepts introduced in previous grades, such as line, shape, form, space, texture, color, light, design, and symmetry.

### I. Art History: Periods and Schools

Teachers: The guidelines here continue the organizational scheme established in sixth grade, which combined art history with analysis of specific illustrative works. Timelines may help students situate the artists, periods, and schools. Note that the periods and characteristics are not absolute distinctions but generally helpful categories (to which there are always exceptions) often used in discussions of art.

#### A. IMPRESSIONISM

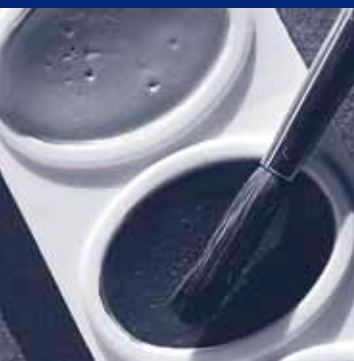
- Examine characteristics of Impressionism in
  - Claude Monet: *Impression: Sunrise, Bridge Over a Pool of Lilies*
  - Pierre Auguste Renoir, *Luncheon of the Boating Party*
  - Edgar Degas, a ballet painting such as *Dancing Class*
  - Mary Cassatt, *The Boating Party*

#### B. POST-IMPRESSIONISM

- Examine characteristics of Post-Impressionism in
  - Paul Cezanne: a still life such as *Apples and Oranges*, a version of *Mont Sainte-Victoire*, *The Card Players*
  - Georges Seurat and pointillism: *Sunday Afternoon on the Island of the Grande Jatte*
  - Vincent van Gogh: *The Starry Night*, one of his *Sunflowers*, a self-portrait such as *Self-Portrait* [1889]
  - Paul Gauguin: *Vision After the Sermon, Hail Mary (la Orana Maria)*
  - Henri Toulouse-Lautrec, *At the Moulin Rouge*
  - Art Nouveau as a pervasive style of decoration

#### C. EXPRESSIONISM AND ABSTRACTION

- Examine representative artists and works, including
  - Henri Matisse: *Madame Matisse, The Red Room*, cutouts such as *Beasts of the Sea*
  - Edvard Munch, *The Scream*
  - Marc Chagall, *I and the Village*
  - Pablo Picasso’s early works, including *Family of Saltimbanques*
- Cubism
  - Pablo Picasso, *Les Femmes d’Alger (O. J. R. M.)*
  - Marcel Duchamp, *Nude Descending a Staircase*
- Picasso after Cubism: *Girl Before a Mirror, Guernica*



- Other developers of abstraction:
  - Vassily Kandinsky, *Improvisation 31 (Sea Battle)*
  - Paul Klee, *Senecio* (also known as *Head of a Man*)
  - Piet Mondrian, *Broadway Boogie Woogie*
  - Salvador Dali and surrealism: *The Persistence of Memory*












#### D. MODERN AMERICAN PAINTING

- Examine representative artists and works, including
  - Edward Hopper, *Nighthawks*
  - Andrew Wyeth, *Christina's World*
  - Georgia O'Keeffe, *Red Poppies*
- Regionalists, social realists, and genre painters
  - Grant Wood, *American Gothic*
  - Diego Rivera [Mexican], *Detroit Industry*
  - Norman Rockwell, *Triple Self-Portrait*

SEE INTRODUCTION, "The Arts in the Curriculum."

## I. Elements of Music

**Teachers:** The Music guidelines for grades 6-8 share a basic vocabulary of the elements of music that can inform the discussion, appreciation, and study of selected musical works. Following these guidelines are recommendations in each grade for a core of musical content, broadly organized as a history of music from early to modern times, with attention to specific periods, composers, and genres. While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as local resources allow.

- Review as necessary from earlier grades:
  - The orchestra and families of instruments (strings, wind, brass, percussion); keyboard instruments
  - Vocal ranges: soprano, mezzo-soprano, alto; tenor, baritone, bass
- Recognize frequently used Italian terms:
  - grave* (very very slow)
  - largo* (very slow)
  - adagio* (slow)
  - andante* (moderate; "walking")
  - moderato* (medium)
  - allegro* (fast)
  - presto* (very fast)
  - prestissimo* (as fast as you can go)
  - ritardando* and *accelerando* (gradually slowing down and getting faster)
  - crescendo* and *decrescendo* (gradually increasing and decreasing volume)
  - legato* (smoothly flowing progression of notes), *staccato* (crisp, distinct notes)
- Recognize introduction, interlude, and coda in musical selections.
- Recognize theme and variations.
- Identify chords [such as I (tonic), IV (subdominant), V (dominant); V7]; major and minor chords; chord changes; intervals (third, fourth, fifth).
- Understand what an octave is.
- Understand the following notation and terms:
  - names of lines and spaces in the treble clef; middle C
  -  treble clef    bass clef    staff, bar line, double bar line, measure, repeat signs
  -  whole note    half note    quarter note    eighth note
  - whole rest, half rest, quarter rest, eighth rest
  -  grouped sixteenth notes
  - tied notes and dotted notes
  -  sharps    flats    naturals
  - Da capo* [*Da Capo*] *al fine*
  - meter signature:  $\frac{4}{4}$  or common time  $\frac{2}{4}$   $\frac{3}{4}$   $\frac{6}{8}$
  - soft *pp* *p* *mp* loud *mf* *f* *ff*

## II. Classical Music: Romantics and Nationalists

**Teachers:** While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as resources allow. The focus here combines music history with appreciation of illustrative works, and continues from grade 6 the idea of classifying Western music by periods, with examples of specific composers and works, as well as some associated musical terms. Timelines may help students situate the periods. The periods and their characteristics are not absolute distinctions but generally helpful categories often used in discussions of music. In sixth grade students studied music and composers from the Baroque to the Romantic.

**Note:** In sixth grade, students were introduced to works by Beethoven, Brahms, Chopin, and Schumann.

### A. ROMANTIC COMPOSERS AND WORKS

- Composers and works:
  - Johannes Brahms, *Symphony No. 1* (fourth movement)
  - Hector Berlioz, *Symphonie Fantastique*
  - Franz Liszt, *Hungarian Rhapsody No. 2* for piano
  - Richard Wagner, Overture to *Die Meistersinger von Nürnberg*

### B. MUSIC AND NATIONAL IDENTITY

- Composers and works:
  - Antonín Dvořák, *Symphony No. 9 (“From the New World”)*
  - Edvard Grieg, *Peer Gynt Suites Nos. 1 and 2*
  - Peter Ilich Tchaikovsky, *1812 Overture*

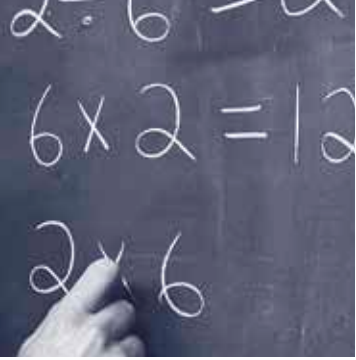
## III. American Musical Traditions

- Blues
  - Evolved from African-American work songs and spirituals
  - Twelve bar blues form
- Jazz
  - African-American origins
  - Terms: improvisation, syncopation, solo and soloist
  - Ragtime: works of Scott Joplin (such as “The Entertainer” and “Maple Leaf Rag”)
  - Louis Armstrong: early recordings such as “Potato Head Blues,” “West End Blues,” or “St. Louis Blues”
  - Duke Ellington: “Caravan,” “Take the ‘A’ Train” [by Billy Strayhorn]
  - Miles Davis: “So What”
  - Influence of jazz on other music: George Gershwin’s *Rhapsody in Blue*

**Teachers:** In learning the new concepts and procedures, students should use previously acquired mathematics to ensure that the procedures become automatic and habitual. Students should continue to master the use of measuring and drawing instruments, develop their mental arithmetic and their approximating abilities, become more familiar with deductive reasoning, and use calculators and computers in a thoughtful way.

These guidelines are representative of the mathematics typically learned in grade 7 in countries that have strong math traditions and whose students score well in international comparisons. In the United States, most teachers of middle-school mathematics follow commercial math textbooks which vary in quality. Because teachers are often selective about the parts of the textbooks they teach, the following guidelines may prove useful as an outline by which the teacher can, regardless of the textbook adopted, make sure the competencies taught in their programs are comparable to the competencies of students in the best-achieving systems.

While teaching methods may vary, it is worth keeping in mind the psychological principle that the most effective method for learning mathematics emphasizes frequent, varied practice, and encourages multiple approaches to solving varied types of problems.



## I. Pre-Algebra

### A. PROPERTIES OF THE REAL NUMBERS

- Know and use the associative, commutative, and distributive properties by name and in simplifying expressions involving numbers and variables.
- Understand absolute value and evaluate expressions such as  $|2x - 3| + 3x$ .

### B. LINEAR APPLICATIONS AND PROPORTIONALITY

- Know the concept of slope.
- Translate situations of proportionality into equations of the form  $y = mx$ , where  $m$  is the constant of proportionality or slope; specifically know and understand  $d = rt$  and  $i = prt$ .
- Show situations of constant proportionality as a line on the coordinate plane.
- Introduce the concept of a function and determine the equation of a linear function given its slope and intercepts in the form  $y = mx + b$ .
- Estimate the values of  $b$  and  $m$  from a given linear graph.

### C. POLYNOMIAL ARITHMETIC

- Add, subtract, multiply, and divide monomials and polynomials (divide polynomials by monomials only).
- Factor binomials that have a common monomial factor.

### D. EQUIVALENT EQUATIONS AND INEQUALITIES

- Review equality properties for equations.
- Know that addition or subtraction of the same value from both sides of an inequality maintains the inequality.
- Know that multiplying or dividing both sides of an inequality by a positive number maintains the inequality, but multiplying or dividing by a negative number reverses the inequality; be able to show why using a number line.
- Simplify and solve linear equations in one variable such as  $3(2x - 5) + 4x = 12(x + 5)$ .
- Simplify and graph solutions to linear inequalities in one variable such as  $3(2x - 5) + 4x \leq 12(x + 5)$ .

### E. INTEGER EXPONENTS

- Know the meaning of an exponent  $n$  when  $n$  is positive or negative.
- Know that a non-zero number to the zero power is one.

- Understand why a negative number to an even power is positive and a negative number to odd power is negative.
- Know the multiplication properties of exponents:  
Product of powers:  $(a^m)(a^n) = a^{(m+n)}$   
Power of a power:  $(a^m)^n = a^{mn}$   
Power of a product:  $(ab)^m = (a^m)(b^m)$ .
- Convert decimal numbers to and from scientific notation.
- Know the proper order of operations with exponents.

## II. Geometry

### A. THREE-DIMENSIONAL OBJECTS

- Describe and construct simple right prisms, cylinders, cones, and spheres using the concepts of parallel and perpendicular; calculate the surface areas and volumes of these objects.
- Know that the section created by the intersection of a plane and a sphere is a circle.
- Calculate the surface area of a sphere using the equation  $SA = 4 \pi r^2$ .
- Calculate the volume of a sphere using the equation  $V = (4/3) \pi r^3$ .

### B. ANGLE PAIRS

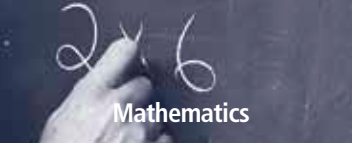
- Construct parallel lines and a transversal using a compass and straight edge.
- Understand congruent angles, vertical angles, complementary angles, supplementary angles, adjacent angles, corresponding angles, and alternate interior and alternate exterior angles.

### C. TRIANGLES

- Know that a triangle is determined by its three sides or by two sides and the included angle (SSS and SAS triangle congruence) and solve problems.
- Use SSS to prove that the construction of the bisector of an angle is valid.
- Use SSS to prove that the construction of the perpendicular bisector of a segment is valid.
- Prove that the base angles of an isosceles triangle are congruent.
- Demonstrate that the sum of the interior angles of a triangle equals 180 degrees.
- Know that the shape of a triangle is determined by two (hence all three) of its angles (AA(A) triangle similarity) and solve related problems.
- Construct a circle that circumscribes a triangle using compass and straight edge.
- Know and understand the Pythagorean Theorem and its converse and use it to find the length of the missing side of a right triangle and lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement and a calculator.
- Use the Pythagorean Theorem to determine the exact ratios of the sides in 30-60-right triangles and isosceles right triangles.
- Determine the image of a triangle under translations, rotations, and reflections.

### D. MEASUREMENT

- Choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems.
- Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (for example, miles per hour and feet per second, cubic inches to cubic centimeters).
- Use measures expressed as rates (for example, speed, density) and measures expressed as products (for example, person-days) to solve problems; check the units of the solutions; and use dimensional analysis to check the reasonableness of the answer.
- Compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects.
- Know how perimeter, area, and volume are affected by changes of scale.



- Estimate and compute the area of more complex or irregular two- and three-dimensional figures by breaking the figures down into more basic geometric objects.
- Relate the changes in measurement with a change of scale to the units used (for example, square inches, cubic feet) and to conversions between units (1 square foot = 144 square inches or  $[1 \text{ ft}^2 = 144 \text{ in}^2]$ , 1 cubic inch is approximately 16.38 cubic centimeters  $[1 \text{ in}^3 = [16.36 \text{ cm}^3]$ ).

### III. Probability and Statistics

- Show the relationship between two variables using a scatter-plot and describe the apparent relationship informally.
- Find the upper and lower quartiles for a data set.
- Understand that if  $p$  is the probability of an event occurring,  $1 - p$  is the probability of the event not occurring.
- Understand the difference between independent and dependent events.



**Teachers:** Effective instruction in science requires not only direct experience and observation but also book learning, which helps bring coherence and order to a student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in their scientific learning. The Science sequence for the middle school grades aims for more intensive and selective study of topics, a number of which were introduced in earlier grades. The Sequence continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings.



## I. Atomic Structure

- Review (from grade 5): Structure of atoms: protons, neutron, electrons  
Molecules  
Compounds are formed by combining two or more elements and have properties different from the constituent elements.
- Early theories of matter  
The early Greek theory of four elements: earth, air, fire, and water  
Later theories of Democritus: everything is made of atoms and nothing else (“atom” in Greek means that which can't be cut or divided); atoms of the same kind form a pure “element”  
Alchemy in middle ages
- Start of modern chemistry  
Lavoisier and oxygen: the idea that matter is not gained or lost in chemical reactions  
John Dalton revives the theory of the atom.  
Mendeleev develops the Periodic Table, showing that the properties of atoms of elements come in repeating (periodic) groups.  
Niels Bohr develops a model of the atom in shells that hold a certain number of electrons. Bohr's model, plus the discovery of neutrons, helped explain the Periodic Table: atomic number, atomic weight, and isotopes.

See below, Science Biographies, Lavoisier and Mendeleev.

## II. Chemical Bonds and Reactions

- To get a stable outer shell of electrons, atoms either give away, take on, or share electrons.
- Chemical reactions rearrange the atoms and the electrons in elements and compounds to form chemical bonds.
- When single atoms combine with themselves or with other atoms, the result is a molecule.  
 $O_2$  is a molecule of oxygen.  $NaCl$  is a molecule of salt, and because it has more than one element is called a compound.
- Ionic bond  
Atoms like sodium that have just one or two extra electrons are very energetic in giving them away. Elements with the same number of extra or few electrons can join with each other to make an ionic bond. Example:  $NaCl$ , table salt.
- Metallic bond  
In the metallic bond, electrons are not given away between elements, but are arranged so that they are shared between atoms. Pure metals show this sharing, and the atoms can rearrange themselves in different ways, which explains why you can pound metals into different shapes.



**Note:** A useful mnemonic device is "OIL RIG" — "oxidation is loss, reduction is gain."

- **Covalent bond**  
Some atoms share electrons in a definite way, making them very stable and unreactive. Examples are  $H_2$  and  $O_2$ . Carbon, which can take up or give away 4 electrons in covalent bonds, can help make molecules that can adopt almost any shape. It is the basis of life.
- **Kinds of reactions**  
Oxidation: a chemical reaction that commonly involves oxygen. More generally, oxidation is a reaction in which an atom accepts electrons while combining with other elements. The atom that gives away electrons is said to be oxidized.  
Examples: rusting of iron, burning of paper. Heat is given off.  
Reduction: the opposite of oxidation. Reduction involves the gaining of electrons. An oxidized material gives them away and heat is taken up.  
Acids: for example, vinegar,  $HCl$ ,  $H_2SO_4$ ; sour; turn litmus red  
Bases: for example, baking soda; bitter; turn litmus blue  
pH: ranges from 0-14; neutral = 7, acid = below 7, base = above 7  
Reactions with acids and bases  
In water solution, an acid compound has an H ion (a proton lacking an electron), and the base compound has an OH ion (with an extra electron).  
When the two come together, they form HOH (water) plus a stable compound called a "salt."
- How chemists describe reactions by equations, for example:  $HCl + NaOH = NaCl + H_2O$
- A catalyst helps a reaction, but is not used up.

### III. Cell Division and Genetics

**Note:** Review from grade 5: Cell Structures and Processes.

- **Cell division, the basic process for growth and reproduction**  
Two types of cell division: mitosis (growth and asexual reproduction), meiosis (sexual reproduction)  
Asexual reproduction: mitosis; diploid cells (as in amoeba)  
Sexual reproduction: meiosis; haploid cells; combinations of traits  
How change occurs from one generation to another: either mutation or mixing of traits through sexual reproduction  
Why acquired characteristics are not transmitted
- **Gregor Mendel's experiments with purebred and hybrid peas**  
Dominant and recessive genes  
Mendel's statistical analysis led to understanding that inherited traits are controlled by genes (now known to be DNA).
- **Modern understanding of chromosomes and genes**  
Double helix (twisted ladder) of DNA coding; how DNA makes new DNA  
How DNA sequence makes proteins  
Genetic engineering  
Modern researchers in genetics: Francis Crick, James Watson, Severo Ochoa, Barbara McClintock

### IV. History of the Earth and Life Forms

#### A. PALEONTOLOGY

- Fossils as a record of the Earth's history and past life forms
- How fossils are formed, and types of fossils (mold, cast, trace, true-form)

#### B. GEOLOGIC TIME

- The age of the earth is about 4.6 billion years, based on geologic evidence and radioactive dating. Life has existed on earth for more than 3 billion years.  
How movements of the earth's plates have affected the distribution of organisms

- Organizing geologic time: Scientists have organized the earth's history into four major eras:
  - Precambrian Era (earliest forms of life, such as bacteria and blue-green algae; later in the period, invertebrates such as jellyfish)
  - Paleozoic Era (Pangaea; invertebrate life, such as trilobites, early in this era, followed by development of vertebrates later in the era, including fish; development of insects, amphibians, and the beginnings of reptiles; development of simple plants, such as mosses and ferns)
  - Mesozoic Era (Pangaea separates into continents; "Age of Reptiles"; dinosaurs, flowering plants, small mammals and birds)
  - Cenozoic (Present) Era (Ice Age; mammoths; gradual development of mammals, birds and other animals recognizable today; humans; flowering plants, forests, grasslands)

## V. Evolution

### A. EVOLUTION

- Evolution is the change in a population of organisms over time caused by both genetic change and environmental factors.
  - Adaptation and mutation
- Charles Darwin: voyages of the *Beagle*; *Origin of Species* (1859)

### B. NATURAL SELECTION

- Natural selection as the mechanism of evolution: Darwin's theory that life forms better adapted to their current environment have a better chance of surviving and will pass on their traits to their offspring
  - Trait variation and change from generation to generation
- Evidence for the theory of evolution includes comparative anatomy, geology, fossils, and DNA research.

### C. EXTINCTION AND SPECIATION

- Extinction occurs when an environment changes and a species is no longer adapted to it.
- New species can develop when part of the population becomes separated and evolves in isolation.
- Life forms have evolved from simple organisms in oceans through amphibians to higher forms such as primates.

## VI. Science Biographies

Charles Darwin (scientist known for theory of natural selection)  
 Antoine Lavoisier (chemist who discovered the process of oxidation)  
 Lise Meitner (physicist who helped discover nuclear fission)  
 Dmitri Mendeleev (scientist who devised the periodic table)

See below, Science Biographies, Charles Darwin.

See above, Evolution re Darwin; Atomic Structure: Start of modern chemistry, re Lavoisier and Mendeleev.



# Grade 8



# Overview of Topics

## Grade 8

### English

- I. Writing, Grammar, and Usage
  - A. Writing and Research
  - B. Speaking and Listening
  - C. Grammar
  - D. Spelling
  - E. Vocabulary
- II. Poetry
  - A. Poems
  - B. Elements of Poetry
- III. Fiction, Nonfiction, and Drama
  - A. Short Stories
  - B. Novels
  - C. Elements of Fiction
  - D. Essays and Speeches
  - E. Autobiography
  - F. Drama
  - G. Literary Terms
- IV. Foreign Phrases Commonly Used in English

### History and Geography

- I. The Decline of European Colonialism
  - A. Breakup of the British Empire
  - B. Creation of the People's Republic of China
- II. The Cold War
  - A. Origins of the Cold War
  - B. The Korean War
  - C. America in the Cold War
- III. The Civil Rights Movement
- IV. The Vietnam War and the Rise of Social Activism
  - A. The Vietnam War
  - B. Social and Environmental Activism
- V. The Middle East and Oil Politics
  - A. History
  - B. Geography of the Middle East
- VI. The End of the Cold War: The Expansion of Democracy and Continuing Challenges
  - A. The American Policy of Detente
  - B. Breakup of the USSR
  - C. China under Communism
  - D. Contemporary Europe
  - E. The End of Apartheid in South Africa

- VII. Civics: The Constitution—Principles and Structure of American Democracy
- VIII. Geography of Canada and Mexico

### Visual Arts

- I. Art History: Periods and Schools
  - A. Painting Since World War II
  - B. Photography
  - C. 20th-Century Sculpture
- II. Architecture Since the Industrial Revolution

### Music

- I. Elements of Music
- II. Non-Western Music
- III. Classical Music: Nationalists and Moderns
  - A. Music and National Identity
  - B. Modern Music
- IV. Vocal Music
  - A. Opera
  - B. American Musical Theater

### Mathematics

- I. Algebra
  - A. Properties of the Real Numbers
  - B. Relations, Functions, and Graphs (Two Variables)
  - C. Linear Equations and Functions (Two Variables)
  - D. Arithmetic of Rational Expression
  - E. Quadratic Equations and Functions
- II. Geometry
  - A. Analytic Geometry
  - B. Introduction to Trigonometry
  - C. Triangles and Proofs

### Science

- I. Physics
  - A. Motion
  - B. Forces
  - C. Density and Buoyancy
  - D. Work
  - E. Energy
  - F. Power
- II. Electricity and Magnetism
- III. Electromagnetic Radiation and Light
- IV. Sound Waves
- V. Chemistry of Food and Respiration
- VI. Science Biographies

## I. Writing, Grammar, and Usage

**Teachers:** Students should be given opportunities to write fiction, poetry, or drama, but instruction should emphasize repeated expository writing. Students should examine their work with attention to unity, coherence, and emphasis. Expository essays should have a main point and stick to it, and have a coherent structure, typically following the pattern of introduction, body, and conclusion. Paragraphs should have a unified focus, be developed with evidence and examples, and have transitions between them. Essays should have appropriate tone and diction, as well as correct spelling and grammar in their final form. Standards for writing apply across the disciplines.

### A. WRITING AND RESEARCH

- Expository writing: Write essays that describe, narrate, persuade, and compare and contrast.
- Write research essays, with attention to
  - asking open-ended questions
  - gathering relevant data through library and field research
  - summarizing, paraphrasing, and quoting accurately when taking notes
  - defining a thesis (that is, a central proposition, a main idea)
  - organizing with an outline
  - integrating quotations from sources
  - acknowledging sources and avoiding plagiarism
  - preparing a bibliography

### B. SPEAKING AND LISTENING

- Participate civilly and productively in group discussions.
- Give a short speech to the class that is well-organized and well-supported.
- Demonstrate an ability to use standard pronunciation when speaking to large groups and in formal circumstances, such as a job interview.

### C. GRAMMAR

**Teachers:** Students should have a working understanding of the following terms and be able to use them to discuss and analyze writing.

