Reading Standards for Literature

The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Key Ideas and Details

1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

Craft and Structure

4. Determine the meaning of words and phrases as they are used in a text, including figurative language and connotative meanings.
5. Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
6. Describe how a narrator's or speaker's point of view influences how events are described.

Integration of Knowledge and Ideas

7. Analyze how visual and multimedia elements contribute to the meaning, tone, or aesthetics of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
8. (Not applicable to literature)
9. Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.

Range of Reading and Level of Text Complexity

10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.

Reading Standards for Informational Text

Key Ideas and Details

1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Craft and Structure

4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
5. Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two texts.
6. Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

Integration of Knowledge and Ideas

7. Utilize information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
9. Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Range of Reading and Level of Text Complexity

10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.

Reading Standards for Foundational Skills

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know— to discern when particular children or activities warrant more or less attention.

Print Concepts

1. Mastered in grade 1.

Phonological Awareness

2. Mastered in grade 1.

Phonics and Word Recognition

3. Know and apply grade-level phonics and word analysis skills in decoding words.
   a. Use combined knowledge of letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

Fluency

4. Read with sufficient accuracy and fluency to support comprehension.
   a. Read on-level text[9] with purpose and understanding.
   b. Read on-level prose[10] and poetry orally with accuracy, appropriate rate, and expression on successive readings.
   c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Writing Standards

The following standards offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

[9] "On-level text" means grade level text.
[10] "On-level prose" means grade level prose.

Text Types and Purposes

1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
   a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.
   b. Provide logically ordered reasons that are supported by facts and details.
   c. Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*).
   d. Provide a concluding statement or section related to the opinion presented.
2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
   a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
   b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
   c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast*, *especially*).
   d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
   e. Provide a concluding statement or section related to the information or explanation presented.
3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
   a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
   b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
   c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
   d. Use concrete words and phrases and sensory details to convey experiences and events precisely.
   e. Provide a conclusion that follows from the narrated experiences or events.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a different approach.
6. With some guidance and support from adults, produce and publish grade-appropriate writing using technology, either independently or in collaboration with others.

Research to Build and Present Knowledge

7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
8. Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
9. Draw relevant evidence from grade-appropriate literary or informational texts to support analysis, reflection, and research.
   a. Apply grade 5 Reading standards to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]").

b. Apply grade 5 Reading standa*rds* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]").

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking and Listening Standards

The following standards offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year's grade- specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Comprehension and Collaboration

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.
   a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
   b. Follow agreed-upon rules for discussions and carry out assigned roles.
   c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
   d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

Presentation of Knowledge and Ideas

4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
6. Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task, audience, and situation.

Language Standards

The following standards for grades offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Conventions of Standard English

1. Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.
   a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
   b. Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses.
   c. Use verb tense to convey various times, sequences, states, and conditions.
   d. Recognize and correct inappropriate shifts in verb tense.
   e. Use correlative conjunctions (e.g., *either/or, neither/nor*).

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
   a. Use punctuation to separate items in a series.
   b. Use a comma to separate an introductory element from the rest of the sentence.
   c. Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*).
   d. Use underlining, quotation marks, or italics to indicate titles of works.
   e. Spell grade-appropriate words correctly, consulting references as needed.

Knowledge of Language

3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
   a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
   b. Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
   a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
   b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis*).
   c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
   a. Interpret figurative language, including similes and metaphors, in context.
   b. Recognize and explain the meaning of common idioms, adages, and proverbs.
   c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., *however, although, nevertheless, similarly, moreover, in addition*).

Mathematics | Grade 5

Teachers Companion Documents.zip

Grade Level Overview

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real-world and mathematical problems.

Operations and Algebraic Thinking 5.OA

A. Write and interpret numerical expressions.

1. Use parentheses or brackets in numerical expressions, and evaluate expressions with these symbols.
2. Write simple expressions that record calculations with whole numbers, fractions, and decimals, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 x (18,932 + 9.21) is three times as large as 18,932 + 9.21, without having to calculate the indicated sum or product.*

B. Analyze patterns and relationships.

3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Number and Operations in Base Ten 5.NBT

A. Understand the place value system.

1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.
2. Explain and apply patterns in the number of zeros of the product when multiplying a number by powers of 10. Explain and apply patterns in the values of the digits in the product or the quotient, when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. *For example, $10^0 = 1$, $10^1 = 10$ ... and $2.1 \times 10^2 = 210$.*
3. Read, write, and compare decimals to thousandths.
   a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
   b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
4. Use place value understanding to round decimals to any place.