#### Punctuation

- Review punctuation based on sentence structure, including
  - semi-colons
  - commas with phrases and clauses
- Review other punctuation, including
  - punctuation of quotations, dialogue
  - use of parentheses
  - hyphens
  - dashes
  - colons
  - italics
  - apostrophes

#### Misplaced modifiers

- Phrases and clauses go as near as possible to the word(s) they modify.
  - Dangling modifiers
  - Two-way modifiers



See also English 6 for more guidelines on writing persuasive essays.



Parallelism

- Parallelism is expressing ideas of equal importance using the same grammatical constructions.
- Kinds of parallelism
  - coordinate (using coordinating conjunctions *and, but, or, nor, yet*)
  - compared/contrasted
  - correlative (both . . . and, either . . . or, neither . . . nor, not only . . . but also)
- Correcting faulty parallelism
  - repeating words (articles, prepositions, pronouns) to maintain parallelism
  - completing parallel construction
  - revising sentences using parallel structure (for example, using all gerund phrases, or all noun clauses)

Sentence variety

- Review sentences classified by structure: simple, compound, complex, compound-complex.
- Varying sentence length and structure to avoid monotony
- Varying sentence openings

**D. SPELLING**

- Continue work with spelling, with special attention to commonly misspelled words, including:

absence	counterfeit	guarantee	permanence
accommodate	courageous	hygiene	physician
analysis	curiosity	independence	prairie
attendance	defendant	laboratory	sergeant
believe	dessert	library	souvenir
bureau	desperate	lightning	straight
capitol	dissatisfied	maintenance	technique
colonel	extraordinary	mileage	temporary
committee	fascinating	necessary	vacuum
correspondence	foreign	occurrence	whether

**E. VOCABULARY**

**Teachers: Students should know the meaning of these Latin and Greek words and be able to give examples of English words that are based on them.**

**Note:** More Latin and Greek words and roots are listed in grades 6 and 7. In the listings here, L = Latin, G = Greek. No single form of the Latin or Greek words is consistently used here, but rather the form that is most similar to related English words.

<u>Latin /Greek Word</u>	<u>Meaning</u>	<u>Examples</u>
aequus [L]	equal	equal, equation
ago, acta [L]	do, things done	agent, enact, transact
anthropos [G]	man, human being	anthropology, misanthrope
ars [L]	art	artist, artifact
brevis [L]	short	brevity, abbreviate
canto [L]	sing	chant, cantor
caput [L]	head	captain, decapitate
clino [L]	to lean, bend	incline, decline
cognito [L]	know	cognizant, recognize
copia [L]	plenty	copy, copious
credo [L]	believe	credible, incredulous
culpa [L]	blame	culpable, culprit
dominus [L]	a lord, master	dominate, dominion
duco [L]	lead	abduct, introduce
fido [L]	to trust, believe	confide, infidel
fundo, fustum [L]	pour, thing poured	effusive, transfusion
genus [L]	kind, origin	generic, congenital



holos [G]	whole	holistic, catholic
jungo [L]	join	junction, conjugal
lego, lectum [L]	read, thing read	intellect, legible
locus [L]	a place	local, dislocate
loquor [L]	speak	eloquent, loquacious
medius [L]	middle	mediate, mediocrity
missio [L]	a sending	emissary, mission
morior [L]	die	mortal
nego [L]	deny	negate
nihil [L]	nothing	nihilism, annihilate
occido [L]	kill	homicide, suicide
pathos[G]	suffering, feeling	sympathy, apathy
pendo [L]	weigh, hang	depend, pendant
per [L]	through	perceive, persist, persevere
phobos [G]	fear	phobia, claustrophobia
plenus [L]	full	plenty, plenary
positum [L]	placed	position, opposite
porto [L]	carry	transport, export
possum [L]	be able	possible, potent
pugno [L]	to fight	impugn, pugnacious
punctum [L]	point	punctual, punctuation
rego [L]	to rule	regular, regency
sanguis [L]	blood	sanguine
satis [L]	enough	satisfy
scio [L]	know	science, conscious
solus [L]	alone	solo, desolate
sonus [L]	a sound	unison, consonant
sophos [G]	wise	philosophy, sophomore
spiritus [L]	breath	inspire, spirit
totus [L]	whole	totalitarianism
tractum [L]	drawn, pulled	distract, tractor
usus [L]	use	abuse, utensil
vacuus [L]	empty	evacuate, vacuum
verbum [L]	word	verbal
verto [L]	turn	avert, convert, anniversary
via [L]	way, road	deviate, viaduct

## II. Poetry

### A. POEMS

Buffalo Bill's (e.e. cummings)

Chicago (Carl Sandburg)

Do Not Go Gentle into That Good Night (Dylan Thomas)

How do I love thee? (Elizabeth Barrett Browning)

How They Brought the Good News From Ghent to Aix (Robert Browning)

I dwell in possibility; Apparently with no surprise (Emily Dickinson)

The Lake Isle of Innisfree (William B. Yeats)

Lucy Gray (or Solitude); My Heart Leaps Up (William Wordsworth)

Mending Wall; The Gift Outright (Robert Frost)

Mr. Flood's Party (Edward Arlington Robinson)

Polonius's speech from *Hamlet*, "Neither a borrower nor a lender be . . ."

(William Shakespeare)

Ozymandias (Percy Bysshe Shelley)

Sonnet 18, "Shall I compare thee. . ." (William Shakespeare)

Spring and Fall (Gerald Manley Hopkins)

**Note:** The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose students to more poetry, old and new, and to have students write their own poems. Students should examine some poems in detail, discussing what the poems mean as well as asking questions about the poet's use of language.

A Supermarket in California (Allen Ginsberg)  
 Theme for English B (Langston Hughes)  
 We Real Cool (Gwendolyn Brooks)

## B. ELEMENTS OF POETRY

- Review: meter, iamb, rhyme scheme, free verse, couplet, onomatopoeia, alliteration, assonance
- Review:
  - forms: ballad, sonnet, lyric, narrative, limerick, haiku
  - stanzas and refrains
  - types of rhyme: end, internal, slant, eye
  - metaphor and simile
    - extended and mixed metaphors
  - imagery, symbol, personification
  - allusion

## III. Fiction, Nonfiction, and Drama

### A. SHORT STORIES

“The Bet” (Anton Chekov)  
 “Dr. Heidegger’s Experiment” (Nathaniel Hawthorne)  
 “God Sees the Truth But Waits” (Leo Tolstoy)  
 “An Honest Thief” (Fyodor Dostoyevsky)  
 “The Open Boat” (Stephen Crane)

### B. NOVELS

*Animal Farm* (George Orwell)  
*The Good Earth* (Pearl S. Buck)

### C. ELEMENTS OF FICTION

- Review:
  - plot and setting
  - theme
  - point of view in narration: omniscient narrator, unreliable narrator, third person limited, first person
  - conflict: external and internal
  - suspense and climax
- Characterization
  - as delineated through a character’s thoughts, words, and deeds; through the narrator’s description; and through what other characters say
  - flat and round; static and dynamic
  - motivation
  - protagonist and antagonist
- Tone and diction

### D. ESSAYS AND SPEECHES

“Ask not what your country can do for you” (John F. Kennedy’s Inaugural Address)  
 “I have a dream”; “Letter from Birmingham Jail” (Martin Luther King, Jr.)  
 “Death of a Pig” (E. B. White)  
 “The Marginal World” (Rachel Carson)

### E. AUTOBIOGRAPHY

Selections (such as chapters 2 and 16) from *I Know Why the Caged Bird Sings* (Maya Angelou)

**Note:** See also History 8: The Kennedy Years, re J. F. Kennedy; The Civil Rights Movement, re M. L. King, Jr.; and, Emergence of Environmentalism, re Rachel Carson.

**F. DRAMA**

- *Twelfth Night* (William Shakespeare)
- Elements of Drama
  - Review:
    - tragedy and comedy
    - aspects of conflict, suspense, and characterization
    - soliloquies and asides
  - Farce and satire
  - Aspects of performance and staging
    - actors and directors
    - sets, costumes, props, lighting, music
    - presence of an audience

**G. LITERARY TERMS**

- Irony: verbal, situational, dramatic
- Flashbacks and foreshadowing
- Hyperbole, oxymoron, parody

**IV. Foreign Phrases Commonly Used in English**

**Teachers:** Students should learn the meaning of the following French words and phrases that are commonly used in English speech and writing.

- au revoir - goodbye, until we see each other again
- avant-garde - a group developing new or experimental concepts, a vanguard
- bête noire - a person or thing especially dreaded and avoided [literally, “black beast”]
- c’est la vie - that’s life, that’s how things happen
- carte blanche - full discretionary power [literally, “blank page”]
- cause célèbre - a very controversial issue that generates fervent public debate [literally, a “celebrated case”]
- coup de grâce - a decisive finishing blow
- coup d’état - overthrow of a government by a group
- déjà vu - something overly familiar [literally, “already seen”]
- enfant terrible - one whose remarks or actions cause embarrassment, or someone strikingly unconventional [literally, “terrible child”]
- fait accompli - an accomplished fact, presumably irreversible
- faux pas - a social blunder [literally, “false step”]
- Madame, Mademoiselle, Monsieur - Mrs., Miss, Mr.
- merci - thank you
- pièce de résistance - the principal part of the meal, a showpiece item
- raison d’être - reason for being
- savoir-faire - the ability to say or do the right thing in any situation, polished sureness in society [literally, “to know (how) to do”]
- tête-à-tête - private conversation between two people [literally, “head to head”]



**Note:** You are encouraged to use timelines to help students place these events in chronological context relative to their prior study in grade 7 of World Wars I and II.

## History and Geography: Grade 8

**Teachers:** In grades K–6, the history guidelines in the *Core Knowledge Sequence* were organized into separate strands on World History and American History. Because the World and American History strands merged chronologically in sixth grade, the *Sequence* presents a unified section on History and Geography in grades seven and eight. Central themes of the history guidelines in grades seven and eight are growth and change in American democracy, and interactions with world forces, particularly nationalism and totalitarianism. Fundamental principles and structure of American government are reviewed in a civics unit in this grade.

The study of geography aims at understanding the spatial relationship between nature and human culture and processes that change environments. Following the main outline of the history curriculum, eighth graders study the Middle East, South Asia, China, Canada, Mexico, and post-Cold War changes. Students should learn locations as well as the relationships between physical and human systems.

### I. The Decline of European Colonialism

#### A. BREAKUP OF THE BRITISH EMPIRE

- Creation of British Commonwealth, independence for colonial territories
- Troubled Ireland: Easter Rebellion, Irish Free State
- Indian nationalism and independence
  - Sepoy Rebellion
  - Mahatma Gandhi, Salt March
  - Partition of India into Hindu and Muslim states
- Geography of India and South Asia
  - Overview
    - Legacy of British colonial rule: English language, rail system
    - Himalayas, Mt. Everest, K-2
    - Very high population densities and growth rates, food shortages
    - Monsoons
    - Rivers: Ganges, Indus, Brahmaputra
    - Arabian Sea, Bay of Bengal
    - Pakistan, Karachi
    - Bangladesh
    - Sri Lanka
  - India
    - Second most populous country after China
    - Subsistence agriculture
    - Caste system, “untouchables”
    - Delhi, Bombay, Calcutta, Madras
    - Longstanding tension between Hindus and Moslems

#### B. CREATION OF PEOPLE’S REPUBLIC OF CHINA

- China under European domination
  - Opium Wars, Boxer Rebellion
  - Sun Yat Sen
- Communists take power
  - Mao Zedong: The Long March
  - Defeat of nationalists led by Chiang Kai-Shek
  - Soviet-Communist Chinese 30-Year Friendship Treaty

- Geography of China
  - Overview
    - One-fifth of world population
    - 4,000-year-old culture
    - Third largest national territory, regional climates
  - Physical features
    - Huang He (Yellow) River, Chang Jiang (Yangtze) River
    - Tibetan Plateau, Gobi Desert
    - Yellow Sea, East China Sea, South China Sea
    - Great Wall, Grand Canal
  - Social and economic characteristics
    - Major cities: Beijing, Shanghai, Guangzhou (formerly Canton), Shenyang
    - World's largest producer of coal and agricultural products, major mineral producer
    - Off-shore oil reserves
    - Multi-dialectal, including Mandarin, Cantonese
    - Hong Kong, special coastal economic zones
    - Taiwan, Taipei

## II. The Cold War

### A. ORIGINS OF THE COLD WAR

- Post-WWII devastation in Europe, Marshall Plan, Bretton Woods Conference
- Western fear of communist expansion, Soviet fear of capitalist influences
- Truman Doctrine, policy of containment of communism
  - Formation of NATO, Warsaw Pact
  - The “Iron Curtain” (Churchill)
  - Berlin Airlift
  - Eastern European resistance, Hungarian Revolution, Berlin Wall, Prague Spring

### B. THE KOREAN WAR

- Inchon, Chinese entry, removal of MacArthur
- Partition of Korea, truce line near the 38th Parallel

### C. AMERICA IN THE COLD WAR

- McCarthyism, House Un-American Activities Committee, “witch hunts”
  - Hollywood Blacklist
  - Spy cases: Alger Hiss, Julius and Ethel Rosenberg
- The Eisenhower Years
  - Secret operations, CIA, FBI counterespionage, J. Edgar Hoover, U-2 incident
  - Soviet Sputnik satellite, “Missile Gap”, Yuri Gagarin
  - Eisenhower’s farewell speech, the “military-industrial complex”
- The Kennedy Years, “Ask not what your country can do for you . . .”
  - Attack on organized crime, Robert F. Kennedy
  - Cuban Missile Crisis, Fidel Castro, Bay of Pigs invasion
  - Nuclear deterrence, “mutual assured destruction,” Nuclear Test Ban Treaty
  - Kennedy assassination in 1963, Lee Harvey Oswald, Warren Commission
- Space exploration, U.S. moon landing, Neil Armstrong
- American culture in the '50s and '60s
  - Levittown and the rise of the suburban lifestyle, automobile-centered city planning
  - Influence of television
  - Baby Boom generation, rock and roll, Woodstock festival, 26th Amendment

See also English 8: III.D, JFK’s Inaugural Address.

### III. The Civil Rights Movement

- Segregation
  - Plessy v. Ferguson*, doctrine of “separate but equal”
  - “Jim Crow” laws
- Post-war steps toward desegregation
  - Jackie Robinson breaks color barrier in baseball
  - Truman desegregates Armed Forces
  - Adam Clayton Powell, Harlem congressman
  - Integration of public schools: *Brown v. Board of Education* (1954), Thurgood Marshall
- Montgomery Bus Boycott, Rosa Parks
- Southern “massive resistance”
  - Federal troops open schools in Little Rock, Arkansas
  - Murder of Medgar Evers
  - Alabama Governor George Wallace “stands in schoolhouse door”
- Nonviolent challenges to segregation: “We shall overcome”
  - Woolworth lunch counter sit-ins
  - Freedom riders, CORE
  - Black voter registration drives
  - Martin Luther King, Jr.
  - Southern Christian Leadership Conference
  - March on Washington, “I have a dream” speech
  - “Letter from Birmingham Jail”
  - Selma to Montgomery March
- President Johnson and the civil rights movement
  - The Great Society, War on Poverty, Medicare
  - Civil Rights Act of 1964, Voting Rights Act of 1965, affirmative action
- African American militance
  - Malcolm X
  - Black Power, Black Panthers
  - Watts and Newark riots
- Assassinations of Martin Luther King, Jr., and Robert F. Kennedy

See also English 8: III.D, Essays and Speeches, King’s “I have a dream” speech and “Letter from Birmingham Jail.”

### IV. The Vietnam War and the Rise of Social Activism

#### A. THE VIETNAM WAR

- French Indochina War: Dien Bien Phu, Ho Chi Minh, Viet Cong
- Domino Theory
- U.S. takes charge of the war, Special Forces, Tonkin Gulf Resolution
- Tet Offensive, My Lai Massacre
- Antiwar protests, Kent State, The Pentagon Papers, “hawks” and “doves”
- American disengagement, Nixon’s “Vietnamization” policy, Kissinger, War Powers Act
- Watergate scandal, resignation of Nixon
- Vietnam, Hanoi, Ho Chi Minh City (formerly Saigon)

#### B. SOCIAL AND ENVIRONMENTAL ACTIVISM

- Feminist movement, “women’s liberation”
  - Betty Friedan, National Organization for Women
  - Roe v. Wade*
  - Failure of the Equal Rights Amendment
- Cesar Chavez, United Farm Workers
- American Indian Movement
  - Second Wounded Knee
  - Federal recognition of Indian right to self-determination
- Emergence of environmentalism
  - Rachel Carson, *Silent Spring*
  - Environmental Protection Agency, Endangered Species Act, Clean Air and Water Acts
  - Disasters such as Love Canal, Three Mile Island, Chernobyl, Exxon Valdez

See also Visual Arts 8: 20<sup>th</sup> Century Sculpture, Vietnam Veterans Memorial.

## V. The Middle East and Oil Politics

### A. HISTORY

- League of Nations' territorial mandates in Middle East
- Creation of Israel in 1948, David Ben-Gurion
- Suez Crisis, Gamal Abal Nasser
- Palestine Liberation Organization, Yasser Arafat
- Arab-Israeli Wars
  - Six-Day War, Israel occupies West Bank, Gaza Strip, Golan Heights
  - Yom Kippur War, OPEC oil embargo
- Camp David Peace Treaty
- Islamic fundamentalism, Iranian hostage crisis, Iran-Iraq War
- Persian Gulf War
- September 11, 2001 attacks
- Iraq war

### B. GEOGRAPHY OF THE MIDDLE EAST

- Overview
  - Heartland of great early civilizations, Nile River, Mesopotamia, “Fertile Crescent”
  - Generally hot, arid conditions with thin, poor soils
  - Generally speak Arabic, except in Turkey (Turkish), Israel (Hebrew), Iran (Persian)
  - Predominant religion is Islam
  - Sunni and Shiite sects
  - Principal holy places: Makkah (also spelled Mecca) and Medina in Saudi Arabia
- Oil: world's most valuable commodity
  - Greatest known oil reserves concentrated around the Persian Gulf
  - Strait of Hormuz, shipping routes and national imports
  - Extraction of Arab oil required Western technology, which introduced competing cultural influences to Islam
- Egypt
  - Most populous Arab country
  - Nile River and delta, surrounded by inhospitable deserts
  - Aswan Dam, Lake Nasser
  - Cairo (largest city in Africa), Alexandria
  - Suez Canal, Sinai Peninsula, Red Sea
- Israel
  - Formed by the United Nations in 1948 as homeland for Jewish people
  - Jerusalem: Holy city for Judaism (Wailing Wall, Temple Mount), Christianity (Church of the Holy Sepulcher), and Islam (Dome of the Rock)
  - Tel Aviv, West Bank, Gaza Strip, Golan Heights
  - Jordan River, Sea of Galilee, Dead Sea (lowest point on earth), Gulf of Aqaba
- Middle East states and cities
  - Lebanon: Beirut
  - Jordan: Amman
  - Syria: Damascus
  - Iraq: Baghdad
    - Kurdish minority population (also in Turkey and Iran)
  - Iran: Tehran
  - Kuwait
  - Saudi Arabia: Riyadh, Makkah
- Turkey
  - Istanbul (formerly Constantinople)
  - Bosphorus, Dardanelles
  - Ataturk Dam controls upper Euphrates River

**Note:** Review from grade 4, World History III.A, Islam.

**Note:** It is recommended that you examine with students a map of the world's oil reserves.

## VI. The End of the Cold War: The Expansion of Democracy and Continuing Challenges

### A. THE AMERICAN POLICY OF DÉTENTE

- Diplomatic opening to China
- Strategic Arms Limitation Talks
- Jimmy Carter's human rights basis for diplomacy

### B. BREAKUP OF THE USSR

- History
  - Arms race exhausts USSR economy, Afghanistan War
  - Helsinki Accord on human rights, Andrei Sakharov
  - Mikhail Gorbachev
  - Solidarity labor movement, Lech Walesa
  - Reunification of Germany, demolition of the Berlin Wall
- Geography
  - Consequences of the breakup of the Soviet Union
  - New European states from former Soviet Union:
    - Belarus, Latvia, Lithuania, Moldova, Ukraine
  - Newly independent Muslim states in Asia (with ethnic Russian minorities):
    - Kazakstan, Kyrgyzstan, Turkmenistan, Uzbekistan
  - Caucasus, mountainous region where Western and Islamic cultures meet:
    - Armenia, Azerbaijan, Georgia
- Legacies of Soviet policies
  - Numerous internal republics, many language distinctions
  - Forced relocation of large numbers of ethnic minorities
  - Environmental poisoning from industrial and farm practices

### C. CHINA UNDER COMMUNISM

- The Cultural Revolution
- Tiananmen Square

### D. CONTEMPORARY EUROPE

- Toward European unity
  - European Economic Community, "Common Market"
  - European Parliament, Brussels, Maastricht Treaty on European Union
  - France linked to Britain by the Channel Tunnel ("Chunnel")
  - European Union; the Euro
- Conflict and change in Central Europe
  - Geography of the Balkan region
    - Ethnically fragmented, mixture of languages and religions
    - Mountainous region, Danube River
    - Seas: Adriatic, Ionian, Black, Aegean, Mediterranean
  - Romania, Bulgaria, Greece, Albania
  - Countries that emerged from the breakup of Yugoslavia: Slovenia, Croatia, Bosnia and Herzegovina, Macedonia
  - Bosnian conflict
  - "Balkanization"

### E. THE END OF APARTHEID IN SOUTH AFRICA

- Background
  - British and Dutch colonialism in South Africa, Cecil Rhodes, Afrikaners
  - African resistance, Zulu wars, Shaka
  - Boer Wars
  - Union of South Africa, majority nonwhite population but white minority rule
  - Apartheid laws
- African National Congress
  - Nelson Mandela



- Internal unrest and external pressures (such as economic sanctions) force South Africa to end apartheid, Mandela released

## VII. Civics: The Constitution—Principles and Structure of American Democracy

- Overview of the U.S. Constitution
  - James Madison
  - Founders' view of human nature
  - Concept of popular sovereignty, the Preamble
  - Rule of law
  - Separation of powers
  - Checks and balances
  - Enumeration of powers
  - Separation of church and state
  - Civilian control of the military
- Bill of Rights
  - Amendments protecting individual rights from infringement (1-3)
  - Amendments protecting those accused of crimes (5-8), Miranda ruling
  - Amendments reserving powers to the people and states (9 and 10)
  - Amendment process
  - Amendments 13 and 19
- Legislative branch: role and powers of Congress
  - Legislative and representative duties
  - Structure of the Congress, committee system, how a bill is passed
  - Budget authority, “power of the purse”
  - Power to impeach the president or federal judge
- Executive branch: role and powers of the presidency
  - Chief executive, cabinet departments, executive orders
  - Chief diplomat, commander-in-chief of the armed forces
  - Chief legislator, sign laws into effect, recommend laws, veto power
  - Appointment power, cabinet officers, federal judges
- Judiciary: Supreme Court as Constitutional interpreter
  - Loose construction (interpretation) vs. strict construction of U.S. Constitution
  - Concepts of due process of law, equal protection
  - Marbury v. Madison*, principle of judicial review of federal law, Chief Justice John Marshall

## VIII. Geography of Canada and Mexico

- Canada
  - The ten provinces and two territories, Nunavut (self-governing American Indian homeland), Ottawa
  - St. Lawrence River, Gulf of St. Lawrence, Grand Banks, Hudson Bay, McKenzie River, Mt. Logan
  - Two official languages: English and French, separatist movement in Quebec
  - Montreal, Toronto, Vancouver, most Canadians live within 100 miles of U.S.
  - Rich mineral deposits in Canadian Shield, grain exporter
  - U.S. and Canada share longest open international boundary, affinities between neighboring U.S. and Canadian regions
  - North American Free Trade Agreement (NAFTA)
- Mexico
  - Mexico City: home of nearly one-quarter of population, vulnerable to earthquakes
  - Guadalajara, Monterrey
  - Sierra Madre mountains, Gulf of California, Yucatan Peninsula
  - Oil and gas fields
  - Rapid population growth rate
  - North American Free Trade Agreement (NAFTA), Maquiladoras

## Visual Arts: Grade 8

SEE INTRODUCTION, "The Arts in the Curriculum."

Teachers: In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. While the following guidelines specify a variety of artworks in different media and from various cultures, they are not intended to be comprehensive. Teachers are encouraged to build upon the core content and expose children to a wide range of art and artists.

In studying the works of art specified below, and in creating their own art, students should review, develop, and apply concepts introduced in previous grades, such as line, shape, form, space, texture, color, light, design, and symmetry.

### I. Art History: Periods and Schools

Teachers: The guidelines here continue the organizational scheme established in sixth and seventh grades, which combined art history with analysis of specific illustrative works. Timelines may help students situate the artists, periods, and schools. Note that the periods and characteristics are not absolute distinctions but generally helpful categories (to which there are always exceptions) often used in discussions of art.

#### A. PAINTING SINCE WORLD WAR II

- Examine representative artists and works, including
  - Jackson Pollock and Abstract Expressionism: *Painting, 1948*
  - Willem de Kooning, *Woman and Bicycle*
  - Mark Rothko, *Orange and Yellow*
  - Helen Frankenthaler, *Wales*
  - Andy Warhol and Pop Art: *Campbell's Soup Can, Marilyn*
  - Roy Lichtenstein, *Whaam*
  - Romare Bearden, *She-Ba*
  - Jacob Lawrence, a work from his *Builder* series or *Migration of Negroes* series

#### B. PHOTOGRAPHY

- Examine representative artists and works, including
  - Edward Steichen, *Rodin with His Sculptures "Victor Hugo" and "The Thinker"*
  - Alfred Steiglitz, *The Steerage*
  - Dorothea Lange, *Migrant Mother, California*
  - Margaret Bourke-White, *Fort Peck Dam*
  - Ansel Adams, *Moonrise, Hernandez, New Mexico*
  - Henri Cartier-Bresson, *The Berlin Wall*

#### C. 20TH-CENTURY SCULPTURE

- Examine representative artists and works, including
  - Auguste Rodin: *The Thinker, Monument to Balzac*
  - Constantin Brancusi, *Bird in Space*
  - Pablo Picasso, *Bull's Head*
  - Henry Moore, *Two Forms*
  - Alexander Calder, *Lobster Trap and Fish Tail*
  - Louise Nevelson, *Black Wall*
  - Claes Oldenburg, *Clothespin*
  - Maya Lin, *Vietnam Veterans Memorial*









## II. Architecture Since the Industrial Revolution

- Demonstrations of metal structure: Crystal Palace, Eiffel Tower
- First skyscrapers: “Form follows function”
  - Louis Sullivan: Wainwright Building
  - Famous skyscrapers: Chrysler Building, Empire State Building
- Frank Lloyd Wright: Fallingwater, Guggenheim Museum
- The International Style
  - Walter Gropius, Bauhaus Shop Block
  - Le Corbusier: Villa Savoye, Unite d’Habitation, Notre Dame du Haut
  - Ludwig Mies van der Rohe and Philip Johnson: Seagram Building

SEE INTRODUCTION, "The Arts in the Curriculum."

## I. Elements of Music

**Teachers:** The Music guidelines for grades 6–8 share a basic vocabulary of the elements of music that can inform the discussion, appreciation, and study of selected musical works. Following these guidelines are recommendations in each grade for a core of musical content, broadly organized as a history of music from early to modern times, with attention to specific periods, composers, and genres. While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as local resources allow.

- Review as necessary from earlier grades:
  - The orchestra and families of instruments (strings, wind, brass, percussion); keyboard instruments
  - Vocal ranges: soprano, mezzo-soprano, alto; tenor, baritone, bass
- Recognize frequently used Italian terms:
  - grave* (very very slow)
  - largo* (very slow)
  - adagio* (slow)
  - andante* (moderate; "walking")
  - moderato* (medium)
  - allegro* (fast)
  - presto* (very fast)
  - prestissimo* (as fast as you can go)
  - ritardando* and *accelerando* (gradually slowing down and getting faster)
  - crescendo* and *decrescendo* (gradually increasing and decreasing volume)
  - legato* (smoothly flowing progression of notes), *staccato* (crisp, distinct notes)
- Recognize introduction, interlude, and coda in musical selections.
- Recognize theme and variations.
- Identify chords [such as I (tonic), IV (subdominant), V (dominant); V7]; major and minor chords; chord changes; intervals (third, fourth, fifth).
- Understand what an octave is.
- Understand the following notation and terms:
  - names of lines and spaces in the treble clef; middle C
  -  treble clef    bass clef    staff, bar line, double bar line, measure, repeat signs
  -  whole note    half note    quarter note    eighth note
  - whole rest, half rest, quarter rest, eighth rest
  -  grouped sixteenth notes
  - tied notes and dotted notes
  - # sharps   ♭ flats   ♮ naturals
  - Da capo* [*D.C.*] *al fine*
  - meter signature:  $\frac{4}{4}$  or common time  $\frac{2}{4}$   $\frac{3}{4}$   $\frac{6}{8}$
  - soft *pp* *p* *mp* loud *mf* *f* *ff*

## II. Non-Western Music

- Become familiar with scales, instruments, and works from various lands, for example: 12-tone scale, sitar from India, Caribbean steel drums, Japanese koto.

## III. Classical Music: Nationalists and Moderns

**Teachers:** While these guidelines focus on musical vocabulary, appreciation, and history, musical performance should be encouraged and emphasized as resources allow. The focus here combines music history with appreciation of illustrative works, and continues from grades 6 and 7 the idea of classifying Western music by periods, with examples of specific composers and works, as well as some associated musical terms. Timelines may help students situate the periods. The periods and their characteristics are not absolute distinctions but generally helpful categories often used in discussions of music.

**Note:** In seventh grade, students were introduced to works by Dvořák, Grieg, and Tchaikovsky.

### A. MUSIC AND NATIONAL IDENTITY

- Composers and works:  
Jean Sibelius, *Finlandia*  
Bela Bartók, folk-influenced piano music such as *Allegro barbaro*, selections from *Mikrokosmos* or *For Children*  
Joaquin Rodrigo, *Concierto de Aranjuez*  
Aaron Copland, *Appalachian Spring (Suite)*

### B. MODERN MUSIC

- Composers and works:  
Claude Debussy, *La Mer*, first movement, “De l’aube à midi sur la mer”  
Igor Stravinsky, *The Rite of Spring*, first performed in Paris, 1913

## IV. Vocal Music

### A. OPERA

- Terms: overture, solo, duet, trio, quartet, chorus, aria, recitative
- Composers and works:  
Gioacchino Rossini, from *The Barber of Seville*: Overture and “Largo al factotum”  
Giuseppe Verdi, from *Rigoletto*: aria, “Questa o quella”; duet, “Figlia! . . . Mio padre!”; aria, “La donna è mobile”; quartet, “Bella figlia dell’amore”

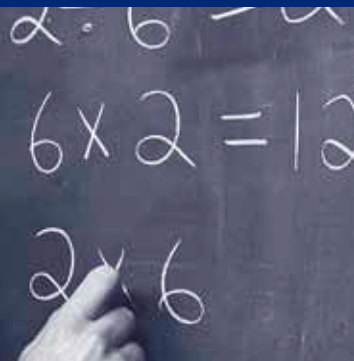
### B. AMERICAN MUSICAL THEATER

- Composers and popular songs:  
Irving Berlin, “There’s No Business Like Show Business,” “Blue Skies”  
George M. Cohan, “Give My Regards to Broadway,” “Yankee Doodle Dandy”  
Cole Porter, “Don’t Fence Me In,” “You’re the Top”
- Broadway musicals: selections including  
Jerome Kern, *Showboat*: “Ole Man River”  
Rodgers and Hammerstein, *Oklahoma!*: “Oh What a Beautiful Mornin’,” “Oklahoma”  
Leonard Bernstein and Stephen Sondheim, *West Side Story*: “Maria,” “I Feel Pretty”

**Teachers:** These guidelines are representative of the mathematics typically learned at this grade level in countries that have strong math traditions and whose students score well in international comparisons. Concepts that were in the Grade 7 specifications are generally not repeated here but they are assumed.

In learning the new concepts and procedures, students should use previously acquired mathematics to ensure that the procedures become automatic and habitual. Students should continue to master the use of measuring and drawing instruments, develop their mental arithmetic and their approximating abilities, become more familiar with deductive reasoning, and use calculators and computers in a thoughtful way. The work in eighth grade requires some minimal use of a scientific calculator.

Appropriate preparation for algebra is critical for success in that subject and some students, particularly students who have not been in a Core Knowledge school, may simply not be ready for the content described herein. Most schools will need to spend a limited time reviewing prerequisite concepts, but those students for whom that is insufficient may well require a year in a program that is closer to the Grade 7 specifications.



## I. Algebra

### A. PROPERTIES OF THE REAL NUMBERS

- Be able to raise a positive number to a fractional power and simplify appropriately, including rationalizing the denominator of a simple radical expression.
- Know and use of the rules of exponents extended to fractional exponents.
- Use the definition of absolute value to solve equations such as  $|2x - 3| + 3x = 4x - 2$  and understand why “extraneous solutions” are not solutions at all.

### B. RELATIONS, FUNCTIONS, AND GRAPHS (TWO VARIABLES)

- Be able to plot a set of ordered pairs and surmise a reasonable graph of which the points are a part.
- Be able to make a reasonable table of ordered pairs from a given function rule, plot the points, and surmise its graph.
- Know that the points of intersections of two graphs are simultaneous solutions of the relations that define them and indicate approximate numerical solutions.

### C. LINEAR EQUATIONS AND FUNCTIONS (TWO VARIABLES)

- Graph linear equations by finding the x- and y-intercepts; for example, know that  $2x + 3y = 4$  is linear and graph it using its intercepts.
- Be able to convert between slope-intercept form ( $y = mx + b$ ) and standard form ( $ax + by = c$ ).
- Write an equation for a line given two points or one point and its slope.
- Know lines are parallel or perpendicular from their slopes.
- Find the equation of a line perpendicular to a given line that passes through a given point.
- Understand and be able to graph the solution set of a linear inequality.
- Solve a system of two linear equations in two variables algebraically and interpret the answer graphically.
- Solve a system of two linear inequalities in two variables and sketch the solution set.
- Solve word problems (including mixture, digit, and age problems) that involve linear equations.

**D. ARITHMETIC OF RATIONAL EXPRESSION**

- Factor second- and higher-degree polynomials when standard techniques apply, such as factoring the GCF out of all terms of a polynomial, the difference of two squares, and perfect squares trinomials.
- Add, subtract, multiply, and divide rational expressions and express in simplest form.

**E. QUADRATIC EQUATIONS AND FUNCTIONS**

- Solve quadratic equations in one variable by factoring or by completing the square.
- Complete the square to write a quadratic expression as the difference of two squares.
- Graph quadratic functions by completing the square to find the vertex and know that their zeros (roots) are the x-intercepts.
- Know the quadratic formula and be familiar with its proof by completing the square.
- Know how to clear fractions to solve equations that lead to linear or quadratic equations.
- Know how to use squaring to solve problems that lead to linear or quadratic equations.
- Solve word problems, including physical problems such as the motion of an object under the force of gravity, and combined rate (work) problems.

**II. Geometry****A. ANALYTIC GEOMETRY**

- Reinforce the knowledge of algebra with geometry and vice versa.
- Know that the midpoint of a line segment of any slope, projected perpendicularly onto the horizontal x-axis or vertical y-axis, will be the midpoint of its projection.
- Know the similar triangles connection (AA Similarity) with slope and that this is the tangent of the angle the line makes with the x-axis.

**B. INTRODUCTION TO TRIGONOMETRY**

- Know that in a right triangle the cosine of an angle is the ratio of the adjacent side to the hypotenuse and the sine is the ratio of the opposite side to the hypotenuse.
- Know the values of the sine, cosine, and tangent of 0, 30, 45, 60, and 90 degrees and use a scientific calculator to determine the approximate value of any acute angle.
- Use a scientific calculator to determine the approximate value of an acute angle of a given sine, cosine, or tangent.

**C. TRIANGLES AND PROOFS**

- Prove that the bisector of an angle is the set of all points equidistant from both sides.
- Prove that any triangle inscribed in a circle with one side as the diameter is a right triangle.
- Prove the Pythagorean Theorem.
- Know that a line tangent to a circle is perpendicular to the radius at the point of tangency.
- Taking geometry as a model, understand the concept of a mathematical proof, as distinct from an opinion, an approximation, or a conjecture based on specific cases.
- In geometry and elsewhere, understand that a single-counter example suffices to disprove a general assertion.

Teachers: Effective instruction in science requires not only direct experience and observation but also book learning, which helps bring coherence and order to a student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in their scientific learning. The Science sequence for the middle school grades aims for more intensive and selective study of topics, a number of which were introduced in earlier grades. The *Sequence* continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings.

## I. Physics

### A. MOTION

- Velocity and speed

The velocity of an object is the rate of change of its position in a particular direction.

Speed is the magnitude of velocity expressed in distance covered per unit of time.

Changes in velocity can involve changes in speed or direction or both.

- Average speed = total distance traveled divided by the total time elapsed

Formula: Speed = Distance/Time ( $S = D/T$ )

Familiar units for measuring speed: miles or kilometers per hour

### B. FORCES

- The concept of force: force as a push or pull on an object

Examples of familiar forces (such as gravity, magnetic force)

A force has both direction and magnitude.

Measuring force: expressed in units of mass, pounds in English system, newtons in metric system

- Unbalanced forces cause changes in velocity.

If an object is subject to two or more forces at once, the effect is the net effect of all forces.

The motion of an object does not change if all the forces on it are in balance, having net effect of zero.

The motion of an object changes in speed or direction if the forces on it are unbalanced, having net effect other than zero.

To achieve a given change in the motion of an object, the greater the mass of the object, the greater the force required.

### C. DENSITY AND BUOYANCY

- When immersed in a fluid (i.e. liquid or gas), all objects experience a buoyant force.

The buoyant force on an object is an upward (counter-gravity) force equal to the weight of the fluid displaced by the object.

Density = mass per unit volume

Relation between mass and weight (equal masses at same location have equal weights)

- How to calculate density of regular and irregular solids from measurements of mass and volume

The experiment of Archimedes

- How to predict whether an object will float or sink





**D. WORK**

- In physics, work is a relation between force and distance: work is done when force is exerted over a distance.

Equation: Work equals Force x Distance ( $W = F \times D$ )

Common units for measuring work: foot-pounds (in English system), joules (in metric system; 1 joule = 1 newton of force x 1 meter of distance)

**E. ENERGY**

- In physics, energy is defined as the ability to do work.
- Energy as distinguished from work  
To have energy, a thing does not have to move.  
Work is the transfer of energy.
- Two main types of energy: kinetic and potential  
Some types of potential energy: gravitational, chemical, elastic, electromagnetic  
Some types of kinetic energy: moving objects, heat, sound and other waves
- Energy is conserved in a system.

**F. POWER**

- In physics, power is a relation between work and time: a measure of work done (or energy expended) and the time it takes to do it.

Equation: Power equals Work divided by Time ( $P = W/T$ ), or Power = Energy/Time

Common units of measuring power: foot-pounds per second, horsepower (in English system); watts, kilowatts (in metric system)

**II. Electricity and Magnetism****A. ELECTRICITY**

- Basic terms and concepts (review from grade 4):  
Electricity is the charge of electrons in a conductor.  
Opposite charges attract, like charges repel.  
Conductors and insulators  
Open and closed circuits  
Short circuit: sudden surge of amperage due to the reduction of resistance in a circuit;  
protection from short circuits is achieved by fuses and circuit breakers  
Electrical safety
- Electricity as the charge of electrons  
Electrons carry negative charge; protons carry positive charge  
Conductors: materials like metals that easily give up electrons  
Insulators: materials like glass that do not easily give up electrons
- Static electricity  
A static charge (excess or deficiency) creates an electric field.  
Electric energy can be stored in capacitors (typically two metal plates, one charged positive and one charged negative, separated by an insulating barrier). Capacitor discharges can release fatal levels of energy.  
Grounding drains an excess or makes up a deficiency of electrons, because the earth is a huge reservoir of electrons. Your body is a ground when you get a shock of static electricity.  
Lightning is a grounding of static electricity from clouds.
- Flowing electricity  
Electric potential is measured in volts.  
Electric flow or current is measured in amperes: 1 ampere = flow of 1 coulomb of charge per second (1 coulomb = the charge of 6.25 billion billion electrons).  
The total power of an electric flow over time is measured in watts. Watts = amps x volts;  
amps = watts/volts; volts = watts/amps.  
The unit of electrical resistance is the ohm.



## B. MAGNETISM AND ELECTRICITY

- Earth's magnetism
  - Earth's magnetism is believed to be caused by movements of charged atoms in the molten interior of the planet.
  - Navigation by magnetic compass is made possible because the earth is a magnet with north and south magnetic poles.
- Connection between electricity and magnetism
  - Example: move a magnet back and forth in front of wire connected to a meter, and electricity flows in the wire. The reverse: electric current flowing through a wire exerts magnetic attraction.
  - Spinning electrons in an atom create a magnetic field around the atom.
  - Unlike magnetic poles attract, like magnetic poles repel.
  - Practical applications of the connection between electricity and magnetism, for example:
    - An electric generator creates alternating current by turning a magnet and a coil of wire in relation to each other; an electric motor works on the reverse principle.
    - A step-up transformer sends alternating current through a smaller coil of wire with just a few turns next to a larger coil with many turns. This induces a higher voltage in the larger coil. A step-down transformer does the reverse, sending current through the larger coil and creating a lower voltage in the smaller one.

## III. Electromagnetic Radiation and Light

- Waves and electromagnetic radiation
  - Most waves, such as sound and water waves, transfer energy through matter, but light belongs to a special kind of radiation that can transfer energy through empty space.
- The electromagnetic spectrum
  - From long waves, to radio waves, to light waves, to x-rays, to gamma rays
  - Called "electromagnetic" because the radiation is created by an oscillating electric field which creates an oscillating magnetic field at right angles to it, which in turn creates an oscillating electric field at right angles, and so on, with both fields perpendicular to each other and the direction the wave is moving.
  - The light spectrum: from infrared (longest) to red, orange, yellow, green, blue, violet (shortest)
  - Speed in a vacuum of all electromagnetic waves including light: 300,000 km per second, or 186,000 miles per second; a universal constant, called  $c$
- Refraction and reflection
  - Refraction: the slowing down of light in glass causes it to bend, which enables lenses to work for television, photography, and astronomy
  - How Isaac Newton used the refraction of a prism to discover that white light was made up of rays of different energies (or colors)
  - Reflection: concave and convex reflectors; focal point

## IV. Sound Waves

- General properties of waves
  - Waves transfer energy by oscillation without transferring matter; matter disturbed by a wave returns to its original place.
  - Wave properties: wavelength, frequency, speed, crest, trough, amplitude
  - Two kinds of waves: transverse (for example, light) and longitudinal (for example, sound)
  - Common features of both kinds of waves:
    - Speed and frequency of wave determine wavelength.
    - Wave interference occurs in both light and sound.
    - Doppler effect occurs in both light and sound.

- Sound waves: longitudinal, compression waves, made by vibrating matter, for example, strings, wood, air  
While light and radio waves can travel through a vacuum, sound waves cannot. Sound waves need a medium through which to travel.
- Speed  
Sound goes faster through denser mediums, that is, faster through solids and liquids than through air (gases).  
At room temperature, sound travels through air at about 340 meters per second (1,130 feet per second).  
Speed of sound = Mach number  
Supersonic booms; breaking the sound barrier
- Frequency  
Frequency of sound waves measured in “cycles per second” or Hertz (Hz)  
Audible frequencies roughly between 20 and 20,000 Hz  
The higher the frequency, the higher the subjective “pitch”
- Amplitude  
Amplitude or loudness is measured in decibels (dB).  
Very loud sounds can impair hearing or cause deafness.  
Resonance, for example, the sound board of a piano, or plates of a violin

## V. Chemistry of Food and Respiration

- Energy for most life on earth comes from the sun, typically from sun, to plants, to animals, back to plants.
- Living cells get most of their energy through chemical reactions.  
All living cells make and use carbohydrates (carbon and water), the simplest of these being sugars.  
All living cells make and use proteins, often very complex compounds containing carbon, hydrogen, oxygen, and many other elements.  
Making these compounds involves chemical reactions which need water, and take place in and between cells, across cell walls. The reactions also need catalysts called “enzymes.”  
Many cells also make fats, which store energy and food.
- Energy in plants: photosynthesis  
Plants do not need to eat other living things for energy.  
Main nutrients of plants: the chemical elements nitrogen, phosphorus, potassium, calcium, carbon, oxygen, hydrogen (some from soil or the sea, others from the air)  
Photosynthesis, using chlorophyll, converts these elements into more plant cells and stored food using energy from sunlight.  
Leafy plants mainly get their oxygen dissolved in water from their roots, and their carbon mainly from the gas  $\text{CO}_2$ .  
Plant photosynthesis uses up  $\text{CO}_2$  and releases oxygen.
- Energy in animals: respiration  
Animal chemical reactions do the opposite of plants—they use up oxygen and release  $\text{CO}_2$ .  
In animals the chief process is not photosynthesis but respiration, that is, the creation of new compounds through oxidation.  
Animals cannot make carbohydrates, proteins, and fats from elements. They must eat these organic compounds from plants or other animals, and create them through respiration.  
Respiration uses oxygen and releases  $\text{CO}_2$ , creating an interdependence and balance between plant and animal life.



- Human nutrition and respiration
  - Humans are omnivores and can eat both plant and animal food.
  - Human respiration, through breathing, gets oxygen to the cells through the lungs and the blood.
  - The importance of hemoglobin in the blood
- Human health
  - While many other animals can make their own vitamins, humans must get them from outside.
  - A balanced diet: the food pyramid or “MyPlate” for humans (review); identification of the food groups in terms of fats, carbohydrates, proteins, vitamins, and trace elements

## VI. Science Biographies

Albert Einstein (physicist whose theories of relativity allowed great advancements in the study of space, matter, energy, time, and gravity)

Dorothy Hodgkin (chemist who determined the structure of vitamin B12)

James Maxwell (scientist who created mathematical equations that expressed the basic laws of light, electricity, and magnetism)

Charles Steinmetz (scientist who made key advances in electric power)

# appendices

# Overview of Topics

## Appendices

### Appendix A

Why Listening and Learning are Critical  
to Reading Comprehension

### Appendix B

Using Trade Books to Achieve College and Career  
Readiness: The Principles of Democracy

### Appendix C

Domains and Core Content Objectives for the  
*Core Knowledge Language Arts* Program, K–2

### Appendix D

Core Knowledge Grade-by-Grade Resource  
Recommendations

**Appendix A: Why Listening and Learning are Critical to Reading Comprehension**

Those who follow education know all too well that concern about poor student achievement in literacy has reached levels that border on desperation. By every standard measure, it is clear that large numbers of students are leaving American schools ill-prepared to pursue higher education or careers due to poor literacy skills. On international comparisons of reading achievement, the United States ranks below nearly all other countries, surpassed by the likes of Finland, Korea, Japan, and even Hungary and Poland. Longitudinal test results from the National Assessment of Education Progress (NAEP) show little or no growth over a period of decades.

Some progress has been made in recent years in the early elementary grades, thanks to both the Reading First initiative and the No Child Left Behind (NCLB) legislation which have underscored the importance of explicitly and systematically teaching decoding skills. Since the inception of these programs, test scores in the very early grades (K–2) have risen. This improvement reflects the benefits of explicit instruction in phonemic awareness, systematic phonics, and the development of fluency.

Unfortunately, however, these initial improvements have proven unsustainable. As these very same students moved into the upper elementary grades, their test scores have dropped or flatlined. The conclusion is inescapable: the explicit teaching of decoding skills is necessary, but not sufficient to achieve the goal of full literacy. While systematically teaching decoding leads to improved performance on early reading evaluations, which focus on decoding skills, American educators have yet to find an analogous remedy that leads to improved test scores in the latter grades, when the focus shifts to assessing whether students understand what they read. The approach currently favored by most language arts programs, hours of instructional time to teaching and practicing an ever expanding collection of reading comprehension strategies, has proven ineffective. Current research suggests that teaching reading strategies has value in helping students recognize the purpose for reading and may lead to a slight boost in reading comprehension scores, but not the sustained improvement that would be indicative of true literacy. Something is still missing.

What’s missing is background knowledge. “Most of us think about reading in a way that is fundamentally incorrect,” observes University of Virginia cognitive scientist Daniel T. Willingham. “We think of it as transferable, meaning that once you acquire the ability to read, you can read anything. But being able to decode letter strings fluently is only half of reading. In order to understand what you’re reading, you need to know something about the subject matter. And that doesn’t just mean that you need to know the vocabulary—you need to have the right knowledge of the world,” he says.

The successful experience of schools using Core Knowledge during the past 20 years demonstrates the importance of background knowledge to reading comprehension. Time and again, schools implementing the content-specific Core Knowledge curriculum have noted that even though state and standardized tests are not tied to the *Core Knowledge Sequence*, student performance on such tests improves at statistically significant levels when students are exposed to Core Knowledge over several years. Instead of scores dropping or flatlining at the upper grade levels, Core Knowledge students’ test scores actually rise! “General reading comprehension ability is much more than comprehension strategies,” wrote Core Knowledge founder E.D. Hirsch, Jr. in his 2006 book *The Knowledge Deficit*; “it requires a definite range of general knowledge.”

*In order to understand what is read, it is absolutely necessary to have knowledge of relevant things that are not explicitly stated. Reading is a two-lock box, and opening that box requires not only adequate decoding skills but also language, vocabulary and background knowledge that provide a foundation and underlying context for students to understand what they are reading.*

There is “truly a mountain of data that students must have content knowledge to read effectively,” says Willingham. Unfortunately, existing language arts programs have not been designed to build this foundation of language, vocabulary and background knowledge. This is why the Core Knowledge Foundation is creating the *Core Knowledge Language Arts* program.

### LANGUAGE—LISTENING, SPEAKING, READING, AND WRITING

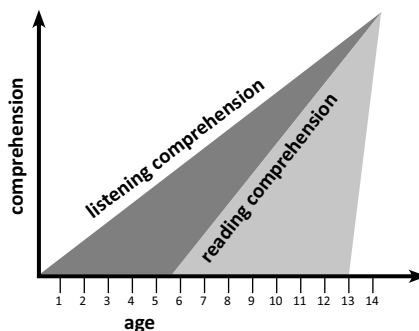
Traditional language arts instruction has typically paid little attention to listening and speaking. This failure to focus on the development of oral language in language arts instruction is a serious oversight. The ability to read and write written language, is highly correlated with students’ oral language proficiency, and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. It is essential that children build listening and speaking competency while also developing reading and writing skills.

Linguists distinguish between receptive and expressive language. Receptive language is language that we take in, process and understand. Expressive language is language we generate and produce. Oral language is spoken language or speech. Written language is print. Oral language is primary. Written language builds upon it.

	Receptive Language	Expressive Language
Oral Language	Listening	Speaking
Written Language	Reading <i>(two keys: decoding + comprehension)</i>	Writing <i>(handwriting, spelling, written composition)</i>

Researchers who study the development of language in young children point out that oral language development precedes and is the foundation for written language development. Children’s oral language competence is strongly predictive of their facility in learning to read and write. A child’s listening and speaking vocabulary, and even mastery of syntax, set boundaries as to what they can read and understand no matter how well they can decode.

It is important to note that for young children in preschool and the early grades, *receptive and expressive abilities do not develop simultaneously or at the same pace; receptive language generally precedes expressive language*. Science confirms what common sense suggests: children need to be able to understand words before they can produce and use them. The groundbreaking work of Hart and Risley (1995), who studied young children in the context of their early family life, found the number of words they heard before they arrived in kindergarten predicted how many words they understood and how fast they could learn new words in kindergarten. Even more significantly, five years later, in third grade, early language competence still predicted language and reading comprehension. The preschoolers who had heard more words, and subsequently learned more words orally, became better readers.



Source: T. G. Sticht and J. James, “Listening and reading,” in P. Pearson, ed., *Handbook of Research on Reading*. New York: Longmans, 1984. (1984)



This finding offers a profoundly important lesson for educators. *Early language disadvantage persists and manifests itself as illiteracy when educational practices fail to recognize the importance of oral language.* A meta-analysis of research by Thomas Sticht (1984) reinforces the importance and primacy of oral language, suggesting that it endures well past the time during which most children have started reading independently. Sticht's analysis strongly suggests that children's listening comprehension outpaces reading comprehension until the middle school years (grades 6–8).

The takeaway message is clear and obvious: we must devote at least as much time during the language arts block to reading *aloud* to young children as we currently devote to providing children with the skills they will need to decode and encode language. This is one of the fundamental premises of the Listening and Learning Strand of the *Core Knowledge Language Arts* program.

### **BUILDING LISTENING COMPREHENSION AND CONTENT KNOWLEDGE BY READING ALOUD**

Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This is best done through frequent reading aloud. Children's ability to understand what they hear far outpaces their ability to independently read and understand written text. By listening to stories or nonfiction selections read aloud, children can experience the complexities of written language without expending cognitive energy on decoding. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

### **CHOOSING READ-ALOUDS**

Not just any read-aloud(s), however, will do. First, careful consideration should be given to the selection of text read aloud to ensure that the vocabulary and syntax presented is rich and complex.

Furthermore, to make efficient use of instructional time, read-alouds must also be selected that build a broad knowledge base, while simultaneously building listening comprehension and language skills. To do this, the selection of *read-alouds within a given grade level and across grade levels must be guided by a coherent, sequenced approach to building knowledge.* This can be achieved by selecting fiction and nonfiction read-alouds from grade level topics identified in the *Core Knowledge Sequence*. The topics for read-alouds in the Listening and Learning Strand of the *Core Knowledge Language Arts* program have been chosen on this basis.

By reading a story or nonfiction selection aloud, we allow children to experience written language without the burden of decoding, granting them access to content they may not be able to read and understand by themselves. They are then free to focus their mental energy on the words and ideas presented in the text, gaining the language and background knowledge that will be needed to tackle rich, written content on their own.

### **DOMAINS AND STAYING ON A TOPIC**

Building knowledge systematically in language arts is like giving children various pieces of a puzzle in each grade that, over time, will form the big picture. As noted above, read-alouds—within and across grade levels—need to be selected around topics or domains that systematically build knowledge. A domain is an area of knowledge, such as the human body, plants, astronomy, Native Americans, civil rights, and so on. It is strongly recommended that daily read-alouds focus on a single domain over a sustained period of time—about two weeks—rather than intermingling randomly selected read-alouds on a variety of topics. The *Tell It Again! Read-Aloud Anthologies* for the Listening and Learning Strand are organized by domain.

Staying on a topic or domain increases the chances that students will receive multiple exposures to key vocabulary words. For example, in the kindergarten Plants domain, students get multiple

exposures to key words from this domain, such as *nutrients*, *photosynthesis*, *crop*, and *harvest*. Hearing these kinds of words used in meaningful contexts over the course of a domain efficiently and exponentially increases the rate at which children acquire new vocabulary.

Acquisition of both language and knowledge will also be enhanced if, following each read-aloud, children participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

## **ENSURING COHERENCE**

The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics.

The *Core Knowledge Sequence* is designed to provide schools with a coherent, cumulative and content-specific curriculum. In Core Knowledge schools, teaching and learning are more effective as teachers help students build upon prior knowledge and make more efficient progress from one year to the next. All students enjoy more equal educational opportunities as they are motivated by consistently challenging content. And all children are prepared to become members of the wider national community, respectful of diversity while strengthened by the shared knowledge that helps unite us on common ground.

To learn more, visit the Core Knowledge Reading Room on our website at [www.coreknowledge.org](http://www.coreknowledge.org).

You can also find the following articles and video online:

### **Building Knowledge**

*The Case for Bringing Content into the Language Arts Block and for a Knowledge-Rich Curriculum Core for All Children*

By E.D. Hirsch, Jr.

American Educator, Spring 2006

[http://archive.aft.org/pubs-reports/american\\_educator/issues/spring06/hirsch.htm](http://archive.aft.org/pubs-reports/american_educator/issues/spring06/hirsch.htm)

### **How Knowledge Helps**

*It Speeds and Strengthens Reading Comprehension, Learning—and Thinking*

By Daniel T. Willingham

American Educator, Spring 2006

[http://archive.aft.org/pubs-reports/american\\_educator/issues/spring06/willingham.htm](http://archive.aft.org/pubs-reports/american_educator/issues/spring06/willingham.htm)

### **Teaching Content Is Teaching Reading**

<http://www.youtube.com/watch?v=RiP-ijdxqEc>

### **The Importance of Oral Language**

*The Early Catastrophe: The 30 Million Word Gap by Age 3*

By Betty Hart and Todd Risley

American Educator, Spring 2003

[http://archive.aft.org/pubs-reports/american\\_educator/spring2003/catastrophe.html](http://archive.aft.org/pubs-reports/american_educator/spring2003/catastrophe.html)

## Appendix B:

Using Trade Books  
to Achieve  
College and  
Career Readiness:

The Principles of  
Democracy

### Appendix B: Using Trade Books to Achieve College and Career Readiness: The Principles of Democracy

To be able to read and understand the Declaration of Independence, the Preamble to the Constitution, or Dr. Martin Luther King Jr.'s "I Have a Dream" speech, all texts identified in the newly released Common Core State Standards, literate adults must have a firm grasp of both the language and historical context of these texts. Building this foundation starts in the early elementary grades.

While all American history topics are relevant in some way to the formation of the United States and to the understanding of how the principles of American democracy came about, the listing on the next page represents a grade-appropriate mini-sequence of American history topics that directly relate to the ideas and freedoms embodied in the Declaration of Independence and the Constitution. Age-appropriate trade book titles that could be used as read-alouds are also identified for each domain to illustrate how carefully selected read-alouds can be used to coherently build domain knowledge within and across grade levels.

Study of American history and geography can begin in grades K–2 with a brief overview of major events and figures, from the earliest days to recent times. (The term "American" here generally refers to the lands that became the United States.) A more in-depth, chronological study of American history can then begin again in grade 3 and continue onward.

## Exemplar Texts on a Topic Across Grades

### Principles of Democracy

To be able to read and understand the Declaration of Independence, the Preamble to the Constitution, or King's "I Have a Dream" speech, literate adults must have a firm grasp of both the language and historical context of these texts. Building this foundation starts in the early elementary grades. All American history topics are relevant in some way to the formation of the United States and to the understanding of how the principles of American democracy came about. This listing represents a grade-appropriate mini-sequence of American history topics that directly relate to the ideas and freedoms embodied in the Declaration of Independence and the Constitution.

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Reference the rest of this listing for more detail about specific age-appropriate subtopics as well as additional titles.

## K

### Early Exploration and Settlement

- The Voyage of Columbus in 1492
  - The Pilgrims
- A Picture Book of Christopher Columbus* by David A. Adler (1991)
- Christopher Columbus* by Mary Dodson Wade (2003)
- The Pilgrims' First Thanksgiving* by Anne McGovern (1973)
- Pilgrims of Plymouth* by Susan E. Goodman (1999)
- § *The Pilgrims' Thanksgiving from A-Z* by Laura Crawford (2005)

### Presidents and American Symbols

- Introduction to famous presidents
    - George Washington
    - Thomas Jefferson
    - Abraham Lincoln
    - Theodore Roosevelt
    - Current United States president
  - American Symbols and Figures
- My Teacher for President* by Kay Winters (2004)
- George Washington* by Philip Abraham (2002)
- A Picture Book of Thomas Jefferson* by David A. Adler (1990)
- Abraham Lincoln's Hat* by Martha Brenner (1994)
- I pledge allegiance* by Bill Martin Jr. and Michael Sampson (2002)

## 1

### The Birth of Our Nation

- Introduction to the American Revolution (emphasizing the story of how we went from colonies to an independent nation)
  - American Symbols and Figures
- The 4th of July Story* by Alice Dalgleish (1995)
- American Revolution (Research Guide)* by Mary Pope Osborne (2004)
- Boston Tea Party* by Pamela Duncan Edwards (2001)
- A Picture Book of Paul Revere* by David A. Adler (1995)
- Red, White, and Blue: The Story of the American Flag* by John Herman (1998)

## 2–3

### The Thirteen Colonies Life before the Revolution

- Life in a Colonial Town* by Sally Senzell Isaacs (2000)
- Colonial Life* by Brendan January (2000)
- If You Lived in Williamsburg In Colonial Days* by Barbara Brenner (2000)
- Immigration and Citizenship**
- Coming to America* by Betsy Maestro (1996)
- Miss Bridie Chose a Shovel* by Leslie Connor (2004)
- Watch the Stars Come Out* by Riki Levinson (1985)
- We the Kids* by David Catrow (2002)
- The Story of the Statue of Liberty* by Betsy and Giulio Maestro (1986)

### Reformers

- A Picture Book of Eleanor Roosevelt* by David A. Adler (1991)
- A Picture Book of Martin Luther King, Jr.* by David A. Adler (1989)
- Teammates* by Peter Golenbock (1990)
- Susan B. Anthony: Fighter for Freedom and Equality* by Suzanne Slade (2007)
- Harvesting Hope: The Story of Cesar Chavez* by Kathleen Krull (2003)

### The Civil War

- If You Lived at the Time of the Civil War* by Kay Moore (1994)
- A Picture Book of Harriet Tubman* by David A. Adler (1992)
- Nettie's Trip South* by Ann Turner (1987)
- A Picture Book of Abraham Lincoln* by David A. Adler (1989)
- Just a Few Words, Mr. Lincoln: The Story of the Gettysburg Address* by Jean Fritz (1993)

## 4–5

### The American Revolution

#### Undertake a more detailed study.

- Events Leading to the American Revolution* by Linda R. Wade (2001)
- The Revolutionary War* by Brendan January (2000)
- Paul Revere's Ride* by Henry Wadsworth Longfellow (1990)
- The Battles of Lexington and Concord* by Judith Peacock (2002)
- Can't You Make Them Behave, King George?* by Jean Fritz (1977)
- Making a Constitutional Government**
- A More Perfect Union: The Story of our Constitution* by Betsy and Giulio Maestro (1987)
- The Constitution* by Warren Colman (1987)
- The United States Constitution* by Karen Price Hossell (2004)
- If You Were There When They Signed the Constitution* by Elizabeth Levy (1987)
- Shh! We're Writing the Constitution* by Jean Fritz (1987)
- Reformers**
- Dorothea Dix: Social Reformer* by Barbara Wittman (2003)
- The Abolitionist Movement* by Elaine Landau (2004)
- If You Lived When Women Won Their Rights* by Anne Kamma (2006)
- Created Equal* by Ann Rossi (2005)
- Only Passing Through: The Story of Sojourner Truth* by Anne Rockwell (2000)
- The Civil War: Causes, Conflicts, Consequences**
- Undertake a more detailed study.**
- A Slave Family* by Bobbie Kalman (2003)
- Sisters Against Slavery: A Story about Sarah and Angelina Grimké* by Stephanie Sammartino McPherson (1999)
- Abraham Lincoln Goes to Washington* by Cheryl Harness (1997)
- The Emancipation Proclamation* by Ann Heinrichs (2002)
- The Gettysburg Address* by Abraham Lincoln (1995)

## KINDERGARTEN

### Domain: Early Exploration and Settlement

#### The Voyage of Columbus in 1492

- Queen Isabella and King Ferdinand of Spain
- The Niña, Pinta, and Santa Maria
- Columbus's mistaken identification of "Indies" and "Indians"
- The idea of what was, for Europeans, a "New World"

#### The Pilgrims

- The Mayflower
- Plymouth Rock
- Thanksgiving Day celebration

#### July 4, "Independence Day"

- The "birthday" of our nation
- Democracy (rule of the people): Americans wanted to rule themselves instead of being ruled by a faraway king.
- Some people were not free: slavery in early America

- *A Picture Book of Christopher Columbus* by David A. Adler (1991)
- *Christopher Columbus* by Mary Dodson Wade (2003)
- *Follow the Dream: The Story of Christopher Columbus* by Peter Sis (1991)
- *The Pilgrims' First Thanksgiving* by Anne McGovern (1973)
- *Pilgrims of Plymouth* by Susan E. Goodman (1999)
- *The Pilgrims' Thanksgiving from A-Z* by Laura Crawford (2005)
- *Sarah Morton's Day: A Day in the Life of a Pilgrim Girl* by Kate Waters (1989)

### Domain: Presidents and American Symbols

**Introduction to famous presidents** (as well as a discussion at a basic level of questions such as: What is the president? How does a person become president? Who are some of our most famous presidents, and why?)

- George Washington  
The "Father of Our Country"  
Legend of George Washington and the cherry tree
- Thomas Jefferson, author of Declaration of Independence
- Abraham Lincoln  
Humble origins  
"Honest Abe"
- Theodore Roosevelt
- Current United States president

#### American Symbols and Figures

- Recognize and become familiar with the significance of  
American flag  
Statue of Liberty  
Mount Rushmore  
The White House

- *My Teacher for President* by Kay Winters (2004)
- *George Washington* by Philip Abraham (2002)
- *A Picture Book of Thomas Jefferson* by David A. Adler (1990)
- *Abe Lincoln's Hat* by Martha Brenner (1994)
- *I pledge allegiance* by Bill Martin Jr. and Michael Sampson (2002)
- *The White House* by Lloyd G. Douglas (2003)
- *Woodrow, the White House Mouse* by Peter W. Barnes and Cheryl Shaw Barnes (1998)
- *The Star-Spangled Banner* illustrated by Peter Spier (1973)
- *The Legend of the Teddy Bear* by Frank Murphy (2001)

## GRADE 1

## Domain: The Birth of Our Nation

**Introduction to the American Revolution** (emphasizing the story of how we went from colonies to an independent nation)

- Locate the original thirteen colonies.
- The Boston Tea Party
- Paul Revere’s ride, “One if by land, two if by sea”
- Minutemen and Redcoats, the “shot heard round the world”
- Thomas Jefferson and the Declaration of Independence, “We hold these truths to be self-evident, that all men are created equal . . .”
- Fourth of July
- Benjamin Franklin: patriot, inventor, writer
- George Washington: from military commander to our first president  
Martha Washington  
Our national capital city named Washington
- Legend of Betsy Ross and the flag

**American Symbols and Figures**

- Recognize and become familiar with the significance of  
Liberty Bell  
American flag  
Bald Eagle  
Current United States president
- *The 4th of July Story* by Alice Dalgliesh (1995)
- *American Revolution* (Research Guide) by Mary Pope Osborne (2004)
- *Boston Tea Party* by Pamela Duncan Edwards (2001)
- *A Picture Book of Paul Revere* by David A. Adler (1995)
- *Red, White, and Blue: The Story of the American Flag* by John Herman (1998)
- *A Picture Book of George Washington* by David A. Adler (1989)
- *George Washington* by Ingri and Edgar Parin D’Aulaire (1963)
- *Now & Ben: The Modern Inventions of Benjamin Franklin* by Gene Barretta (2006)
- *A Picture Book of Benjamin Franklin* by David A. Adler (1990)
- *Betsy Ross* by Alexandra Wallner (1994)
- *Yankee Doodle* by Gary Chalk (1993)
- *The Bald Eagle* by Tristan Boyer Binns (2001)
- *The Bald Eagle* by Norman Pearl (2007)
- *Saving the Liberty Bell* by Megan McDonald (2005)
- *The Liberty Bell* by Mary Firestone (2007)

## GRADE 2

## Domain: The Civil War

**Introduction to the Civil War**

- Controversy over slavery
- Harriet Tubman, the “underground railroad”
- Northern v. Southern states: Yankees and Rebels
- Ulysses S. Grant and Robert E. Lee
- Clara Barton, “Angel of the Battlefield,” founder of American Red Cross
- President Abraham Lincoln: keeping the Union together
- Emancipation Proclamation and the end of slavery

## American Symbols and Figures

- Recognize and become familiar with the significance of
  - U. S. flag: current and earlier versions
  - Lincoln Memorial
- *If You Lived at the Time of the Civil War* by Kay Moore (1994)
- *A Picture Book of Harriet Tubman* by David A. Adler (1992)
- *Nettie's Trip South* by Ann Turner (1987)
- *A Picture Book of Abraham Lincoln* by David A. Adler (1989)
- *Just a Few Words, Mr. Lincoln: The Story of the Gettysburg Address* by Jean Fritz (1993)
- *If you Lived When There Was Slavery in America* by Anne Kamma (2004)
- *Civil War on Sunday* by Mary Pope Osborne (2000)
- *Abe Lincoln: The boy who loved books* by Kay Winters (2003)
- *Mr. Lincoln's Whiskers* by Karen B. Winnick (1996)
- *The Lincoln Memorial* by Kathleen W. Deady (2002)
- *Escape North! The Story of Harriet Tubman* by Monica Kulling (2000)
- *If You Traveled on the Underground Railroad* by Ellen Levine (1988)
- *Escape! A Story of the Underground Railroad* by Sharon Shavers Gayle (1999)
- *Harriet and the Promised Land* by Jacob Lawrence (1997)
- *Aunt Harriet's Underground Railroad in the Sky* by Faith Ringgold (1992)
- *Follow the Drinking Gourd* by Jeanette Winter (1988)
- *A Picture Book of Robert E. Lee* by David A. Adler (1994)
- *Clara Barton* by Wil Mara (2002)

## Domain: Immigration and Citizenship

### Introduction to Immigration and Citizenship

Using narrative, biography, and other accessible means to introduce children to the idea that many people have come to America (and continue to come here) from all around the world, for many reasons: to find freedom, to seek a better life, to leave behind bad conditions in their native lands, etc. Discuss: What is an immigrant? Why do people leave their home countries to make a new home in America? What is it like to be a newcomer in America? What hardships have immigrants faced? What opportunities have they found?

- America perceived as a “land of opportunity”
- The meaning of “e pluribus unum” (a national motto you can see on the back of coins)
- Ellis Island and the significance of the Statue of Liberty
- Millions of newcomers to America
  - Large populations of immigrants settle in major cities (such as New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, San Francisco)
- The idea of citizenship
  - What it means to be a citizen of a nation
  - American citizens have certain rights and responsibilities (for example, voting, eligible to hold public office, paying taxes)
  - Becoming an American citizen (by birth, naturalization)

### Introduction to American Government: The Constitution

Through analogies to familiar settings—the family, the school, the community—discuss some basic questions regarding American government, such as: What is government? What are some basic functions of American government? (Making and enforcing laws; settling disputes; protecting rights and liberties, etc.) Only basic questions need to be addressed at this grade level. Specific issues and institutions of American government, including, for example, the separation of powers, and the relation between state and federal government should be discussed in later grades.

- American government is based on the Constitution, the highest law of our land.
- James Madison, the “Father of the Constitution”
- Government by the consent of the governed: “We the People”

### American Symbols and Figures

- Recognize and become familiar with the significance of U. S. flag; current and earlier versions  
Statue of Liberty
- *Coming to America* by Betsy Maestro (1996)
- *Miss Bridie Chose a Shovel* by Leslie Connor (2004)
- *Watch the Stars Come Out* by Riki Levinson (1985)
- *We the Kids* by David Catrow (2002)
- *The Story of the Statue of Liberty* by Betsy and Giulio Maestro (1986)
- *A Very Important Day* by Maggie Rugg Herold (1995)
- *A Picnic in October* by Eve Bunting (2004)
- *One Green Apple* by Eve Bunting (2006)
- *The Keeping Quilt* by Patricia Polacco (1998)
- *Molly's Pilgrim* by Barbara Cohen (1983)

### Domain: Reformers

Through narrative, biography, and other accessible means, introduce students to the idea that while America is a country founded upon “the proposition that all men are created equal, equality has not always been granted to all Americans. Many people, however, have dedicated themselves to the struggle to extend equal rights to all Americans. Specific figures and issues to study can include:

- Susan B. Anthony and the right to vote
  - Eleanor Roosevelt and civil rights and human rights
  - Mary McLeod Bethune and educational opportunity
  - Jackie Robinson and the integration of major league baseball
  - Rosa Parks and the bus boycott in Montgomery, Alabama
  - Martin Luther King, Jr. and the dream of equal rights for all
  - Cesar Chavez and the rights of migrant workers
- *A Picture Book of Eleanor Roosevelt* by David A. Adler (1991)
  - *A Picture Book of Martin Luther King, Jr.* by David A. Adler (1989)
  - *Teammates* by Peter Golenbock (1990)
  - *Susan B. Anthony: Fighter for Freedom and Equality* by Suzanne Slade (2007)
  - *Harvesting Hope: The Story of Cesar Chavez* by Kathleen Krull (2003)
  - *If a Bus Could Talk: The Story of Rosa Parks* by Faith Ringold (1999)
  - *I Am Rosa Parks* by Rosa Parks with Jim Haskins (1997)
  - *Eleanor* by Barbara Cooney (1996)
  - *Mary McLeod Bethune: A Great Teacher* by Patricia and Fredrick McKissack (2001)
  - *Martin Luther King, Jr. and His Birthday* by Jacqueline Woodson (1990)
  - *Martin's Big Words: The Life of Martin Luther King, Jr.* by Doreen Rappaport (2001)
  - *March On! The Day My Brother Martin Changed the World* by Christine King Farris (2008)
  - *Learning About Justice from the Life of César Chávez* by Jeanne Strazzabosco (1996)



## GRADE 3

### Domain: The Thirteen Colonies: Life before the Revolution

**Focus on the definition of “colony” and why countries establish colonies.** Help children see that the thirteen English colonies were not alike. Different groups of people came to America with different motivations (hoping to get rich, looking for religious freedom, etc.), and the thirteen colonies developed in different ways.

#### Geography

- The thirteen colonies by region: New England, Middle Atlantic, Southern
- Differences in climate from north to south: corresponding differences in agriculture (subsistence farming in New England, gradual development of large plantations in the South)
- Important cities in the development of trade and government: Philadelphia, Boston, New York, Charleston

#### Southern Colonies

- Southern colonies: Virginia, Maryland, North Carolina, South Carolina, Georgia
- Virginia
  - Chesapeake Bay, James River
  - 1607: three ships of the London Company (later called the Virginia Company) arrive in Virginia, seeking gold and other riches
  - Establishment of Jamestown, first continuous English colony in the New World
  - Trade with Powhatan Indians (see also Eastern Woodland Indians, above)
  - John Smith
  - Pocahontas, marriage to John Rolfe
  - Diseases kill many people, both colonists and Indians
  - The Starving Time
  - Clashes between American Indians and English colonists
  - Development of tobacco as a cash crop, development of plantations
  - 1619: first African laborers brought to Virginia
- Maryland
  - A colony established mainly for Catholics
  - Lord Baltimore
- South Carolina
  - Charleston
  - Plantations (rice, indigo) and slave labor
- Georgia
  - James Oglethorpe’s plan to establish a colony for English debtors
- Slavery in the Southern colonies
  - Economic reasons that the Southern colonies came to rely on slavery (for example, slave labor on large plantations)
  - The difference between indentured servants and slaves: slaves as property
  - The Middle Passage

#### New England Colonies

- New England colonies: Massachusetts, New Hampshire, Connecticut, Rhode Island
- Gradual development of maritime economy: fishing and shipbuilding
- Massachusetts
  - Colonists seeking religious freedom: in England, an official “established” church (the Church of England), which did not allow people to worship as they chose
  - The Pilgrims
    - From England to Holland to Massachusetts
    - 1620: Voyage of the Mayflower
    - Significance of the Mayflower Compact

Plymouth, William Bradford

Helped by Wampanoag Indians: Massasoit, Tisquantum (Squanto)

The Puritans

Massachusetts Bay Colony, Governor John Winthrop: “We shall be as a city upon a hill.”

Emphasis on reading and education, the New England Primer

- Rhode Island
  - Roger Williams: belief in religious toleration
  - Anne Hutchinson

### Middle Atlantic Colonies

- Middle Atlantic colonies: New York, New Jersey, Delaware, Pennsylvania
  - New York
    - Dutch settlements and trading posts in “New Netherland”
    - Dutch West India Company acquires Manhattan Island and Long Island through a (probably misunderstood) purchase from the Indians; Dutch establish New Amsterdam (today, New York City)
    - English take over from the Dutch, and rename the colony New York
  - Pennsylvania
    - William Penn
    - Society of Friends, “Quakers”
    - Philadelphia
- *Life in a Colonial Town* by Sally Senzell Isaacs (2000)
  - *Colonial Life* by Brendan January (2000)
  - *If You Lived in Williamsburg In Colonial Days* by Barbara Brenner (2000)
  - *The Pilgrims of Plimoth* by Marcia Sewall (1986)
  - *A Horse’s Tale* by Susan Lubner (2008)
  - *A Day in the Life of a Colonial Indigo Planter* by Laurie Krebs (2004)
  - *Life in Colonial Boston* by Jennifer Blizin Gillis (2003)
  - *James Towne: Struggle for Survival* by Marcia Sewall (2001)
  - *Anne Hutchinson’s Way* by Jeannine Atkins (2007)

## GRADE 4

### Domain: The American Revolution

**Undertake a more detailed study** of the causes, major figures, and consequences of the American Revolution, with a focus on main events and figures, as well as these questions:  
 What caused the colonists to break away and become an independent nation?  
 What significant ideas and values are at the heart of the American Revolution?

#### Background: The French and Indian War

- Also known as the Seven Years’ War, part of an ongoing struggle between Britain and France for control of colonies in various regions around the world (in this case, in North America)
- Alliances with Native Americans
- The Battle of Quebec
- British victory gains territory but leaves Britain financially weakened.

#### Causes and Provocations

- British taxes, “No taxation without representation”
- Boston Massacre, Crispus Attucks
- Boston Tea Party

- The Intolerable Acts close the port of Boston and require Americans to provide quarters for British troops
- First Continental Congress protests to King George III
- Thomas Paine’s Common Sense

### The Revolution

- Paul Revere’s ride, “One if by land, two if by sea”
- Lexington and Concord
  - The “shot heard ’round the world”
  - Redcoats and Minute Men
- Bunker Hill
- Second Continental Congress: George Washington appointed commander in chief of Continental Army
- Declaration of Independence
  - Primarily written by Thomas Jefferson
  - Adopted July 4, 1776
  - “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness.”
- Women in the Revolution: Elizabeth Freeman, Deborah Sampson, Phillis Wheatley, Molly Pitcher
- Loyalists (Tories)
- Victory at Saratoga, alliance with France
- European helpers (Lafayette, the French fleet, Bernardo de Galvez, Kosciusko, von Steuben)
- Valley Forge
- Benedict Arnold
- John Paul Jones: “I have not yet begun to fight.”
- Nathan Hale: “I only regret that I have but one life to lose for my country.”
- Cornwallis: surrender at Yorktown

### American Symbols and Figures

- Recognize and become familiar with the significance of *Spirit of ’76* (painting)
- Events Leading to the American Revolution by Linda R. Wade (2001)
- The Revolutionary War by Brendan January (2000)
- Paul Revere’s Ride by Henry Wadsworth Longfellow (1990)
- The Battles of Lexington and Concord by Judith Peacock (2002)
- Can’t You Make Them Behave, King George? by Jean Fritz (1977)
- Lexington and Concord by Deborah Kent (1997)
- Sleds on Boston Common: A Story From the American Revolution by Louise Borden (2000)
- Give Me Liberty! The Story of the Declaration of Independence by Russell Freedman (2000)
- Final Years of the American Revolution by Linda R. Wade (2001)

### Domain: Making a Constitutional Government

Examine some of the basic values and principles of American democracy, in both theory and practice, as defined in the Declaration of Independence and the U. S. Constitution, both in historical context and in terms of present-day practice. In examining the significance of the U. S. Constitution, introduce students to the unique nature of the American experiment, the difficult task of establishing a democratic government, the compromises the framers of the Constitution were willing to make, and the persistent threats to success. In order to appreciate the boldness and fragility of the American attempt to establish a republican government based on a constitution, students should know that republican governments were rare at this time. Discuss with students basic questions and issues about government, such as: Why do

societies need government? Why does a society need laws? Who makes the laws in the United States? What might happen in the absence of government and laws?

### Main ideas behind the Declaration of Independence

- The proposition that “All men are created equal”
- The responsibility of government to protect the “unalienable rights” of the people
- Natural rights: “Life, liberty, and the pursuit of happiness”
- The “right of the people ... to institute new government”

### Making a New Government: From the Declaration to the Constitution

- Definition of “republican” government: republican = government by elected representatives of the people
- Articles of Confederation: weak central government
- “Founding Fathers”: James Madison as “Father of the Constitution”
- Constitutional Convention
  - Arguments between small and large states
  - The divisive issue of slavery, “three-fifths” compromise

### The Constitution of the United States

- Preamble to the Constitution: “We the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.”
- The separation and sharing of powers in American government: three branches of government
  - Legislative branch: Congress = House of Representatives and Senate, makes laws
  - Executive branch: headed by the president, carries out laws
  - Judicial branch: a court system headed by the Supreme Court (itself headed by the Chief Justice), deals with those who break laws and with disagreements about laws
- Checks and balances, limits on government power, veto
- The Bill of Rights: first ten amendments to the Constitution, including:
  - Freedom of religion, speech, and the press (First Amendment)
  - Protection against “unreasonable searches and seizures”
  - The right to “due process of law”
  - The right to trial by jury
  - Protection against “cruel and unusual punishments”

### Levels and functions of government (national, state, local)

- Identify current government officials, including
  - President and vice-president of the U.S.
  - State governor
- State governments: established by state constitutions (which are subordinate to the U.S. Constitution, the highest law in the land), like the national government, each state government has its legislative, executive, and judicial branches
- Local governments: purposes, functions, and officials
- How government services are paid for (taxes on individuals and businesses, fees, tolls, etc.)
- How people can participate in government

### American Symbols and Figures

- Recognize and become familiar with the significance of
  - White House and Capitol Building
  - Great Seal of the United States

- *A More Perfect Union: The Story of our Constitution* by Betsy and Giulio Maestro (1987)
- *The Constitution* by Warren Colman (1987)
- *The United States Constitution* by Karen Price Hossell (2004)
- *If You Were There When They Signed the Constitution* by Elizabeth Levy (1987)
- *Shh! We're Writing the Constitution* by Jean Fritz (1987)
- *Designing America: The Constitutional Convention* by Sean Price (2008)
- *The Declaration of Independence* by Elaine Landau (2008)
- *The U.S. Constitution and You* by Syl Sobel (2001)
- *What Are the Parts of Government?* by William David Thomas (2008)
- *The Congress of the United States* by Christine Taylor-Butler (2008)
- *The Bill of Rights* by Michael Burgan (2002)
- *The Bill of Rights* by Christine Taylor-Butler (2008)
- *The Great Seal of the United States* by Terri DeGezelle (2004)
- *James Madison and Dolley Madison and Their Times* by Robert Quackenbush (1992)

### Domain: Reformers

Introduce some prominent people and movements in the ferment of social change in America prior to the Civil War.

- Abolitionists
- Dorothea Dix and the treatment of the insane
- Horace Mann and public schools
- Women's rights
  - Seneca Falls convention
  - Elizabeth Cady Stanton
  - Lucretia Mott
  - Amelia Bloomer
  - Sojourner Truth
- *Dorothea Dix: Social Reformer* by Barbara Witteman (2003)
- *The Abolitionist Movement* by Elaine Landau (2004)
- *If You Lived When Women Won Their Rights* by Anne Kamma (2006)
- *Created Equal* by Ann Rossi (2005)
- *Only Passing Through: The Story of Sojourner Truth* by Anne Rockwell (2000)
- *In Their Own Words: Sojourner Truth* by Peter and Connie Roop (2002)
- *The Road to Seneca Falls: A Story about Elizabeth Cady Stanton* by Gwenyth Swain (1996)
- *The Seneca Falls Women's Rights Convention* by Sabrina Crewe and Dale Anderson (2005)
- *Elizabeth Cady Stanton* by Lucile Davis (1998)
- *Lucretia Mott* by Lucile Davis (1998)
- *Working for Change: The Struggle for Women's Right to Vote* by Leni Donlan (2008)
- *A Timeline of the Abolitionist Movement* by Judy Levine (2004)

## GRADE 5

**Domain: The Civil War: Causes, Conflicts, Consequences**

Undertake a more detailed study of the causes, major figures, and consequences of the Civil War.

**Toward the Civil War**

- Abolitionists: William Lloyd Garrison and *The Liberator*, Frederick Douglass
- Slave life and rebellions
- Industrial North versus agricultural South
- Mason-Dixon Line
- Controversy over whether to allow slavery in territories and new states
  - Missouri Compromise of 1820
  - Dred Scott decision allows slavery in the territories
- Importance of Harriet Beecher Stowe's *Uncle Tom's Cabin*
- John Brown, Harper's Ferry
- Lincoln: "A house divided against itself cannot stand."
  - Lincoln-Douglas debates
  - Lincoln elected president, Southern states secede

**The Civil War**

- Fort Sumter
- Confederacy, Jefferson Davis
- Yankees and Rebels, Blue and Gray
- First Battle of Bull Run
- Robert E. Lee and Ulysses S. Grant
- General Stonewall Jackson
- Ironclad ships, battle of the USS Monitor and the CSS Virginia (formerly the USS Merrimack)
- Battle of Antietam Creek
- The Emancipation Proclamation
- Gettysburg and the Gettysburg Address
- African-American troops, Massachusetts Regiment led by Colonel Shaw
- Sherman's march to the sea, burning of Atlanta
- Lincoln re-elected, concluding words of the Second Inaugural Address ("With malice toward none, with charity for all. . . .")
- Richmond (Confederate capital) falls to Union forces
- Surrender at Appomattox
- Assassination of Lincoln by John Wilkes Booth

**Reconstruction**

- The South in ruins
- Struggle for control of the South, Radical Republicans vs. Andrew Johnson, impeachment
- Carpetbaggers and scalawags
- Freedmen's Bureau, "40 acres and a mule"
- 13th, 14th, and 15th Amendments to the Constitution
- Black Codes, the Ku Klux Klan and "vigilante justice"
- End of Reconstruction, Compromise of 1877, all federal troops removed from the South

- *A Slave Family* by Bobbie Kalman (2003)
- *Sisters Against Slavery: A Story about Sarah and Angelina Grimke* by Stephanie Sammartino McPherson (1999)
- *Abe Lincoln Goes to Washington* by Cheryl Harness (1997)
- *The Emancipation Proclamation* by Ann Heinrichs (2002)
- *The Gettysburg Address* by Abraham Lincoln (1995)
- *Bull Run* by Paul Fleischman (1993)
- *The Home Fronts in the Civil War* by Dale Anderson (2004)
- *Life on a Plantation* by Bobbie Kalman (1997)
- *John Brown: His Fight for Freedom* by John Hendrix (2009)
- *Seven Miles to Freedom: The Robert Smalls Story* by Janet Halfman (2008)
- *The Reconstruction Amendments* by Michael Burgan (2006)
- *The Carpetbaggers* by Lucia Raatma (2005)

## Appendix C:

### Domains and Core Content Objectives for the *Core Knowledge Language Arts* Program, K–2

#### Appendix C: Domains and Core Content Objectives for the *Core Knowledge Language Arts* Program, K–2

When using read-alouds to build content knowledge within a domain, it is important to start by identifying the specific knowledge that students are expected to learn over the course of the read-aloud domain. We offer the objectives below, taken from the Listening and Learning Strand of the *Core Knowledge Language Arts* program, as examples of what we call “Core Content Objectives.” Every read-aloud lesson should have both content objectives, as well as language arts objectives, identified as learning goals within the lesson.

**Note:** In the *Core Knowledge Language Arts* program, all domains are modular within a grade level, so that individual classrooms teachers may determine the teaching sequence of each domain. However, we highly recommend that, whenever possible, teachers using the *Core Knowledge Language Arts* materials follow the recommended sequence below, as many factors, including the length of individual read-alouds within the domain, overall number of lessons in the domains, vocabulary density and level of abstraction and complexity, have been used to come up with the recommended sequence.

##### Kindergarten

1. Nursery Rhymes and Fables
2. The Five Senses
3. Stories
4. Plants
5. Farms
6. Native Americans
7. Kings and Queens
8. Seasons and Weather
9. Columbus and the Pilgrims
10. Colonial Towns and Townspeople
11. Taking Care of the Earth
12. Presidents and American Symbols

##### Grade 1

1. Fables and Stories
2. The Human Body
3. Different Lands, Similar Stories
4. Early World Civilizations
5. Early American Civilizations
6. Mozart and Music
7. Astronomy
8. The History of the Earth
9. Animals and Habitats
10. Fairy Tales
11. The Birth of Our Nation
12. Frontier Explorers

##### Grade 2

1. Stories and Poetry
2. Early Asian Civilizations
3. Cycles in Nature
4. The Ancient Greek Civilization
5. Greek Myths
6. Insects
7. Westward Expansion
8. The U.S. Civil War
9. Charlotte’s Web I
10. Charlotte’s Web II
11. Immigration
12. Fighting for a Cause



## Kindergarten

### Nursery Rhymes and Fables

- Demonstrate familiarity with nursery rhymes and fables
- Recite some nursery rhymes
- Identify rhyming words in nursery rhymes
- Identify lines that repeat, and/or dialogue in nursery rhymes
- Describe the characters and events in nursery rhymes and fables
- Explain that fables teach a lesson that is stated as the moral of the story
- Identify the moral of fables
- Explain how animals often act as people in fables (personification)

### The Five Senses

- Identify and demonstrate understanding of the five senses: sight, hearing, smell, taste, and touch
- Identify each of the body parts associated with the five senses
- Provide simple explanations about how the eyes, ears, nose, tongue, and skin work and their function
- Describe how the five senses help humans learn about their world
- Explain the contributions of Ray Charles
- Explain the contributions of Helen Keller
- Describe the challenges of someone who is blind or deaf
- Understand the impact of small sensations on our experiences
- Understand how we can enhance the sense of sight and sense of hearing
- Become familiar with instruments invented to aid the senses of sight and hearing

### Stories

- Listen to and then demonstrate familiarity with stories, including the ideas they express
- Understand that fiction can be in many different forms, including folktales, trickster tales, and tall tales
- Identify the setting of a given story
- Identify the characters of a given story
- Identify the plot of a given story

### Plants

- Understand that there are many different kinds and sizes of plants
- Understand that different kinds of plants grow in different environments
- Understand that plants are living things
- Describe what plants need to live and grow: food, water, air, and sunlight
- Identify the root, stem, branch, leaf, flower, fruit, and seed of a plant
- Explain that roots anchor the plant and take in water and nutrients
- Explain that stems support the plant and carry water and nutrients to the various parts of the plant
- Explain that the plant makes its food in the leaves
- Explain that seeds are the beginning of new plants
- Describe how bees collect nectar and pollen
- Understand how bees make and use honey
- Describe the important role bees play in plant pollination
- Understand that some plants produce fruit to hold seeds
- Demonstrate familiarity with the tall tale “Johnny Appleseed”
- Compare and contrast fruits and seeds of different plants
- Understand the basic life cycle of plants
- Identify the part of specific plants that are eaten by people
- Compare and contrast deciduous and evergreen plants
- Identify things that plants provide us: oxygen, food, and important products
- Understand the life and scientific achievements of George Washington Carver

### Farms

- Explain what a farm is
- Describe a farmer's and shepherd's job
- Identify animals found on farms and the sounds they make
- Identify needs of farm animals: food, water, and space to live and grow
- Match pictures and/or names of farm animal babies to their adult parents
- Describe how farm animal babies need to be fed and cared for by their parents or people
- Explain why farmers raise animals and grow crops
- Identify foods that come from animals
- Identify crops as plants grown on farms for use as food
- Describe how farmers protect their crops from drought, weeds, and pests
- Sequence the seasonal rhythm of planting, growing, and harvesting
- Describe how some food comes from farms as crops
- Sequence events of crops from farm to store (planted, harvested, transported, packaged)
- Identify buildings found on farms
- Identify machines and tools of farming
- Describe how farming has changed through the years

### Native Americans

- Explain that there are many tribes of Native Americans
- Identify the environment in which the Sioux lived
- Identify the Sioux as a nomadic tribe
- Describe the food, clothing, and shelter of the Sioux
- Understand the importance of the buffalo to the Sioux
- Identify the environment in which the Wampanoag lived
- Understand how the Wampanoag tribe lived
- Identify the Wampanoag as a settled tribe
- Describe the food, clothing, and shelter of the Wampanoag
- Understand that Native Americans still live in the U.S. today

### Kings and Queens

- Describe what a king or queen does
- Identify and describe royal objects associated with a king or queen
- Indicate that kings and queens still exist today, but that there were many more kings and queens long ago
- Describe a royal family
- Identify important factors (children, partnerships, arranged marriages) that ensured a royal family's success
- Describe appropriate dress and manners used in meeting and/or talking with kings and queens
- Explain that proper dress and manners in the presence of a member of the royal family is a sign of respect for the importance of this person
- Demonstrate familiarity with the poem "Happy Thought"
- Understand that kings usually possess gold and other treasures
- Discuss the difference between valuing relationships with people and valuing wealth
- Understand contemporary references to someone having *the Golden Touch* or *the Midas Touch*
- Describe the behaviors that reinforce that kings and queens are royal
- Recite "Old King Cole"
- Recite "Sing a Song of Sixpence"
- Describe the characters, settings, and plots in the stories
- Discuss the lessons in *Cinderella* and in *Snow White and the Seven Dwarfs* that show goodness prevails and is rewarded

### Seasons and Weather

- Demonstrate understanding of the following units of time and their relationship to one another: day, week, month, year
- Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
- Characterize winter as generally the coldest season, summer as generally the warmest season, and spring and autumn as transitional seasons
- Characterize the North and South Poles as always cold in temperature, the middle section of the earth as usually warm, and the United States as having four seasons
- Identify the following characteristics of thunderstorms: heavy rain, thunder, lightning, and strong wind
- Name at least one month in a specific season while referring to a calendar
- Name at least one holiday in a specific season
- Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring, etc.)
- Identify ways in which weather affects daily routines, such as dress, activities, etc.
- Describe daily weather conditions of their own locality in terms of temperature (hot, warm, cool, cold); cloud cover (sunny, cloudy); and precipitation (rain, snow, or sleet)
- Demonstrate familiarity with the poem “I Do Not Mind You, Winter Wind”
- Draw pictures that show an understanding of each season
- Describe safe and unsafe behaviors during severe weather
- Identify and describe different types of severe weather
- Identify a thermometer as an instrument used to measure temperature and describe how it works, i.e., when the liquid in the thermometer rises, it is hotter outside; when the liquid descends, it is cooler
- Explain the lesson the grasshopper learns at the end of the fable, “The Grasshopper and the Ants”
- Identify the four seasons and name activities that are associated with those seasons
- Understand why weather prediction is important in their daily lives

### Columbus and the Pilgrims

- Identify the continents of North America, South America, Europe, Africa, and Asia
- Understand why Europeans wanted to travel to Asia
- Describe the accomplishments of Christopher Columbus
- Identify King Ferdinand and Queen Isabella of Spain
- Recall the year of Columbus’s first voyage to America: 1492
- Recall the names of Columbus’ three ships: Niña, Pinta, Santa Maria
- Explain why Columbus called the land “India” and the inhabitants “Indians”
- Explain why Europeans eventually thought Columbus had discovered a “New World”
- Identify reasons why the Pilgrims left England
- Describe the Pilgrims’ voyage on the Mayflower
- Explain the significance of Plymouth Rock
- Describe the Pilgrims’ first year in America
- Describe the first Thanksgiving Day celebration

### Colonial Towns and Townspeople

- Identify the key characteristics and differences between “towns,” and “the country” or “countryside” during the colonial period of American history
- Understand that long ago, during the colonial period, families who lived in the country on farms were largely self-sufficient, and that this meant all family members had many daily responsibilities and chores
- List similarities and differences between modern family life and colonial farm life
- Describe some features of colonial towns, such as a town square, shops, and adjacent buildings
- Understand that tradespeople had an occupation and expertise in a particular job
- Name different tradespeople found in a colonial town

- Identify reasons why people who lived in the country traveled to town
- Describe how a watermill works
- Identify corn and wheat as the original plant products needed for the production of flour
- Describe a miller as a tradesperson who grinds wheat and corn into flour using a mill
- Describe a baker as a tradesperson who bakes bread using flour
- Explain how the tradespeople in colonial towns saved farming families time and effort
- Describe what working in a watermill was like
- Compare the life of a miller to the life of a king
- Identify cotton, wool, and flax as the original plant or animal products needed for making cloth
- Describe a spinner as a tradesperson who made thread or yarn from cotton, wool, or flax by spinning it on a spinning wheel
- Identify, and associate with the appropriate trade, the tools used by tradespeople
- Describe a weaver as a tradesperson who used thread or yarn on a loom to make cloth
- Describe the process of making cloth from cotton or wool
- Describe the steps involved in running a spinning wheel: licking the fingers to smooth down the fibers, twisting the thread, and stepping on the treadle
- Describe dressmakers and tailors as tradespeople who made clothing by sewing
- Describe a hatter as a tradesperson who made men's hats
- Describe a cobbler as a tradesperson who made and fixed shoes
- Understand that ready-made clothing was not available for sale in colonial shops; clothing was made to order according to the exact measurements of each person
- Describe a bricklayer as a tradesperson who built with bricks
- Describe a mason as a tradesperson who built with stones
- Describe a carpenter as a tradesperson who built with wood
- Identify some tools tradespeople used
- Describe a blacksmith as a tradesperson who heated iron and formed it into metal objects
- Identify the essential role of the blacksmith in making tools for other tradespeople
- Recognize the necessity of heating objects before the blacksmith could shape them
- Describe a teacher as a townsperson responsible for educating young children
- Identify some characteristics of colonial common schools (multiple grade levels, one-room schoolhouse, mostly boys)
- Compare and contrast common schools with today's schools
- Understand the purpose of laws
- Describe a sheriff as a townsperson who arrested criminals
- Describe a judge as a townsperson who decided who was innocent and guilty, and what punishment guilty people should receive
- Review tradespeople and their roles

### Taking Care of the Earth

- Understand that Earth is composed of land, water, and air
- Identify examples of land, water, and air from their own environments
- Understand that humans, plants, and animals depend on Earth's land, water, and air to live
- Explain why people have a special responsibility to take care of the earth
- Understand that humans generate large amounts of garbage, which must be disposed of
- Sequence what happens to garbage from its creation to being dumped in the landfill
- Explain what a landfill is and why it is a dangerous place
- Evaluate whether landfills are an adequate solution to the problem of garbage
- Understand that natural resources are things found in nature that are valuable and of great importance to people
- Identify key natural resources and describe how people use them
- Recognize the phrase "Reduce, reuse, recycle!" and explain how doing these three things can help to conserve natural resources
- Understand that people can conserve natural resources by reducing their use of them
- Understand that people can conserve natural resources by reusing materials

- Identify the recycling symbol and understand that recycled materials are made from reused garbage
- Identify common recyclable materials, including glass, plastic, aluminum, cardboard, and paper
- Understand that recyclable materials go from people's homes and businesses to a recycling center, where the materials are sorted according to different types of recyclables, and then they are taken to a recycling factory to be made into something new
- Understand that composting is a type of recycling in which discarded food scraps decay in an outdoor pile or bin for that purpose and eventually become garden soil
- Sequence what happens to a piece of discarded food from table to compost pile to garden
- Identify foods that can be composted
- Discuss garbage as being a problem and various means of garbage disposal in terms of a solution
- Understand that people cause pollution when they make the earth dirty or dangerous with their garbage
- Understand that land, air, and water all suffer from different types of pollution, and all types of pollution are caused by human activities
- Understand that if people are careful and creative, they can help reduce pollution
- Understand that air pollution from one location can make even the air that is far away in other places around the world dirty
- Identify sources of air pollution, including cars and electricity produced by coal-fired power plants
- Understand the effect of air pollution on human health
- Explain how to reduce air pollution by conserving natural resources
- Compare and contrast fresh water, salt water, and wastewater
- Understand that many living things, including humans, need fresh water to survive, and that there is a limited supply of fresh water on Earth
- Identify sources of water pollution, including factory waste and garbage
- Explain that a water treatment plant can remove unhealthy chemicals and pollutants from water to make it usable again
- Understand what a conservationist does
- Understand that John Muir was one of the first conservationists
- Identify possible solutions to the problems discussed throughout the domain
- Understand the importance of individual actions to take care of the earth

### Presidents and American Symbols

- Name the current president of the United States
- Recognize the White House as the president's home
- Describe Washington, D.C., as the city where the current president lives and where monuments of past presidents can be found
- Identify the American flag
- Describe the differences between a president and a king
- Name George Washington as someone admired for his honesty
- Understand that the cherry tree story is a legend
- Describe George Washington as a general who fought for American independence
- Recognize that General Washington led his army to victory even though his army was smaller than the English army
- Recognize George Washington as the first president of the United States
- Recognize the sacrifices George Washington made for the country
- Recognize Thomas Jefferson as the third president of the United States
- Identify Thomas Jefferson as the primary author of the Declaration of Independence
- Describe the purpose of the Declaration of Independence as a statement of America's liberty
- Identify the Statue of Liberty
- Recognize Abraham Lincoln as an important president of the United States

- Identify that Abraham Lincoln was known as “Honest Abe”
- Recognize Theodore Roosevelt as an important president of the United States
- Know that Theodore Roosevelt overcame childhood health problems
- Know that Theodore Roosevelt loved the outdoors
- Know that Theodore Roosevelt worked for nature conservation
- Identify the Mount Rushmore presidents
- Describe Mount Rushmore as a monument

## First Grade

### Fables and Stories

- Demonstrate familiarity with particular fables and stories
- Identify characteristics of fables: short, moral, personification
- Explain in their own words the moral of a particular fable
- Identify character, plot, and setting as basic story elements
- Describe the characters, plot, and setting of a given fable or story
- Understand that fables and folktales are two types of fiction

#### **Builds on the following objectives targeted in kindergarten:**

- Nursery Rhymes and Fables
  - Demonstrate familiarity with nursery rhymes and fables
  - Describe the characters and events in nursery rhymes and fables
  - Explain that fables teach a lesson that is stated as the moral of the story
  - Identify the moral of fables
  - Explain how animals often act as people in fables (personification)
- Stories
  - Listen to and then demonstrate familiarity with stories, including the ideas they express
  - Understand that fiction can be in many different forms, including folktales, trickster tales, and tall tales
  - Identify the setting of a given story
  - Identify the characters of a given story
  - Identify the plot of a given story

### The Human Body

- Understand that the human body is a network of systems
- Identify each of the five body systems: skeletal, muscular, digestive, circulatory, and nervous
- Recall basic facts about the skeletal system
- Recall basic facts about the muscular system
- Define the heart as a muscle that never stops working
- Recall basic facts about the digestive system
- Recall basic facts about the circulatory system
- Recall basic facts about the nervous system
- Identify the brain as the body's control center
- Understand that germs may cause disease in the body
- Explain the importance of vaccination in preventing disease
- Identify Edward Jenner as the man who developed the first vaccine
- Identify Louis Pasteur as the man who discovered pasteurization
- Explain the importance of exercise, cleanliness, a balanced diet, and rest for bodily health
- Explain the importance of regular checkups
- Explain the importance of vaccinations
- Identify the food pyramid and its component food groups

#### **Builds on the following objectives targeted in kindergarten:**

- The Five Senses
  - Identify and demonstrate understanding of the five senses: sight, hearing, smell, taste, and touch
  - Identify each of the body parts associated with the five senses
  - Provide simple explanations about how the eyes, ears, nose, tongue, and skin work and their function
  - Describe how the five senses help humans learn about their world

### Different Lands, Similar Stories

- Understand that fictional stories come from the author’s imagination
- Identify folktales as a type of fiction
- Understand that stories have a beginning, middle, and end
- Describe the characters, plot, and setting of *Little Red Riding Hood*
- Describe the characters, plot, and setting of *Lon Po Po*
- Describe the characters, plot, and setting of *Pretty Salma*
- Describe the characters, plot, and setting of *Tom Thumb*
- Describe the characters, plot, and setting of *Thumbelina*
- Describe the characters, plot, and setting of *Issun Boshi*
- Describe the characters, plot, and setting of *Mufaro’s Beautiful Daughters*
- Describe the characters, plot, and setting of *The Irish Cinderlad*
- Understand that people from different lands tell similar stories

### Builds on the following objectives targeted in kindergarten:

- Stories
  - Listen to and then demonstrate familiarity with stories, including the ideas they express
  - Understand that fiction can be in many different forms, including folktales, trickster tales, and tall tales
  - Identify the setting of a given story
  - Identify the characters of a given story
  - Identify the plot of a given story
- Kings and Queens
  - Describe what a king or queen does
  - Identify and describe royal objects associated with a king or queen
  - Indicate that kings and queens still exist today, but that there were many more kings and queens long ago
  - Describe a royal family
  - Describe the behaviors that reinforce that kings and queens are royal
  - Discuss the lessons in *Cinderella* and in *Snow White and the Seven Dwarfs*, which show that goodness prevails and is rewarded

### Early World Civilizations

- Locate the area known as Mesopotamia on a world map or globe, and identify it as a part of Asia
- Explain the importance of rivers, canals, and flooding to support farming in Mesopotamia and ancient Egypt
- Describe the city of Babylon
- Identify and describe the significance of structures built in Mesopotamia and ancient Egypt
- Identify the way of writing in Mesopotamia and ancient Egypt
- Explain why writing is important to a civilization
- Describe the Code of Hammurabi
- Explain why rules and laws are important to the development of a civilization
- Recognize how a leader is important to the development of a civilization
- Describe aspects of religion in Mesopotamia and ancient Egypt
- Identify Mesopotamia as the “Cradle of Civilization”
- Understand that a civilization evolves and changes over time
- Locate Egypt on a world map or globe, and identify it as a part of Africa
- Explain that much of Egypt is the Sahara Desert
- Identify and explain the significance of Hatshepsut and Tutankhamun as pharaohs of ancient Egypt
- Describe key components of a civilization
- Understand that much of what we know about ancient Egypt is because of the work of archaeologists



### Three World Religions (Optional)

- Identify Judaism, Christianity, and Islam as major monotheistic world religions
- Locate Jerusalem and the area known as the Middle East on a map
- Define monotheism as the belief in one God
- Identify the Western Wall (or the Wailing Wall) as associated with Judaism, the church of the Holy Sepulchre with Christianity, and the Dome of the Rock with Islam
- Identify the Hebrews as the ancient people who were descendants of Abraham
- Identify the names for followers of Judaism, Christianity, and Islam
- Identify Moses, Jesus Christ, and Muhammad and their significance
- Demonstrate familiarity with holidays associated with Judaism, Christianity, and Islam
- Recognize symbols for Judaism, Christianity, and Islam
- Identify the holy book of Judaism, Christianity, and Islam
- Identify places of worship for Judaism, Christianity, and Islam
- Understand that the religion of Christianity developed after Judaism
- Recognize that both Christians and Jews follow the Ten Commandments
- Understand that Islam originated in Arabia

**Does not build on any objectives targeted in kindergarten**

### Early American Civilizations

- Locate the continents of Asia and North America on a world map or globe
- Understand that prehistoric nomads followed the animals they hunted
- Explain the importance of hunting among early peoples
- Understand that the first people in North America arrived by crossing a “land bridge” between Asia and North America
- Understand that a shift occurred from hunting and gathering to farming among early peoples
- Compare and contrast hunter-gatherer societies and Mayan society
- Understand the importance of extended family to the Maya
- Identify the area in which the Maya, Aztec, and Inca each lived
- Understand that the Maya developed large cities or population centers in the rainforests of Mexico and Central America many, many years ago
- Understand that the Maya, Aztec, and Inca had a religion, leaders, towns, and farming
- Understand that much of what we know about the Maya and the Inca is because of the work of archaeologists
- Understand that the Aztecs established a vast empire in central Mexico many, many years ago
- Identify the Aztec capital as Tenochtitlan
- Recognize by name the emperor of the Aztec, Moctezuma
- Understand that the Inca established a far-ranging empire in the Andes Mountains of Peru and Chile many, many years ago
- Recall that Machu Picchu is an Incan city

**Does not build on any objectives targeted in kindergarten**

### Mozart and Music

- Identify Mozart as a famous musician and composer who lived over two hundred years ago
- Describe Mozart as a prodigy, talented at a very young age
- Describe an instrument as an object designed to make musical sounds
- Identify a composer as a person who writes music by recording musical notes
- Describe instrumental music as a type of music that is produced by musical instruments only and does not include singing
- Retell the major events of Mozart’s life

- Recognize, sing, and play simple rhythms and melodies
- Understand the role of a patron in Mozart's time in as someone who helped a musician succeed
- Describe keyboard instruments, and name at least one example of a keyboard instrument
- Describe the woodwinds section of the orchestra, and name at least two woodwind instruments
- Describe opera as a performance in which singers tell a story with the help of the orchestra
- Describe a symphony as a composition, which uses many different instruments
- Identify the conductor as the leader of the orchestra
- Describe the brass section of the orchestra, and name at least two brass instruments
- Identify the conductor as the leader of the orchestra
- Recognize and begin to describe the mood of a piece of music

#### **Builds on the following objectives targeted in kindergarten:**

- Kings and Queens
  - Describe what a king or queen does
  - Identify and describe royal objects associated with a king or queen
  - Indicate that kings and queens still exist today, but that there were many more kings and queens long ago
  - Describe a royal family
  - Describe the behaviors that reinforce that kings and queens are royal
- Identify the beat in music, and increase his/her ability to keep a steady beat
- Describe the percussion section of the orchestra, and name at least two percussion instruments
- Describe the strings section of the orchestra, and name at least two stringed instruments
- Identify the four sections of the orchestra: woodwinds, brass, percussion, and strings

#### **Astronomy**

- Recognize the sun in the sky
- Understand that the sun, moon, and stars are located in outer space
- Understand that the sun is a source of energy, light, and heat
- Classify the sun as a star
- Identify Earth as a planet and our home
- Identify the Earth's rotation or spin as the cause of day and night
- Understand that other parts of the world experience nighttime while we have daytime
- Explain sunrise and sunset
- Understand that Earth orbits the sun
- Understand that stars are large, although they appear small in the night sky
- Describe stars as hot, distant, and made of gas
- Understand that astronomers study the moon and stars using telescopes
- Understand that people sometimes tell stories about the moon and stars
- Explain what a constellation is
- Identify the Big Dipper and the North Star
- Identify the four phases of the moon—new, crescent, half, full
- Understand that astronauts travel to outer space
- Describe the landing on the moon by American astronauts
- Explain the importance of the first trip to the moon
- State that the moon orbits the earth
- Explain that our solar system includes the sun and the planets that orbit around it
- Indicate that there are eight planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune)
- Classify Pluto as a dwarf planet

**Builds on the following objectives targeted in kindergarten:**

- Seasons and Weather
  - Demonstrate understanding of the following units of time and their relationship to one another: day, week, month, year
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
  - Characterize winter as generally the coldest season, summer as generally the warmest season, and spring and autumn as transitional seasons
  - Characterize the North and South Poles as always cold in temperature, the middle section of the earth as usually warm, and the United States as having four seasons
  - Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring, etc.)
  - Identify a thermometer as an instrument used to measure temperature and describe how it works, i.e., when the liquid in the thermometer rises, it is hotter outside; when the liquid descends, it is cooler
- Taking Care of the Earth
  - Understand that Earth is composed of land, water, and air
  - Understand that humans, plants, and animals depend on Earth's land, water, and air to live
  - Understand that natural resources are things found in nature that are valuable and of great importance to people
  - Understand that land, air, and water all suffer from different types of pollution, and all types of pollution are caused by human activities
  - Understand that air pollution from one location can make even the air that is far away in other places around the world dirty
  - Compare and contrast fresh water, salt water, and wastewater
  - Understand that many living things, including humans, need fresh water to survive, and that there is a limited supply of fresh water on Earth

**The History of the Earth**

- Identify geographical features of the earth's surface: oceans and continents
- Locate the North Pole, the South Pole, and the equator on a globe
- Describe the shape of the earth
- Understand that much of our knowledge of the earth and its history is the result of the work of many scientists
- Identify the layers of the earth: crust, mantle, core (outer and inner)
- Describe the crust
- Describe each of the layers inside the earth
- Describe volcanoes and geysers
- Identify common minerals in the earth
- Explain how minerals are used by people
- Identify the three types of rocks: metamorphic, sedimentary, and igneous
- Describe how heat, pressure, and time cause many changes inside the earth
- Describe how rocks and minerals are taken from the earth
- Describe fossils
- Explain how fossils provide information about the history of the earth
- Explain how we know about dinosaurs
- Describe various dinosaurs
- Explain the significance of the La Brea Tar Pits

**Builds on the following objectives targeted in kindergarten:**

- Plants
  - Understand that there are many different kinds and sizes of plants

Understand that different kinds of plants grow in different environments  
 Describe what plants need to live and grow: food, water, air, and sunlight  
 Identify the root, stem, branch, leaf, flower, fruit, and seed of a plant

- Taking Care of the Earth

Understand that Earth is composed of land, water, and air

Identify examples of land, water, and air from their own environments

Understand that humans, plants, and animals depend on Earth's land, water, and air to live

Understand that natural resources are things found in nature that are valuable and of great importance to people

Identify key natural resources and describe how people use them

### Animals and Habitats

- Describe what a habitat is
- Understand that living things live in habitats to which they are particularly suited
- Identify the characteristics of the Arctic tundra habitat
- Explain how Arctic animals have adapted to the Arctic tundra habitat
- Identify the characteristics of the Arctic Ocean habitat
- Explain how Arctic animals have adapted to the Arctic Ocean habitat
- Identify the characteristics of the desert habitat
- Explain how desert animals have adapted to the desert habitat
- Identify the characteristics of the grassland habitat
- Explain how grassland animals have adapted to the grassland habitat
- Identify the characteristics of the temperate deciduous forest habitat
- Explain how temperate deciduous forest animals have adapted to the temperate deciduous forest habitat
- Identify the characteristics of the tropical rainforest habitat
- Explain how tropical rainforest animals have adapted to the tropical rainforest habitat
- Identify the characteristics of the freshwater habitat
- Understand that saltwater covers most of Earth and is found in several oceans
- Match specific plants and animals to their habitats
- Classify animals on the basis of the types of food they eat (herbivore, carnivore, omnivore)
- Describe the landscape of the ocean floor
- Understand that ocean life is very diverse
- Understand that water covers most of Earth and is found in several oceans
- Classify water habitats as either freshwater or saltwater habitats
- Understand why and how habitat destruction can cause extinction
- Identify the characteristics of the bald eagles' habitat
- Identify and locate the oceans of the world on a globe: Arctic, Pacific, Atlantic, Indian, Southern

### **Builds on the following objectives targeted in kindergarten:**

- Plants

Understand that plants are living things

Describe what plants need to live and grow: food, water, air, and sunlight

Understand that there are many different kinds and sizes of plants

Understand that different kinds of plants grow in different environments

Identify the root, stem, leaf, flower, and seed of a plant

Explain that roots anchor the plant and take in water and nutrients

Explain that stems support the plant and carry water and nutrients to the various parts of the plant

Explain that the plant makes its food in the leaves

- Understand the basic life cycle of plants
- Compare and contrast deciduous and evergreen plants
- Farms
  - Identify needs of farm animals: food; water; and space to live and grow
  - Describe how farm animal babies need to be fed and cared for by their parents or people
  - Match pictures and/or names of farm animal babies to their adult parents
- Seasons and Weather
  - Characterize the North and South Poles as always cold in temperature, the middle section of the earth as usually warm, and the United States as having four seasons
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
  - Characterize winter as generally the coldest season, summer as generally the warmest season, and spring and autumn as transitional seasons
  - Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring, etc.)
  - Describe the daily weather conditions of their own locality in terms of temperature (hot, warm, cool, cold), cloud cover (sunny or cloudy), and precipitation (rain, snow, or sleet)
- Taking Care of the Earth
  - Understand that humans, plants, and animals depend on Earth's land, water, and air to live.
  - Explain why people have a special responsibility to take care of the earth
  - Understand that humans generate large amounts of garbage which must be disposed of
  - Sequence what happens to garbage from its creation to being dumped in the landfill
  - Understand that natural resources are things found in nature that are valuable and of great importance to people
  - Recognize the phrase, "Reduce, reuse, recycle!" and explain how doing these three things can help to conserve natural resources
  - Understand that land, air, and water all suffer from different kinds of pollution, and all types of pollution are caused by human activities
  - Identify sources of air pollution, including cars and electricity produced by coal-fired power plants
  - Understand the effect of air pollution on human health
  - Compare and contrast fresh water, salt water, and waste water
  - Understand that many living things, including humans, need fresh water to survive, and that there is a limited supply of fresh water on Earth
  - Identify sources of water pollution, including factory waste and garbage

### Fairy Tales

- Demonstrate familiarity with the fairy tale *Sleeping Beauty*
- Recognize what makes fairy tales different from other types of stories
- Identify common characteristics of fairy tales, such as "once upon a time" beginnings, royal characters, elements of fantasy, problems and solutions, and happy endings
- Identify the fairy tale elements of *Sleeping Beauty*
- Demonstrate familiarity with the fairy tale *Rumpelstiltskin*
- Identify the fairy tale elements of *Rumpelstiltskin*
- Identify the fairy tale elements of *Rapunzel*
- Demonstrate familiarity with the fairy tale *Rapunzel*
- Identify the fairy tale elements of *The Princess and the Pea*
- Compare and contrast different adaptations of fairy tales
- Demonstrate familiarity with the fairy tale *The Princess and the Pea*
- Demonstrate familiarity with the fairy tale *The Frog Prince*

- Identify the fairy tale elements of *The Frog Prince*
- Demonstrate familiarity with the fairy tale *Puss-in-Boots*
- Identify the fairy tale elements of *Puss-in-Boots*
- Identify the fairy tale elements of *Hansel and Gretel*
- Demonstrate familiarity with the fairy tale *Hansel and Gretel*
- Identify the fairy tale elements of *Jack and the Beanstalk*
- Demonstrate familiarity with the fairy tale *Jack and the Beanstalk*

**Builds on the following objectives targeted in kindergarten:**

- Stories
  - Listen to and then demonstrate familiarity with stories, including the ideas they express
  - Understand that fiction can be in many different forms, including folktales, trickster tales, and tall tales
  - Identify the setting of a given story
  - Identify the characters of a given story
  - Identify the plot of a given story
- Kings and Queens
  - Describe what a king or queen does
  - Identify and describe royal objects associated with a king or queen
  - Describe a royal family
  - Describe appropriate dress and manners used in meeting and/or talking with kings and queens

**The Birth of Our Nation**

- Identify the early English settlements on Roanoke Island and at Jamestown as colonies that were established before the Pilgrims landed at Plymouth Rock
- Understand that the first Africans in the English colonies came to Jamestown as indentured servants, not slaves
- Describe how the thirteen English colonies in America evolved from dependence on Great Britain to independence as a nation
- Locate the thirteen original colonies
- Describe the contributions of George Washington as Patriot, military commander, and first president
- Identify Washington, D.C., as the nation’s capital
- Explain that the nation’s capital, Washington, D.C., was named after George Washington
- Identify Martha Washington as the wife of George Washington
- Describe the contributions of Benjamin Franklin as Patriot, inventor, and writer
- Identify Thomas Jefferson as the author of the Declaration of Independence and the third president of the U.S.
- Explain the significance of the Declaration of Independence
- Identify “We hold these truths to be self-evident, that all men are created equal . . .” as a part of the Declaration of Independence
- Describe the Boston Tea Party
- Explain the significance of Paul Revere’s ride
- Identify “One if by land, two if by sea”
- Identify Minutemen, Redcoats, and “the shot heard round the world”
- Explain the significance of The Fourth of July
- Retell the legend of Betsy Ross and the flag
- Describe the roles of African Americans, Native Americans, and women during the evolution from thirteen English colonies in America to independence as a nation
- Identify the U.S. flag, the Liberty Bell, and the bald eagle
- Explain the significance of the flag, the Liberty Bell, and the bald eagle as U.S. symbols

**Builds on the following objectives targeted in kindergarten:**

- Native Americans

- Explain that there are many tribes of Native Americans
- Identify the environment in which the Sioux lived
- Identify the Sioux as a nomadic tribe
- Describe the food, clothing, and shelter of the Sioux
- Understand the importance of the buffalo to the Sioux
- Identify the environment in which the Wampanoag lived
- Understand how the Wampanoag tribe lived
- Identify the Wampanoag as a settled tribe
- Describe the food, clothing, and shelter of the Wampanoag
- Understand that Native Americans still live in the U.S. today
- Kings and Queens
  - Describe what a king or queen does
- Columbus and The Pilgrims
  - Identify the continents of North America, South America, Europe, Africa, and Asia
  - Understand why Europeans wanted to travel to Asia
  - Describe the accomplishments of Christopher Columbus
  - Recall the year of Columbus's first voyage to America: 1492
  - Explain why Columbus called the land "India" and the inhabitants "Indians"
  - Explain why Europeans eventually thought Columbus had discovered a "New World"
  - Identify reasons why the Pilgrims left England
  - Describe the Pilgrims' voyage on the Mayflower
  - Explain the significance of Plymouth Rock
  - Describe the Pilgrims' first year in America
  - Describe the first Thanksgiving Day celebration
- Colonial Towns and Townspeople
  - Describe some features of colonial towns, such as a town square, shops, and adjacent buildings
- Presidents and American Symbols
  - Describe George Washington as a general who fought for American independence
  - Recognize that general Washington led his army to victory even though it was smaller than the English army
  - Recognize George Washington as the first President of the United States
  - Describe the differences between a president and a king
  - Identify the American flag
  - Recognize Thomas Jefferson as the third President of the United States
  - Identify Thomas Jefferson as the primary author of the Declaration of Independence
  - Describe the purpose of the Declaration of Independence as a statement of America's liberty

### Frontier Explorers

- Locate the Appalachian Mountains on a map
- Recall basic facts about Daniel Boone
- Understand that Daniel Boone was a trailblazer
- Understand what the term "Wilderness Road" refers to
- Locate the Mississippi River on a map
- Locate the Rocky Mountains on a map
- Identify and locate the Louisiana Territory on a map
- Understand the significance of the Louisiana Purchase
- Explain the reasons that Lewis and Clark went on their expedition
- Understand that while the territory acquired in the Louisiana Purchase had not been explored or settled by people who lived in other parts of the United States until Lewis and Clark went on their expedition, there were many, many Native American tribes already living there
- Recall basic facts about Lewis and Clark's encounters with Native Americans

- Explain why and how Sacagawea helped Lewis and Clark

**Builds on the following objectives targeted in kindergarten:**

- Native Americans
  - Explain that there are many tribes of Native Americans
  - Identify the environment in which the Sioux lived
  - Identify the Sioux as a nomadic tribe
  - Describe the food, clothing, and shelter of the Sioux
  - Understand the importance of the buffalo to the Sioux
  - Identify the environment in which the Wampanoag lived
  - Understand how the Wampanoag tribe lived
  - Identify the Wampanoag as a settled tribe
  - Describe the food, clothing, and shelter of the Wampanoag
  - Understand that Native Americans still live in the U.S. today
- Columbus and The Pilgrims
  - Identify the continents of North America, South America, Europe, Africa, and Asia
  - Understand why Europeans wanted to travel to Asia
  - Describe the accomplishments of Christopher Columbus
  - Recall the year of Columbus's first voyage to America: 1492
  - Explain why Columbus called the land "India" and the inhabitants "Indians"
  - Explain why Europeans eventually thought Columbus had discovered a "New World"
  - Identify reasons why the Pilgrims left England
  - Describe the Pilgrims' voyage on the Mayflower
  - Explain the significance of Plymouth Rock
  - Describe the Pilgrims' first year in America
  - Describe the first Thanksgiving Day celebration
- Kings and Queens
  - Describe what a king or queen does
- Colonial Towns and Townspeople
  - Describe some features of colonial towns, such as a town square, shops, and adjacent buildings
- American Presidents and Symbols
  - Describe the differences between a president and a king
  - Recognize Thomas Jefferson as the third President of the United States
  - Identify Thomas Jefferson as the primary author of the Declaration of Independence
  - Describe the purpose of the Declaration of Independence as a statement of America's liberty



## Second Grade\*

\*This listing is incomplete. The materials development of Grade 2 CKLA was in progress at the time of this listing.

### Stories and Poetry

- Demonstrate familiarity with a particular fairy tale *Beauty and the Beast*
- Describe the characters, plot, and setting of a particular fairy tale
- Identify common characteristics of fairy tales such as “once upon a time” beginnings, royal characters, magical characters or events, and happy endings
- Identify the fairy tale elements of a particular fairy tale
- Identify fairy tales as a type of fiction
- Understand a particular poem or poems
- Recall some of the ideas expressed and some of the memorable words or phrases in these poems
- Understand the difference between lyric and narrative poems
- Recognize that narrative poems have characters, settings, plot, and dialogue
- Identify lyric poems as short, musical works that express ideas and feelings of one speaker
- Recognize that some poems contain rhyme that is not exact
- Identify words or phrases that appeal to the senses of sight, sound, taste, smell or touch
- Understand that poems often include similes or metaphors that compare two or more things
- Demonstrate familiarity with specific tall tales
- Identify the characters, plot, and setting of specific tall tales
- Identify tall tales as a type of fiction
- Identify exaggerations as a characteristic of tall tales
- Identify the exaggerations in specific tall tales

### Builds on the following objectives targeted in Kindergarten and Grade 1:

- Nursery Rhymes and Fables (Kindergarten)
  - Describe the characters and events in nursery rhymes and fables
  - Explain how animals often act as people in fables (personification)
  - Recite some nursery rhymes
  - Identify rhyming words in nursery rhymes
  - Identify lines that repeat, and/or dialogue in nursery rhymes
- Stories (Kindergarten)
  - Listen to and then demonstrate familiarity with stories, including the ideas they express
  - Understand that fiction can be in many different forms, including folktales, trickster tales, and tall tales
  - Identify the setting of a given story
  - Identify the characters of a given story
  - Identify the plot of a given story
- Fables and Stories (Grade 1)
  - Demonstrate familiarity with particular fables and stories
  - Identify character, plot, and setting as basic story elements
  - Describe the characters, plot, and setting of a given fable or story
  - Understand that fables and folktales are two types of fiction

### Cycles in Nature

- Define the term *cycle*
- Define the term *seasonal cycle*
- Recognize that Earth orbits the sun and the sun does not move
- Understand that it takes one year for Earth’s orbit of the sun
- Explain the cause for seasons

- Identify four seasons in the U.S.: spring, summer, autumn (fall), winter
- Explain effects of seasonal changes on plants and animals
- Describe plant and animal processes in spring
- Describe plant and animal processes in summer
- Describe plant and animal processes in autumn
- Describe plant and animal processes in winter
- Define the term *life cycle*
- Identify four stages of the life cycle: birth, growth, reproduction, and death
- Describe the life cycle of a flowering plant (seed to seed)
- Describe the life cycle of a chicken (egg to egg)
- Describe the life cycle of a frog (egg to egg)
- Describe the life cycle of a butterfly (egg to egg)
- Define the term *metamorphosis*
- Recognize that most of Earth's surface is covered by water
- Identify the three states of matter in which water exists: solid, liquid, and gas
- Define the term *water cycle*
- Understand that there is a limited amount of water on Earth
- Describe evaporation and condensation
- Identify forms of precipitation
- Define humidity as the amount of moisture in the air
- Describe the formation of clouds
- Identify three types of clouds: cirrus, cumulus, and stratus
- Understand that not all water cycles back into the air
- Identify groundwater as a water resource for humans

#### **Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Plants (Kindergarten)
  - Understand that plants are living things
  - Describe what plants need to live and grow: food, water, air, and sunlight
  - Understand that there are many different kinds and sizes of plants
  - Understand that different kinds of plants grow in different environments
  - Identify the root, stem, leaf, flower, and seed of a plant
  - Explain that roots anchor the plant and take in water and nutrients
  - Explain that stems support the plant and carry water and nutrients to the various parts of the plant
  - Explain that the plant makes its food in the leaves
  - Understand the basic life cycle of plants
- Farms (Kindergarten)
  - Identify needs of farm animals: food; water; and space to live and grow
  - Describe how farm animal babies need to be fed and cared for by their parents or people
  - Match pictures and/or names of farm animal babies to their adult parents
- Seasons and Weather (Kindergarten)
  - Demonstrate understanding of the following units of time and their relationship to one another: day, week, month, year
  - Identify a thermometer as an instrument used to measure temperature and describe how it works, i.e., when the liquid in the thermometer rises, it is hotter outside; when the liquid descends, it is cooler
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
  - Characterize winter as generally the coldest season, summer as generally the warmest season, and spring and autumn as transitional seasons
  - Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring, etc.)

Describe the daily weather conditions of their own locality in terms of temperature (hot, warm, cool, cold), cloud cover (sunny or cloudy), and precipitation (rain, snow, or sleet)

- Taking Care of the Earth (Kindergarten)
  - Understand that Earth is composed of land, water, and air
  - Understand that humans, plants, and animals depend on Earth's land, water, and air to live
  - Compare and contrast fresh water, salt water, and wastewater
  - Understand that many living things, including humans, need fresh water to survive, and that there is a limited supply of fresh water on Earth
  - Explain why people have a special responsibility to take care of the earth
- Astronomy (Grade 1)
  - Recognize the sun in the sky
  - Understand that the sun, moon, and stars are located in outer space
  - Understand that the sun is a source of energy, light, and heat
  - Classify the sun as a star
  - Identify Earth as a planet and our home
  - Identify the Earth's rotation or spin as the cause of day and night
  - Understand that other parts of the world experience nighttime while we have daytime
  - Explain sunrise and sunset
  - Understand that Earth orbits the sun
- Animals and Habitats (Grade 1)
  - Describe what a habitat is
  - Understand that living things live in habitats to which they are particularly suited
  - Identify the characteristics of specific habitats
  - Match specific plants and animals to their habitat
  - Explain how certain animals have adapted to their habitat
  - Understand that water covers most of Earth and is found in several oceans
  - Classify bodies of water as saltwater or freshwater habitats

### Insects

- Classify insects as small six-legged animals
- Identify body parts of insects: head, thorax, abdomen (wings—optional)
- Describe composition and purpose of an insect's exoskeleton
- Define metamorphosis
- Recognize that most insects undergo a complete metamorphosis
- Describe four stages of the life cycle of insects that metamorphose
- Recognize that some newborn insects resemble the adults of their species
- Describe the molting process of some insects
- Distinguish between social and solitary insects
- Identify groups of social insects
- Describe the social behavior of an ant colony
- Describe the roles of honeybee workers, drones, and queens
- Cite ways in which insects may be helpful to people
- Cite ways in which insects may be harmful to people

### **Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Plants (Kindergarten)
  - Understand that plants are living things
  - Describe what plants need to live and grow: food, water, air, and light
  - Understand that there are many different kinds and sizes of plants
  - Understand that different kinds of plants grow in different environments
  - Identify the root, stem, leaf, flower, and seed of a plant

- Explain that roots anchor the plant and take in water and nutrients
- Explain that stems support the plant and carry water and nutrients to the various parts of the plant
- Explain that the plant makes its food in the leaves
- Understand the basic life cycle of plants
- Farms (Kindergarten)
  - Identify needs of farm animals: food; water; and space to live and grow
  - Describe how farm animal babies need to be fed and cared for by their parents or people
  - Match pictures and/or names of farm animal babies to their adult parents
- Seasons and Weather (Kindergarten)
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
  - Describe any unique seasonal differences that are characteristic of their own locality (change of color and dropping of leaves in autumn; snow or ice in winter; increased rain and/or flooding in spring, etc.)
- Taking Care of the Earth (Kindergarten)
  - Understand that humans, plants, and animals depend on Earth's land, water, and air to live
  - Explain why people have a special responsibility to take care of the earth
- Animals and Habitats (Grade 1)
  - Describe what a habitat is
  - Understand that living things live in habitats to which they are particularly suited
  - Identify the characteristics of specific habitats
  - Match specific plants and animals to their habitat
  - Explain how certain animals have adapted to their habitat

### Westward Expansion

- Learn that the frontier shifted west and southwest as the country grew
- Describe what life was like for pioneers who headed west
- Identify boats, canals, and trains as new forms of transportation that increased the movement of people west
- Identify Robert Fulton as the developer of the steamboat
- Describe the importance of the steamboat
- Describe the importance of canals
- Identify the Erie Canal as the most famous of canals built during the 'Canal Era'
- Explain the advantages of rail travel
- Identify "iron horse" as the nickname given to the first trains in America
- Identify the Transcontinental Railroad as a link between East and West
- Identify the Oregon Trail as an arduous trail traversed by wagon trains
- Identify the Pony Express as a horseback mail delivery system
- Explain that western expansion meant displacement of Native Americans
- Recognize that the development of the railroad ushered in a new era of mass exodus of the Native Americans from their land
- Describe effect of diminishing buffalo on life of Plains Native Americans
- Explain that U.S. government forced Native Americans from their lands
- Identify the Trail of Tears as forced march of the Cherokee
- Identify Sequoyah as the developer of a writing system for the Cherokee language

### **Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Native Americans (Kindergarten)
  - Explain that there are many tribes of Native Americans
  - Identify the environment in which the Sioux lived
  - Identify the Sioux as a nomadic tribe

- Describe the food, clothing, and shelter of the Sioux
- Understand the importance of the buffalo to the Sioux
- Identify the environment in which the Wampanoag lived
- Understand how the Wampanoag tribe lived
- Identify the Wampanoag as a settled tribe
- Describe the food, clothing, and shelter of the Wampanoag
- Understand that Native Americans still live in the U.S. today
- Columbus and The Pilgrims (Kindergarten)
  - Recall the year of Columbus’s first voyage to America: 1492
  - Explain why Columbus called the land “India” and the inhabitants “Indians”
  - Identify why Europeans eventually thought Columbus had discovered a “New World”
  - Identify reasons why Pilgrims left England
  - Explain the significance of Plymouth Rock
- Colonial Towns and Townspeople (Kindergarten)
  - Describe some features of colonial towns, such as a town square, shops, and adjacent buildings
- Presidents and American Symbols (Kindergarten)
  - Describe the differences between a president and a king
  - Identify the American flag
  - Recognize Thomas Jefferson as the third President of the United States
- The Birth of Our Nation (Grade 1)
  - Identify the early English settlements on Roanoke Island and at Jamestown as colonies that were established before the Pilgrims landed at Plymouth Rock
  - Describe how the thirteen English colonies in America evolved from dependence on Great Britain to independence as a nation
  - Locate the thirteen original colonies
  - Describe the contributions of George Washington as Patriot, military commander, and first president
  - Identify Washington, D.C., as the nation’s capital
  - Explain that the nation’s capital, Washington, D.C., was named after George Washington
  - Explain the significance of The Fourth of July
  - Describe the roles of African Americans, Native Americans, and women during the evolution from thirteen English colonies in America to independence as a nation
- Frontier Explorers (Grade 1)
  - Locate the Appalachian Mountains on a map
  - Locate the Mississippi River on a map
  - Locate the Rocky Mountains on a map
  - Identify and locate the Louisiana Territory on a map
  - Understand the significance of the Louisiana Purchase
  - Explain the reasons that Lewis and Clark went on their expedition
  - Understand that while the territory acquired in the Louisiana Purchase had not been explored or settled by people who lived in other parts of the United States until Lewis and Clark went on their expedition, there were many, many Native American tribes already living there
  - Recall basic facts about Lewis and Clark’s encounters with Native Americans
  - Explain why and how Sacagawea helped Lewis and Clark

### The U.S. Civil War

- Describe slavery and the controversy over slavery in the United States
- Identify the Underground Railroad as a system of escape for slaves in the United States
- Describe the life and contributions of Harriet Tubman
- Differentiate between the North and South

- Differentiate between the Union and the Confederacy and the states associated with each
- Identify the people of the South as “Rebels” and those of the North as “Yankees”
- Describe why the Southern states seceded from the United States
- Define the difference between the Union and the Confederacy
- Describe the life and contributions of Abraham Lincoln
- Explain Abraham Lincoln’s role in keeping the Union together during the Civil War
- Identify Clara Barton as the “Angel of the Battlefield” and the founder of the American Red Cross
- Describe the work of the American Red Cross
- Recall that Robert E. Lee was the commander of the Confederate army
- Understand Lee’s reluctance to command the Union or the Confederate Army
- Recall that Ulysses S. Grant was the commander of the Union army
- Identify Abraham Lincoln as the author of the Emancipation Proclamation
- Explain the significance of the Emancipation Proclamation
- Identify the Civil War or the War Between the States as a war waged because of differences between the North and South
- Explain that the North’s victory united the North and South as one country and ended slavery
- Describe the life and contributions of Elijah McCoy
- Demonstrate familiarity with the poem “Harriet Tubman”
- Demonstrate familiarity with the poem “Lincoln”
- Demonstrate familiarity with the songs “Follow the Drinking Gourd” and “Swing Low, Sweet Chariot”
- Demonstrate familiarity with the song “Dixie”
- Demonstrate familiarity with the song “When Johnny Comes Marching Home”

**Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Presidents and American Symbols (Kindergarten)  
Recognize Abraham Lincoln as an important President of the United States  
Identify that Abraham Lincoln was known as “Honest Abe”
- The Birth of Our Nation (Grade 1)  
Describe how the thirteen English colonies in America evolved from dependence on Great Britain to independence as a nation

**Charlotte’s Web I**

- Understand that stories are one type of fiction
- Understand that fiction comes from the author’s imagination
- Understand why some stories are called *classics*
- Identify character, plot, and setting as basic story elements
- Describe the characters, plot, and setting of *Charlotte’s Web*
- Describe some aspects of life on a farm
- Define and identify the elements of narration and dialogue
- Define and identify the element of description
- Define and identify the element of personification
- Identify words or phrases that appeal to the senses of sight, sound, taste, smell, or touch
- Understand that an author sometimes gives the reader hints of things to come
- Recall that spiders are not insects
- Recall the seasons and the order in which they occur
- Understand how seasons affect life on a farm
- Have a general understanding of spiders and their anatomy

**Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Stories (Kindergarten)  
Listen to and then demonstrate familiarity with stories, including the ideas they express

- Farms (Kindergarten)
  - Sequence the seasonal rhythm of planting, growing, and harvesting
  - Identify buildings found on farms
  - Identify machines and tools of farming
  - Identify animals found on farms and the sounds they make
  - Identify needs of farm animals: food, water, and space to live and grow
- Seasons and Weather (Kindergarten)
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
- Fables and Stories (Grade 1)
  - Identify and describe the characters, plot, and setting of a particular story

### *Charlotte's Web II*

- Understand that stories are one type of fiction
- Understand that fiction comes from the author's imagination
- Describe the characters, plot (problems and solutions), and setting of *Charlotte's Web*
- Have a general understanding of orb spiders and their webs
- Have a general understanding of how crickets make a chirping sound
- Describe some aspects of life on a farm
- Understand how seasons affect life on a farm
- Define and identify the elements of narration and dialogue
- Define and identify the element of description
- Define and identify the element of personification
- Describe some aspects of a fair
- Identify words or phrases that appeal to the senses of sight, sound, taste, smell, or touch
- Describe changes in characters
- Understand that an author sometimes gives the reader hints of things to come

### **Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Stories (Kindergarten)
  - Listen to and then demonstrate familiarity with stories, including the ideas they express
- Farms (Kindergarten)
  - Sequence the seasonal rhythm of planting, growing, and harvesting
  - Identify buildings found on farms
  - Identify machines and tools of farming
  - Identify animals found on farms and the sounds they make
  - Identify needs of farm animals: food, water, and space to live and grow
- Seasons and Weather (Kindergarten)
  - Name the four seasons in cyclical order, as experienced in the United States, and correctly name a few characteristics of each season
- Fables and Stories (Grade 1)
  - Identify and describe the characters, plot, and setting of a particular story

### **Immigration**

- Explain the term immigrant
- Describe reasons immigrants leave their home countries to make a new home in the United States
- Explain why the United States was and is called the "land of opportunity"
- Identify the meaning of *e pluribus unum*
- Explain the significance of Ellis Island and the Statue of Liberty
- Describe how immigration has brought millions of newcomers to the United States
- Describe why large populations of immigrants settled in major cities such as New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, and San Francisco
- Describe why some immigrants settled in the Midwest

- Understand that their ancestors may have been immigrants who helped make America the country that it is today
- Explain what it means to be a citizen of a country
- Identify ways that a person becomes an American citizen
- Identify that the government of the United States is based on the Constitution, the highest law of our land
- Identify James Madison, the “Father of the Constitution”
- Understand that government by the consent of the governed, American citizens: “We the People”
- Explain the basic functions of government (making and enforcing laws; settling disputes; protecting rights and liberties, etc.) by making analogies to familiar settings such as the family, the school, and the community
- Identify the Bill of Rights as a document amending the Constitution
- Describe the rights and responsibilities of an American citizen
- Demonstrate familiarity with the songs, “This Land is Your Land” and “The Star-Spangled Banner”

#### **Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Columbus and the Pilgrims (Kindergarten)
  - Identify the continents of North America, South America, Europe, Africa, and Asia
  - Describe the accomplishments of Christopher Columbus
  - Explain why Europeans eventually thought Columbus had discovered a “New World”
  - Identify reasons why Pilgrims left England
  - Describe the Pilgrims’ voyage on the Mayflower
- Presidents and American Symbols (Kindergarten)
  - Describe the differences between a president and a king
  - Identify Thomas Jefferson as the primary author of the Declaration of Independence
  - Describe the purpose of the Declaration of Independence as a statement of America’s liberty
  - Identify the Statue of Liberty
- Early American Civilizations (Grade 1)
  - Locate the continents of Asia and North America on a world map or globe
  - Understand that the first people in North America arrived by crossing a “land bridge” between Asia and North America
  - Understand that the Maya developed large cities or population centers in the rainforests of Mexico and Central America many, many years ago
- The Birth of Our Nation (Grade 1)
  - Identify “We hold these truths to be self-evident, that all men are created equal . . .” as a part of the Declaration of Independence
  - Explain the significance of The Fourth of July
  - Identify the U.S. flag, the Liberty Bell, and the bald eagle
  - Explain the significance of the flag, the Liberty Bell, and the bald eagle as U.S. symbols

#### **Fighting for a Cause**

- Explain that members of one (most powerful) group have tended to exclude members of other groups from certain rights
- Identify the causes that Susan B. Anthony fought for during her lifetime
- Describe the life and contributions of Susan B. Anthony
- Understand that fighting for the right to vote was an important cause for many women throughout the United States
- Understand that organizations and movements were created as women protested their inequality and unfair treatment
- Describe the life and contributions of Eleanor Roosevelt



- Identify the causes that Eleanor Roosevelt fought for during her lifetime
- Describe the early life of Marian Anderson
- Identify the causes Marian Anderson fought for during her lifetime
- Describe the later life of Marian Anderson
- Identify one cause that Eleanor Roosevelt fought for during her lifetime
- Describe the life and contributions of Mary McLeod Bethune
- Identify the causes that Mary McLeod Bethune fought for during her lifetime
- Identify the cause that Ruby Bridges fought for in her early life
- Describe the life and contributions of Jackie Robinson
- Identify the cause that Jackie Robinson fought for during his lifetime
- Describe the life and contributions of Rosa Parks
- Identify the causes that Rosa Parks fought for during her lifetime
- Understand that fighting for the rights of African Americans has been an important cause for many people throughout the United States
- Describe the life and contributions of Martin Luther King, Jr.
- Identify the causes that Martin Luther King, Jr. fought for during his lifetime
- Describe the life and contributions of Cesar Chavez
- Identify the causes that Cesar Chavez fought for during his lifetime

**Builds on the following objectives targeted in Kindergarten and Grade 1:**

- Presidents and American Symbols (Kindergarten)
  - Recognize the White House as the president’s home
  - Describe Washington, D.C., as the city where the current president lives and where monuments of past presidents can be found
  - Describe the purpose of the Declaration of Independence as a statement of America’s liberty
- The Birth of Our Nation (Grade 1)
  - Explain the significance of the Declaration of Independence
  - Identify “We hold these truths to be self-evident, that all men are created equal...” as part of the Declaration of Independence

# Appendix D:

## Core Knowledge Grade-by-Grade Resource Recommendations

### RECOMMENDED ORDER AMOUNTS:

- **Titles for teachers:** one for each teacher, including resource teachers and librarians
- **Titles for students:** one for each student
- **Classroom resources:** one per classroom as noted

## General

### DVD: What Is Core Knowledge?

Cultural Literacy  
The Schools We Need  
The Knowledge Deficit  
The Making of Americans  
Reading Instruction: The Two Keys  
Books to Build On  
Dictionary of Cultural Literacy  
First Dictionary of Cultural Literacy

## Preschool

### For Teachers

The Core Knowledge Sequence for Preschool–Grade 8  
Core Knowledge Preschool Sequence and Teacher Handbook  
What Your Preschooler Needs to Know (for parents)  
Preschool Snapshot: Implementation & Observation Checklists  
Core Knowledge Preschool Assessment Tool  
Core Knowledge Preschool Assessment Kit  
Core Knowledge Preschool Video  
Core Knowledge Stop and Think Songbook CD  
Preschool & K Music CD  
A Joyful Noise  
Preschool Daily Schedule Cards  
The Knowledge Tree Preschool Kits\*  
Social Skills Posters  
The Stop & Think Social Skills Program:  
    Teacher’s Manual for Pre K–1  
Stop and Think Parenting Book, with DVD (for parents)

### For Students

What Your Preschooler Needs to Know:  
    Activity Book 1 for Ages 3–4  
What Your Preschooler Needs to Know:  
    Activity Book 2 for Ages 4–5  
Scholastic Preschool Classroom Library (one per classroom)\*

## Kindergarten

### For Teachers

The Core Knowledge Sequence for Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade K  
Text Resources, Grade K  
Art Prints, Grade K  
Core Knowledge Day-by-Day Planner and Workbook, Grade K  
What Your Kindergartner Needs to Know (for parents)  
Teacher Edition of Pearson Learning  
    Core Knowledge History and Geography Resources\*  
Preschool & K Music CD  
A Joyful Noise  
Stop and Think Parenting Book, with DVD  
Social Skills Electronic Books\*

### For Students

Listen My Children, Grade K  
Pearson Learning Core Knowledge History  
    and Geography Resources\*  
Scholastic Grade K Classroom Library (one per classroom)\*

## Grade 1

### For Teachers

The Core Knowledge Sequence for Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade 1  
Text Resources, Grade 1  
Art Prints, Grade 1  
Core Knowledge Day-by-Day Planner and Workbook, Grade 1  
What Your First Grader Needs to Know (for parents)  
Teacher Edition of Pearson Learning  
    Core Knowledge History and Geography Resources\*  
Grades 1 & 2 Music CD set  
A Joyful Noise  
Stop and Think Parenting Book, with DVD  
Social Skills Electronic Books\*  
Questar Curriculum-Referenced Tests\*

### For Students

Listen My Children, Grade 1  
Pearson Learning Core Knowledge History  
    and Geography Resources\*  
Scholastic Grade 1 Classroom Library (one per classroom)\*

## Grade 2

### For Teachers

The Core Knowledge Sequence for Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade 2  
Text Resources, Grade 2  
Art Prints, Grade 2  
Core Knowledge Day-by-Day Planner and Workbook, Grade 2  
What Your Second Grader Needs to Know (for parents)  
Teacher Edition of Pearson Learning  
    Core Knowledge History and Geography Resources\*  
Grades 1 & 2 Music CD set  
A Joyful Noise  
Stop and Think Parenting Book, with DVD  
Social Skills Electronic Books\*  
Questar Curriculum-Referenced Tests\*

### For Students

Listen My Children, Grade 2  
Pearson Learning Core Knowledge History  
    and Geography Resources\*  
Scholastic Grade 2 Classroom Library (one per classroom)\*

## Grade 3

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade 3  
Text Resources, Grade 3  
Art Prints, Grade 3  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 3  
What Your Third Grader Needs to Know (for parents)  
Teacher Edition of Pearson Learning  
Core Knowledge History and Geography Resources\*  
Grades 3–5 Music CD set  
A Joyful Noise  
Stop and Think Parenting Book, with DVD  
Social Skills Electronic Books\*  
Questar Curriculum-Referenced Tests\*

### For Students

Listen, My Children, Grade 3  
Pearson Learning Core Knowledge History  
and Geography Resources\*  
Scholastic Grade 3 Classroom Library  
(one per classroom)\*

## Grade 4

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade 4  
Text Resources, Grade 4  
Art Prints, Grade 4  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 4  
What Your Fourth Grader Needs to Know  
(for parents)  
Core Classics: Robinson Crusoe, Sleepy  
Hollow, Gulliver’s Travels, Robin Hood,  
King Arthur, and Treasure Island +  
Teacher’s Guides  
Teacher Edition of Pearson Learning  
Core Knowledge History and  
Geography Resources\*  
Grades 3–5 Music CD Set  
A Joyful Noise  
Social Skills Electronic Books\*  
Questar Curriculum-Referenced Tests\*

### For Students

Listen, My Children, Grade 4  
Core Classics: Robinson Crusoe, Sleepy Hollow,  
Gulliver’s Travels, Pollyanna, Robin Hood,  
King Arthur, and Treasure Island  
Pearson Learning Core Knowledge History  
and Geography Resources\*  
Scholastic Grade 4 Classroom Library  
(one per classroom)\*

## Grade 5

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
First Dictionary of Cultural Literacy  
Dictionary of Cultural Literacy  
Core Knowledge Teacher Handbook, Grade 5  
Text Resources, Grade 5  
Art Prints, Grade 5  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 5  
What Your Fifth Grader Needs to Know (for parents)  
Rats, Bulls, and Flying Machines + Teacher’s Guide  
Grace Abounding + Teacher’s Kits  
Core Classics: Sherlock Holmes, Don Quixote  
+ Teacher’s Guides  
Core Classics Plus: Frederick Douglass +  
Teacher’s Guide  
Teacher Edition of Pearson Learning  
Core Knowledge History and Geography Resources\*  
Grades 3–5 Music CD Set  
A Joyful Noise  
Social Skills Electronic Books\*  
Questar Curriculum-Referenced Tests\*

### For Students

Listen My Children, Grade 5  
Grace Abounding  
Rats, Bulls, and Flying Machines  
Core Classics: Sherlock Holmes, Don Quixote  
Core Classics Plus: Frederick Douglass, Little Women  
Pearson Learning Core Knowledge History  
and Geography Resources\*  
Scholastic Grade 5 Classroom Library  
(one per classroom)\*

## Grade 6

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
Dictionary of Cultural Literacy  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 6  
What Your Sixth Grader Needs to Know (for parents)  
Grace Abounding + Teacher’s Kits  
Teacher Edition of Pearson Learning  
Core Knowledge History and  
Geography Resources\*  
Grades 6 Music CD Set  
A Joyful Noise  
Mackin Middle School Resource Set\*  
Social Skills Electronic Books\*

### For Students

Realms of Gold, Volume I  
Grace Abounding  
Pearson Learning Core Knowledge History  
and Geography Resources\*  
Scholastic Combined Grade 6–8 Classroom  
Library (one per classroom)\*

## Grade 7

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
Dictionary of Cultural Literacy  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 7  
Grace Abounding + Teacher’s Kits  
Grade 7 Music CD Set  
A Joyful Noise  
Mackin Middle School Resource Set\*  
Social Skills Electronic Books\*

### For Students

Realms of Gold, Volume II  
Grace Abounding  
Scholastic Combined Grade 6–8 Classroom  
Library (one per classroom)\*

## Grade 8

### For Teachers

The Core Knowledge Sequence for  
Preschool–Grade 8  
Dictionary of Cultural Literacy  
Core Knowledge Day-by-Day Planner and  
Workbook, Grade 8  
Grace Abounding + Teacher’s Kits  
Grade 8 Classical CD Set and Set A  
Blues and Jazz CD Set and Set A  
Musical Theater CD Set  
Mozart Essential Works CD  
A Joyful Noise  
Mackin Middle School Resource Set\*  
Social Skills Electronic Books\*

### For Students

Realms of Gold, Volume III  
Grace Abounding  
Scholastic Combined Grade 6–8 Classroom  
Library (one per classroom)

\*Resources not sold by Core Knowledge.  
You can find information about these resources  
on our website, [www.coreknowledge.org](http://www.coreknowledge.org)

# Core Knowledge at a Glance

	Preschool	Kindergarten	First Grade	Second Grade	Third Grade
<b>Language Arts/English</b>	<ul style="list-style-type: none"> <li>I. Oral Language</li> <li>II. Nursery Rhymes, Poems, Finger-Plays, and Songs</li> <li>III. Storybook Reading and Storytelling</li> <li>IV. Emerging Literacy Skills</li> </ul>	<ul style="list-style-type: none"> <li>I. Listening and Speaking</li> <li>II. Reading</li> <li>III. Writing</li> <li>IV. Language Conventions</li> <li>V. Poetry</li> <li>VI. Fiction</li> <li>VII. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Listening and Speaking</li> <li>II. Reading</li> <li>III. Writing</li> <li>IV. Language Conventions</li> <li>V. Poetry</li> <li>VI. Fiction</li> <li>VII. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Listening and Speaking</li> <li>II. Reading</li> <li>III. Writing</li> <li>IV. Language Conventions</li> <li>V. Poetry</li> <li>VI. Fiction</li> <li>VII. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Reading and Writing</li> <li>II. Poetry</li> <li>III. Fiction</li> <li>IV. Sayings and Phrases</li> </ul>
<b>History and Geography</b>	<p>Time:</p> <ul style="list-style-type: none"> <li>I. Vocabulary</li> <li>II. Measures of Time</li> <li>III. Passage of Time (Past, Present, Future)</li> </ul> <p>Space:</p> <ul style="list-style-type: none"> <li>I. Vocabulary</li> <li>II. Actual and Representational Space</li> <li>III. Simple Maps</li> <li>IV. Basic Geographic Concepts</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. Geography: Spatial Sense</li> <li>II. Overview of the Seven Continents</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. Geography</li> <li>II. Native American Peoples, Past and Present</li> <li>III. Early Exploration and Settlement</li> <li>IV. Presidents, Past and Present</li> <li>V. Symbols and Figures</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. Geography</li> <li>II. Early World Civilizations</li> <li>III. Modern Civilization and Culture: Mexico</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. Early People and Civilizations</li> <li>II. Early Exploration and Settlement</li> <li>III. From Colonies to Independence: The American Revolution</li> <li>IV. Early Exploration of American West</li> <li>V. Symbols and Figures</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. Geography</li> <li>II. Early Asian Civilizations</li> <li>III. Modern Japanese Civilization</li> <li>IV. The Ancient Greek Civilization</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. American Government: The Constitution</li> <li>II. The War of 1812</li> <li>III. Westward Expansion</li> <li>IV. The Civil War</li> <li>V. Immigration and Citizenship</li> <li>VI. Fighting for a Cause</li> <li>VII. Geography of the Americas</li> <li>VIII. Symbols and Figures</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. World Geography</li> <li>II. The Ancient Roman Civilization</li> <li>III. The Vikings</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. The Earliest Americans</li> <li>II. Early Exploration of North America</li> <li>III. The Thirteen Colonies: Life and Times Before the Revolution</li> </ul>
<b>Visual Arts</b>	<ul style="list-style-type: none"> <li>I. Attention to visual detail</li> <li>II. Creating Art</li> <li>III. Looking and Talking about Art</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Art</li> <li>II. Sculpture</li> <li>III. Looking at and Talking About Art</li> </ul>	<ul style="list-style-type: none"> <li>I. Art from Long Ago</li> <li>II. Elements of Art</li> <li>III. Kinds of Pictures: Portrait and Still Life</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Art</li> <li>II. Sculpture</li> <li>III. Kinds of Pictures: Landscapes</li> <li>IV. Abstract Art</li> <li>V. Architecture</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Art</li> <li>II. American Indian Art</li> <li>III. Art of Ancient Rome and Byzantine Civilization</li> </ul>
<b>Music</b>	<ul style="list-style-type: none"> <li>I. Attention to Differences in Sound</li> <li>II. Imitate and Produce Sounds</li> <li>III. Listen and Sing</li> <li>IV. Listen and Move</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding</li> <li>III. Songs</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding (Composers; Orchestra; Opera; Ballet; Jazz)</li> <li>III. Songs</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding (Orchestra; Keyboards; Composers)</li> <li>III. Songs</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding (Orchestra; Composers)</li> <li>III. Songs</li> </ul>
<b>Mathematics</b>	<ul style="list-style-type: none"> <li>I. Patterns and Classification</li> <li>II. Geometry</li> <li>III. Measurement</li> <li>IV. Numbers and Number Sense</li> <li>V. Addition and Subtraction with Concrete Objects</li> <li>VI. Money</li> </ul>	<ul style="list-style-type: none"> <li>I. Patterns and Classification</li> <li>II. Numbers and Number Sense</li> <li>III. Money</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> </ul>	<ul style="list-style-type: none"> <li>I. Patterns and Classification</li> <li>II. Numbers and Number Sense</li> <li>III. Money</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> </ul>	<ul style="list-style-type: none"> <li>I. Numbers and Number Sense</li> <li>II. Fractions</li> <li>III. Money</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> </ul>	<ul style="list-style-type: none"> <li>I. Numbers and Number Sense</li> <li>II. Fractions and Decimals</li> <li>III. Money</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> </ul>
<b>Science</b>	<ul style="list-style-type: none"> <li>I. Human Characteristics, Needs and Development</li> <li>II. Animal Characteristics, Needs and Development</li> <li>III. Plant Characteristics, Needs and Growth</li> <li>IV. Physical Elements (Water, Air, Light)</li> <li>V. Introduction to Magnetism</li> <li>VI. Seasons and Weather</li> <li>VII. Taking Care of the Earth</li> <li>VIII. Tools</li> </ul>	<ul style="list-style-type: none"> <li>I. Plants and Plant Growth</li> <li>II. Animals and Their Needs</li> <li>III. Human Body (Five Senses)</li> <li>IV. Introduction to Magnetism</li> <li>V. Seasons and Weather</li> <li>VI. Taking Care of the Earth</li> <li>VII. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Living Things and Their Environments</li> <li>II. Human Body (Body Systems)</li> <li>III. Matter</li> <li>IV. Properties of Matter: Measurement</li> <li>V. Introduction to Electricity</li> <li>VI. Astronomy</li> <li>VII. The Earth</li> <li>VIII. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Cycles in Nature (Seasonal Cycles; Life Cycles; Water Cycle)</li> <li>II. Insects</li> <li>III. Human Body (Cells; Digestive and Excretory Systems)</li> <li>IV. Magnetism</li> <li>V. Simple Machines</li> <li>VI. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Introduction to Classification of Animals</li> <li>II. Human Body (Muscular, Skeletal, and Nervous Systems; Vision and Hearing)</li> <li>III. Light and Optics</li> <li>IV. Sound</li> <li>V. Ecology</li> <li>VI. Astronomy</li> <li>VII. Science Biographies</li> </ul>

	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade
<b>Language Arts/English</b>	<ul style="list-style-type: none"> <li>I. Writing, Grammar, and Usage</li> <li>II. Poetry</li> <li>III. Fiction</li> <li>IV. Speeches</li> <li>V. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Writing, Grammar, and Usage</li> <li>II. Poetry</li> <li>III. Fiction and Drama</li> <li>IV. Speeches</li> <li>V. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Writing, Grammar, and Usage</li> <li>II. Poetry</li> <li>III. Fiction and Drama</li> <li>IV. Sayings and Phrases</li> </ul>	<ul style="list-style-type: none"> <li>I. Writing, Grammar, and Usage</li> <li>II. Poetry</li> <li>III. Fiction, Nonfiction, and Drama</li> <li>IV. Foreign Phrases Commonly Used in English</li> </ul>	<ul style="list-style-type: none"> <li>I. Writing, Grammar, and Usage</li> <li>II. Poetry</li> <li>III. Fiction, Nonfiction, and Drama</li> <li>IV. Foreign Phrases Commonly Used in English</li> </ul>
<b>History and Geography</b>	<p>World:</p> <ul style="list-style-type: none"> <li>I. World Geography (Spatial Sense; Mountains)</li> <li>II. Europe in Middle Ages</li> <li>III. The Spread of Islam and the "Holy Wars"</li> <li>IV. Early and Medieval African Kingdoms</li> <li>V. China: Dynasties and Conquerors</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. The American Revolution</li> <li>II. Making a Constitutional Government</li> <li>III. Early Presidents and Politics</li> <li>IV. Reformers</li> <li>V. Symbols and Figures</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. World Geography (Spatial Sense; Lakes)</li> <li>II. Early American Civilizations</li> <li>III. European Exploration, Trade, and the Clash of Cultures</li> <li>IV. The Renaissance and the Reformation</li> <li>V. England from the Golden Age to the Glorious Revolution</li> <li>VI. Russia: Early Growth and Expansion</li> <li>VII. Feudal Japan</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. Westward Expansion</li> <li>II. The Civil War: Causes, Conflicts, Consequences</li> <li>III. Native Americans: Cultures and Conflicts</li> <li>IV. U.S. Geography</li> </ul>	<p>World:</p> <ul style="list-style-type: none"> <li>I. World Geography (Spatial Sense; Deserts)</li> <li>II. Lasting Ideas from Ancient Civilizations</li> <li>III. The Enlightenment</li> <li>IV. The French Revolution</li> <li>V. Romanticism</li> <li>VI. Industrialism, Capitalism, and Socialism</li> <li>VII. Latin American Independence Movements</li> </ul> <p>American</p> <ul style="list-style-type: none"> <li>I. Immigration, Industrialization, and Urbanization</li> <li>II. Reform</li> </ul>	<ul style="list-style-type: none"> <li>I. America Becomes a World Power</li> <li>II. World War I: "The Great War," 1914–1918</li> <li>III. Russian Revolution</li> <li>IV. America from the Twenties to the New Deal</li> <li>V. World War II</li> <li>VI. Geography of United States</li> </ul>	<ul style="list-style-type: none"> <li>I. The Decline of European Colonialism</li> <li>II. The Cold War</li> <li>III. The Civil Rights Movement</li> <li>IV. The Vietnam War and the Rise of Social Activism</li> <li>V. The Middle East and Oil Politics</li> <li>VI. The End of the Cold War: The Expansion of Democracy and Continuing Challenges</li> <li>VII. Civics: The Constitution—Principles and Structure of American Democracy</li> <li>VIII. Geography of Canada and Mexico</li> </ul>
<b>Visual Arts</b>	<ul style="list-style-type: none"> <li>I. Art of the Middle Ages in Europe</li> <li>II. Islamic Art and Architecture</li> <li>III. Art of Africa</li> <li>IV. Art of China</li> <li>V. Art of a New Nation: The United States</li> </ul>	<ul style="list-style-type: none"> <li>I. Art of the Renaissance</li> <li>II. American Art: Nineteenth-Century United States</li> <li>III. Art of Japan</li> </ul>	<ul style="list-style-type: none"> <li>I. Art History: Periods and Schools (Classical; Gothic; Renaissance; Baroque; Rococo; Neoclassical; Romantic; Realistic)</li> </ul>	<ul style="list-style-type: none"> <li>I. Art History: Period and Schools (Impressionism; Post-Impressionism; Expressionism and Abstraction; Modern American Painting)</li> </ul>	<ul style="list-style-type: none"> <li>I. Art History: Periods and Schools (Painting Since World War II; Photography; 20th-Century Sculpture)</li> <li>II. Architecture Since the Industrial Revolution</li> </ul>
<b>Music</b>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding (Orchestra; Vocal Ranges; Composers)</li> <li>III. Songs</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Listening and Understanding (Composers; Connections)</li> <li>III. American Musical Traditions (Spirituals)</li> <li>IV. Songs</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Classical Music: From Baroque to Romantic (Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Chopin, Schumann)</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Classical Music: Romantics and Nationalists (Brahms, Berlioz, Liszt, Wagner, Dvorak, Grieg, Tchaikovsky)</li> <li>III. American Musical Traditions (Blues and Jazz)</li> </ul>	<ul style="list-style-type: none"> <li>I. Elements of Music</li> <li>II. Non-Western Music</li> <li>III. Classical Music: Nationalists and Moderns</li> <li>IV. Vocal Music (Opera; American Musical Theater)</li> </ul>
<b>Mathematics</b>	<ul style="list-style-type: none"> <li>I. Numbers and Number Sense</li> <li>II. Fractions and Decimals</li> <li>III. Money</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> </ul>	<ul style="list-style-type: none"> <li>I. Numbers and Number Sense</li> <li>II. Ratio and Percent</li> <li>III. Fractions and Decimals</li> <li>IV. Computation</li> <li>V. Measurement</li> <li>VI. Geometry</li> <li>VII. Probability and Statistics</li> <li>VIII. Pre-Algebra</li> </ul>	<ul style="list-style-type: none"> <li>I. Numbers and Number Sense</li> <li>II. Ratio, Percent, and Proportion</li> <li>III. Computation</li> <li>IV. Measurement</li> <li>V. Geometry</li> <li>VI. Probability and Statistics</li> <li>VII. Pre-Algebra</li> </ul>	<ul style="list-style-type: none"> <li>I. Pre-Algebra (Properties of the Real Numbers; Polynomial Arithmetic; Equivalent Equations and Inequalities; Integer Exponents)</li> <li>II. Geometry (Three-Dimensional Objects; Angle Pairs; Triangles; Measurement)</li> <li>III. Probability and Statistics</li> </ul>	<ul style="list-style-type: none"> <li>I. Algebra (Properties of the Real Numbers; Relations, Functions, and Graphs; Linear Equations and Functions; Arithmetic of Rational Expression; Quadratic Equations and Functions)</li> <li>II. Geometry (Analytic Geometry; Introduction to Trigonometry; Triangles and proofs)</li> </ul>
<b>Science</b>	<ul style="list-style-type: none"> <li>I. Human Body (Circulatory and Respiratory Systems)</li> <li>II. Chemistry: Basic Terms and Concepts</li> <li>III. Electricity</li> <li>IV. Geology: The Earth and Its Changes</li> <li>V. Meteorology</li> <li>VI. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Classifying Living Things</li> <li>II. Cells: Structures and Processes</li> <li>III. Plant Structures and Processes</li> <li>IV. Life Cycles and Reproduction</li> <li>V. Human Body (Endocrine and Reproductive Systems)</li> <li>VI. Chemistry: Matter and Change</li> <li>VII. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Plate Tectonics</li> <li>II. Oceans</li> <li>III. Astronomy: Gravity, Stars, and Galaxies</li> <li>IV. Energy, Heat, and Energy Transfer</li> <li>V. The Human Body: Lymphatic and Immune Systems</li> <li>VI. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Atomic Structure</li> <li>II. Chemical Bonds and Reactions</li> <li>III. Cell Division and Genetics</li> <li>IV. History of the Earth and Life Forms</li> <li>V. Evolution</li> <li>VI. Science Biographies</li> </ul>	<ul style="list-style-type: none"> <li>I. Physics</li> <li>II. Electricity and Magnetism</li> <li>III. Electromagnetic Radiation and Light</li> <li>IV. Sound Waves</li> <li>V. Chemistry of Food and Respiration</li> <li>VI. Science Biographies</li> </ul>