B. Perform operations with multi-digit whole numbers and with decimals to hundredths.

5. Fluently multiply multi-digit whole numbers using the standard algorithm.
6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, subtracting multiples of the divisor, and/or the relationship between multiplication and division. Illustrate and/or explain the calculation by using equations, rectangular arrays, area models, or other strategies based on place value.
7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; justify the reasoning used with a written explanation.

Number and Operations—Fractions 5.NF

A. Use equivalent fractions as a strategy to add and subtract fractions.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)*
2. Solve word problems involving addition and subtraction of fractions.
   a. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem.
   b. Use benchmark fractions and number sense of fractions to estimate mentally and justify the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each*

person has a share of size $^3/_4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
   a. Interpret the product $(m/n) \times q$ as m parts of a partition of q into n equal parts; equivalently, as the result of a sequence of operations, $m \times q \div n$. *For example, use a visual fraction model to show understanding, and create a story context for (m/n) x q.*
   b. Construct a model to develop understanding of the concept of multiplying two fractions and create a story context for the equation. [In general, $(m/n) \times (c/d) = (mc)/(nd)$.]
   c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths.
   d. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5. Interpret multiplication as scaling (resizing), by:
   a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
   b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case).
   c. Explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.
   d. Relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
6. Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1]
   a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*
   b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*
   c. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

Measurement and Data 5.MD

A. Convert like measurement units within a given measurement system.

1. Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real-world problems (e.g., convert 5 cm to 0.05 m; 9 ft to 108 in).

[1] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

B. Represent and interpret data.

2. Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
   a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
   b. A solid figure that can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5. Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.
   a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
   b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.
   c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.

Geometry 5.G

A. Graph points on the coordinate plane to solve real-world and mathematical problems.

1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number in the ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number in the ordered pair indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).
2. Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

B. Classify two-dimensional figures into categories based on their properties.

3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
4. Classify quadrilaterals in a hierarchy based on properties. (Students will define a trapezoid as a quadrilateral with at least one pair of parallel sides.)

GRADE 5 The Medieval Period to Early Modern World

The 5th grade builds on what students learned about ancient and classical civilizations in grade 4. In this course, students will examine Medieval Europe and Africa, Aztec and Incan civilizations, the Renaissance and Reformation, the Age of Exploration, and the European conquest and colonization of the Americas. Students will also examine the growth in economic interactions among civilizations as well as the exchange of ideas, beliefs, technologies, and commodities.

- 5.1 Create and use a chronological sequence of related events to compare developments and describe instances of change and continuity.
- 5.2 Use a variety of primary and secondary sources to:
    a. Analyze social studies content.
    b. Explain claims and evidence.
    c. Compare and contrast multiple sources.
- 5.3 Explain connections between ideas, events, and developments in world history.
- 5.4 Compare and contrast events and developments in world history.
- 5.5 Construct and express claims that are supported with relevant evidence from primary and/or secondary sources, content knowledge, and clear reasoning in order to:
    a. Demonstrate an understanding of social studies content.
    b. Compare and contrast content and viewpoints.
    c. Explain causes and effects.
    d. Describe counterclaims.
- 5.6 Create and use geographic representations to locate and describe places and geographic characteristics, including hemispheres; landforms such as continents, oceans, rivers, mountains, deserts; cardinal and intermediate directions; latitude and longitude, climate, and environment.
- 5.7 Use geographic representations and historical information to explain how physical geography influenced the development of civilizations and empires.
- 5.8 Describe the origin and spread of major world religions as they developed throughout history.
- 5.9 Describe the geographic, political, economic, and cultural structures of Europe during the Middle Ages.
    a. Identify and locate geographic features of Europe, including the Alps, Atlantic Ocean, North European Plain, English Channel, Ural Mountains and the Mediterranean Sea.
    b. Describe the role of monasteries in the preservation of knowledge and the spread of the Catholic Church throughout Europe.
    c. Explain how Charlemagne shaped and defined medieval Europe, including the creation of the Holy Roman Empire, and the establishment of Christianity as the religion of the Empire.
    d. Describe the development of feudalism and manorialism and their role in the medieval European economy.
    e. Describe the significance of the Magna Carta, including limiting the power of the monarch, the rule of law, and the right to trial by jury.
    f. Explain how the Crusades affected Christian, Muslim, and Jewish populations in Europe.

g. Describe the economic and social effects of the spread of the Black Death (Bubonic Plague) from Central Asia to China, the Middle East, and Europe, and its effect on the global population.
h. Describe the significance of the Hundred Years' War, including the roles of Henry V in shaping English culture and language and Joan of Arc in promoting a peaceful end to the war.

- 5.10 Describe the geographic, political, economic, and cultural structures of Southwest Asia and North Africa.
  a. Identify and locate the geographic features of Southwest Asia and North Africa, including the Arabian Peninsula, the Persian Gulf, Arabian Sea, Red Sea, Black Sea, and the Caspian Sea.
  b. Describe the diffusion of Islam, its culture, and the Arabic language throughout North Africa and Southwest Asia.
  c. Summarize the contributions of Islamic scholars in the areas of art, medicine, science, and mathematics.
- 5.11 Describe the geographic, political, economic, and cultural structures of Medieval West African Kingdoms.
  a. Identify and locate the geographic features of West Africa, including the Atlantic Ocean, Niger River, Djenne, the Sahara, Gulf of Guinea, and Timbuktu.
  b. Describe the growth of the kingdoms of Ghana, Mali, and Songhai, including cities such as Djenne and Timbuktu as centers of trade, culture, and learning.
  c. Describe the role of the Trans-Saharan caravan trade in the changing religious and cultural characteristics of West Africa and in the exchange of salt, gold, and enslaved people.
  d. Explain the importance of the Malian king Mansa Musa and his pilgrimage to Mecca.
- 5.12 Describe the origins, accomplishments, and geographic diffusion of the Renaissance as well as the historical developments of the Protestant Reformation and Scientific Revolution.
  a. Explain how the location of the Italian Peninsula affected the movement of resources, knowledge, and culture throughout Italy's independent trade cities.
  b. Identify the importance of Florence, Italy and the Medici Family in the early stages of the Renaissance.
  c. Explain the development of Renaissance art, including the significance of Leonardo da Vinci, Michelangelo, William Shakespeare, and systems of patronage.
  d. Explain how Johannes Gutenberg's printing press affected the growth of literacy and diffusion of knowledge.
  e. Explain the significant causes of the Protestant Reformation, including the selling of indulgences and Martin Luther's 95 Theses.
  f. Compare and contrast heliocentric and geocentric theories of the Greeks (geocentric) and Copernicus (heliocentric).
  g. Describe Galileo Galilei's theories and improvement of scientific tools, including the telescope and microscope.
- 5.13 Describe the geographic, political, economic, and cultural structures of Indigenous civilizations of the Americas.
  a. Identify and locate the geographic features of the Americas, including the Andes Mountains, Appalachian Mountains, Great Plains, Pacific Ocean Mountains, Gulf of Mexico, Rocky Mountains, Atlantic Ocean, Mississippi River, Amazon River, South America, Caribbean Sea, North America, Yucatan Peninsula, and the Central Mexican Plateau.

b. Explain the effects of geographic features on Indigenous North American cultures (Northeast, Southeast, and Plains), including clothing, housing, and agriculture.
c. Describe the existence of diverse networks of Indigenous North American cultures, including varied languages, customs, and economic and political structures.
d. Explain the effects of geographic features and climate on the agricultural practices and settlement of the Aztec and Incan civilizations.
e. Explain how the Aztec built and controlled a powerful empire that covered much of what is now central Mexico.
f. Describe Aztec religious beliefs and how they were linked to the traditions of the society.
g. Describe Tenochtitlán and the surrounding landscape, including aqueducts, massive temples, and chinampa agriculture.
h. Identify Moctezuma II and describe features of his reign.
i. Explain how the Inca built and organized their empire and how Inca engineers overcame challenges presented by the geography of the land.
j. Explain how the Inca kept their empire together without a written language.

- 5.14 Analyze the motivations for the movement of people from Europe to the Americas and describe the effects of exploration by Europeans.
    a. Analyze why European countries were motivated to explore the world, including religion, political rivalry, and economic gain.
    b. Identify the significance of the voyages and routes of discovery of the following explorers by their sponsoring country: England: Henry Hudson; France: Jacques Cartier; Portugal: Vasco da Gama, Bartolomeu Dias; Spain: Christopher Columbus, Hernando de Soto, Ferdinand Magellan, and Amerigo Vespucci.
    c. Describe Prince Henry the Navigator's influence on exploration, voyages, cartographic improvements, and tools related to exploration, including the compass, caravel, and astrolabe.
    d. Describe how the Aztec and Inca empires were eventually defeated by Spanish conquistadors.
    e. Explain the impact of the Columbian Exchange on people, plants, animals, technology, culture, ideas, and diseases among Europe, Africa, Asia, and the Americas in the fifteenth and sixteenth centuries, and examine the major effects on each continent.
    f. Explain how Spanish colonization introduced Christianity, the mission system, and the encomienda system to the Americas as well as the transition to African slavery.
    g. Describe the development of the transatlantic slave trade and the experiences of enslaved people in the Americas.

MATTER AND ITS INTERACTIONS

Performance Expectation	Develop a model to describe that matter is made of particles too small to be seen.
Clarification Statement	Examples of evidence could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, or evaporating salt water. Does not include atomic scale mechanism of evaporation and condensation or defining the unseen particles.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. **Developing and using models:** Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. 3. Planning and carrying out Investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**STRUCTURE AND PROPERTIES OF MATTER** Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including boiling water, the inflation and shape of a balloon, and the effects of air on larger particles or objects. (UE.PS1A.a)	**SCALE, PROPORTION, AND QUANTITY** Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.

MATTER AND ITS INTERACTIONS

Performance Expectation	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total amount of matter is conserved.
Clarification Statement	Examples of chemical changes includes reactions that produce new substances with new properties. Examples of physical changes could include phase changes, dissolving, or mixing.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out Investigations 4. Analyzing and interpreting data **5. Using mathematics and computational thinking:** Mathematical and computational thinking in 3-5 builds on K-2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. • Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems. 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**STRUCTURE AND PROPERTIES OF MATTER** The amount of mass in matter is conserved when it changes form, even in transitions in which it seems to vanish. (UE.PS1A.b) **CHEMICAL REACTIONS** When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a) No matter what reaction or change in properties occurs, the total mass of the substances does not change. (UE.PS1B.b)	**ENERGY AND MATTER** Matter flows and cycles can be tracked in terms of mass of the substances before and after a process occurs. The total mass of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.

MATTER AND ITS INTERACTIONS

Performance Expectation	Make observations and measurements to identify materials based on their properties.
Clarification Statement	Examples of materials to be identified could include baking soda and other powders, metals, minerals, or liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, or solubility; density is not intended to be used as an identifiable property. No attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models **3. Planning and carrying out Investigations:** Planning and carrying out investigations to answer questions (science) or test solutions (engineering) to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**STRUCTURE AND PROPERTIES OF MATTER** Measurements of a variety of properties can be used to identify materials. (UE.PS1A.c)	**SCALE, PROPORTION, AND QUANTITY** Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume.

MATTER AND ITS INTERACTIONS

Performance Expectation	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
Clarification Statement	Examples of interactions forming new substances can include mixing baking soda and vinegar. Examples of interactions not forming new substances can include mixing baking soda and water.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models **3. Planning and carrying out Investigations:** Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**CHEMICAL REACTIONS** When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a)	**CAUSE AND EFFECT** Cause and effect relationships are routinely identified, tested, and used to explain change.

MOTION AND STABILITY: FORCES AND INTERACTIONS

Performance Expectation	Support an argument that the gravitational force exerted by the Earth is directed down.
Clarification Statement	"Down" is a local description of the direction that points toward the center of the spherical Earth. Earth's mass causes objects to have a force on them that points toward the center of the Earth, "down". Support for arguments can be drawn from diagrams, evidence, and data that are provided. This does not include mathematical representation of gravitational force.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out Investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions **7. Engaging in argument from evidence:** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s) • Construct and/or support an argument with evidence, data, and/or a model. 8. Obtaining, evaluating, and communicating information	**TYPES OF INTERACTIONS** The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (UE.PS2B.c)	**CAUSE AND EFFECT** Cause and effect relationships are routinely identified, tested, and used to explain change.

MATTER AND ENERGY IN ORGANISMS AND ECOSYSTEMS

Performance Expectation	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.
Clarification Statement	Examples of models could include diagrams or flowcharts.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. **Developing and using models:** Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. 3. Planning and carrying out Investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE** The energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (UE.PS3D.b) **ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS** Food provides animals with the materials they need for body repair and growth and energy they need to maintain body warmth and for motion. (UE.LS1C.a)	**ENERGY AND MATTER** Energy can be transferred in various ways and between objects.

FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

Performance Expectation	Ask questions about how air and water affect the growth of plants.
Clarification Statement	Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil. The chemical processes of photosynthesis and cellular respiration are not addressed at this grade level.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. **Asking questions and defining problems:** Asking questions (science) and defining problems (engineering) in 3-5 builds on K-2 experiences and progresses to specifying qualitative relationships. • Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. 2. Developing and using models 3. Planning and carrying out Investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS** Plants acquire their material for growth chiefly from air and water. (UE.LS1C.b)	**ENERGY AND MATTER** Matter is transported into, out of, and within systems.

ECOSYSTEMS

Performance Expectation	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Clarification Statement	Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems of the Earth not including molecular explanations.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. **Developing and using models:** Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS** The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. (UE.LS2A.a) Some organisms, such as fungi and bacteria, break down dead organisms and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. (UE.LS2A.b) Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (UE.LS2A.c) Newly introduced species can damage the balance of an ecosystem. (UE.LS2A.d) **CYCLES OF MATTER AND ENERGY TRANSFER IN ECOSYSTEMS** Matter cycles between the air and soil and among plants, animals, decomposers, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (UE.LS2B.a)	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions.

EARTH'S PLACE IN THE UNIVERSE

Performance Expectation	Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.
Clarification Statement	Examples include the relative distances of the stars, but not the sizes. It does not include other factors that affect apparent brightness (such as stellar masses, age, stage).

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions **7. Engaging in argument from evidence:** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). • Construct and/or support an argument with evidence, data, and/or a model. 8. Obtaining, evaluating, and communicating information	**THE UNIVERSE AND ITS STARS** The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (UE.ESS1A.a)	**SCALE, PROPORTION, AND QUANTITY** Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.

EARTH'S PLACE IN THE UNIVERSE

Performance Expectation	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
Clarification Statement	Patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months; not including the causes of the seasons.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations **4. Analyzing and interpreting data:** Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. • Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EARTH AND THE SOLAR SYSTEM** The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include: day and night, daily changes in the length and direction of shadows, and different positions of the sun, moon, and stars at different times of the day, month, and year. (UE.ESS1B.a)	**PATTERNS** Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.

EARTH'S SYSTEMS

Performance Expectation	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
Clarification Statement	Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. **Developing and using models:** Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**EARTH MATERIALS AND SYSTEMS** Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (UE.ESS2A.b)	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions.

EARTH'S SYSTEMS

Performance Expectation	Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
Clarification Statement	Examples include oceans, lakes, rivers, glaciers, ground water, and polar ice caps.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data **5. Using mathematics and computational thinking:** Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. • Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems. 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES** Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (UE.ESS2C.a) Liquid water can become the gas form of water (water vapor) and liquid water can become a solid as ice. (UE.ESS2C.b)	**SCALE, PROPORTION, AND QUANTITY** Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume.

EARTH AND HUMAN ACTIVITY

Performance Expectation	Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment.
Clarification Statement	Examples of solutions can include cleanup of oil spills, protecting against coastal erosion, or prevention of polluted runoff into waterways.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations (science) and designing solutions (engineering) in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. • Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	**HUMAN IMPACTS ON EARTH SYSTEMS** Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean and the atmosphere. But individuals and communities are doing things to help protect Earth's resources and environments. (UE.ESS3C.a) **DEVELOPING POSSIBLE SOLUTIONS** Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (ETS.UE.1B.c)	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions.