

Massachusetts Department of Elementary and Secondary Education

Prerequisite Content Standards: Elementary Grades (K-5)

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement as an integral part of opposed to advancing new concepts.

Kindergarten

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. With prompting and support, ask and answer questions about key details in a text

Reading Literature [RL]

2. With prompting and support, retell familiar stories, including key details.
3. With prompting and support, identify characters, settings, and major events in a story.

Reading Informational [RI]

2. With prompting and support, identify the main topic and retell key details of a text.
8. With prompting and support, identify the reasons an author gives to support points in a text.

Reading Foundational Skills [RF]

1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
 - b. Recognize that spoken words are represented in written language by specific sequences of letters.
 - c. Understand that words are separated by spaces in print.
 - d. Recognize and name all upper- and lowercase letters of the alphabet.
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
 - a. Recognize and produce rhyming words.
 - b. Count, pronounce, blend, and segment syllables in spoken words.
 - c. Blend and segment onsets and rimes of single-syllable spoken words.
 - d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words.¹ (This does not include CVCs ending with /l/, /r/, or /x/.)

¹ Words, syllables, or phonemes written in /slashes/ refer to their pronunciation or phonology. Thus, /CVC/ is a word with three phonemes regardless of the number of letters in the spelling of the word.

Pre-Requisite Mathematics for Success in the Following Grade

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant.
 - b. Associate the long and short sounds with common spellings (graphemes) for the five major vowels.
 - c. Read common high-frequency words by sight (e.g., *the, of, to, you, she, my, is, are, do, does*).
 - d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.

Writing [W]

1. Use a combination of drawing, dictating, and writing to compose opinion pieces that tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., *My favorite book is...*).
2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts that name and supply some information about a topic.

Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned previously.

Sentence Structure and Meaning

 - a. Demonstrate the ability to produce and expand complete sentences using frequently occurring nouns, pronouns, adjectives, verbs, question words, and prepositions; name and use in context numbers 0–100 (see kindergarten mathematics standards for Counting and Cardinality).
 - b. Form questions that seek additional information, rather than a simple *yes/no* answer.

Word Usage

 - c. Form regular plural nouns orally by adding */s/* or */es/*.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Print upper- and lowercase letters.
 - b. Capitalize the first word in a sentence and the pronoun *I*.
 - c. Recognize and name end punctuation.
 - d. Write a letter or letters for most consonant and short-vowel sounds (phonemes).
 - e. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
 - f. Write numbers 0–20 (see kindergarten mathematics standards for Counting and Cardinality).
6. Use words and phrases acquired through conversations, activities in the kindergarten curriculum, reading and being read to, and responding to texts.

Mathematics

Counting and Cardinality

K.CC

A. Know number names and the count sequence.

1. Count to 100 by ones and by tens.
2. Count forward beginning from a given number within the known sequence (instead of having to begin at one).
3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).

B. Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality.
 - a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - c. Understand that each successive number name refers to a quantity that is one larger. Recognize the one more pattern of counting using objects.
5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

C. Compare numbers.

6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group for groups with up to 10 objects, e.g., by using matching and counting strategies.
7. Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking

K.OA

A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

1. Represent addition and subtraction with objects, fingers, mental images, drawings,² sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
5. Fluently add and subtract within 5, including zero.

² Drawings need not show details, but should show the mathematics in the problem.

Pre-Requisite Mathematics for Success in the Following Grade

Number and Operations in Base Ten

K.NBT

A. Work with numbers 11–19 to gain foundations for place value.

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data

K.MD

A. Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Geometry

K.G

B. Analyze, compare, create, and compose shapes.

5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Science and Technology/Engineering

Earth and Space Sciences

K-ESS

K-ESS2-1. Use and share quantitative observations of local weather conditions to describe patterns over time.

Life Science

K-LS

K-LS1-1. Observe and communicate that animals (including humans) and plants need food, water, and air to survive. Animals get food from plants or other animals. Plants make their own food and need light to live and grow.

Physical Science

K-PS

K-PS1-1(MA). Investigate and communicate the idea that different kinds of materials can be solid or liquid depending on temperature.

K-PS2-1. Compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

History and Social Science

Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

Content Topic 1: Civics: classroom citizenship [K.T1]

2. Take on responsibilities and follow through on them, being helpful to and respectful of others

Pre-Requisite Mathematics for Success in the Following Grade

3. With prompting and support, give examples from literature and informational texts read or read aloud of characters who show authority, fairness, caring, justice, responsibility, or who show how rules are created and followed.
4. Ask and answer questions and explore books to gain information about national symbols, songs, and texts of the United States.

Content Topic 3: History: shared traditions [K.T3]

2. Contrast and compare traditions and celebrations of peoples with diverse cultural backgrounds.
3. Put events from their personal lives, observations of the natural world, and from stories and informational texts read or read aloud in temporal order, using words and phrases relating to chronology and time:

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Grade 1

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. Ask and answer questions about key details in a text.
10. With prompting and support, read and comprehend texts exhibiting complexity appropriate for at least grade 1.

Reading Literature [RL]

2. Retell stories, including key details, and demonstrate understanding of their central message or lesson.
3. Describe characters, settings, and major events in a story, using key details.

Reading Informational [RI]

2. Identify the main topic and retell key details of a text
3. Describe the connection between two individuals, events, ideas, or pieces of information in a text.
8. Identify the reasons an author gives to support points in a text.

Reading Foundational Skills [RF]

1. Demonstrate understanding of the organization and basic features of print.
 - a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
 - a. Distinguish long from short vowel sounds in spoken single-syllable words.
 - b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends.
 - c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.
 - d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Know the spelling-sound correspondences for common consonant digraphs.
 - b. Decode regularly spelled one-syllable words.
 - c. Know final -e and common vowel team conventions for representing long vowel sounds.

Pre-Requisite Mathematics for Success in the Following Grade

- d.** Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.
- e.** Decode two-syllable words following basic patterns by breaking the words into syllables.
- f.** Read words with inflectional endings.
- g.** Recognize and read grade-appropriate irregularly spelled words.

Writing [W]

- 1.** Write opinion pieces that introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
- 2.** Write informative/explanatory texts that name a topic, supply some facts about the topic, and provide some sense of closure.
- 4.** Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3)

Language [L]

- 1.** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades.
Sentence Structure and Meaning
 - a.** Produce and expand simple and compound sentences.
 - b.** Demonstrate understanding that a question is a type of sentence.
 - c.** Use singular and plural nouns with matching verbs in sentences.
 - d.** Use verbs in sentences to convey a sense of past, present, and future.*Word Usage*
 - e.** Use common, proper, and possessive nouns.
 - f.** Use personal, possessive, and indefinite pronouns.
 - g.** Use frequently occurring prepositions, adjectives, adverbs, conjunctions, and articles.
- 2.** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a.** Print legibly all upper- and lowercase letters.
 - b.** Use end punctuation for sentences.
 - c.** Capitalize the names of months and people.
 - d.** Use commas in dates and to separate individual words in a series.
 - e.** Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.
 - f.** Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.
 - g.** Write numerals up to 120 (see grade 1 mathematics standards for Numbers and Operations in Base Ten); understand that numbers are also written as words; write words for numbers from one to ten.
- 6.** Use words and phrases acquired through conversations, activities in the grade 1 curriculum, reading and being read to, and responding to texts, including using frequently occurring conjunctions (e.g., *because*) to signal simple relationships.

Pre-Requisite Mathematics for Success in the Following Grade

Mathematics

Operations and Algebraic Thinking

1.OA

A. Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations (number sentences) with a symbol for the unknown number to represent the problem.³

B. Understand and apply properties of operations and the relationship between addition and subtraction.

3. Apply properties of operations to add.⁴
4. Understand subtraction as an unknown-addend problem. *For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.*

C. Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use mental strategies such as counting on; making 10 (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a 10 (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

D. Work with addition and subtraction equations.

7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.

Number and Operations in Base Ten

1.NBT

A. Extend the counting sequence.

1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

B. Understand place value.

2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
 - a. 10 can be thought of as a bundle of ten ones—called a “ten.”
 - b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
 - c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

C. Use place value understanding and properties of operations to add and subtract.

7. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

³ See Glossary, Table 1.

⁴ Students need not use formal terms for these properties.

Pre-Requisite Mathematics for Success in the Following Grade

Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

Measurement and Data

1.MD

A. Measure lengths indirectly and by iterating length units.

1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.
2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Geometry

1.G

A. Reason with shapes and their attributes.

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes that possess defining attributes.

Science and Technology/Engineering

Earth and Space Sciences

1-ESS

1-ESS1-2. Analyze provided data to identify relationships among seasonal patterns of change, including relative sunrise and sunset time changes, seasonal temperature and rainfall or snowfall patterns, and seasonal changes to the environment.

Life Science

1-LS

1-LS1-1. Use evidence to explain that (a) different animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air, and (b) plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.

Physical Science

1-PS

1-PS4-1. Demonstrate that vibrating materials can make sound and that sound can make materials vibrate.

1-PS4-3. Conduct an investigation to determine the effect of placing materials that allow light to pass through them, allow only some light through them, block all the light, or redirect light when put in the path of a beam of light.

History and Social Science

Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

Content Topic 1: Civics: communities, elections, and leadership [1.T1]

4. Analyze examples of leadership and leaders from history, everyday life, and from literature and informational texts read or read aloud, and describe the qualities of a good leader.
5. Give examples of why members of a group who hold different views need ways to make decisions, and explain how members of a group can make fair decisions or choose leaders by voting.
6. Explain that an election is a kind of voting in which people select leaders. For example, students connect their discussion of leadership qualities to the idea of elections, listing the qualities they would look for in a candidate for election.
7. Identify some leaders who are chosen by elections (e.g., the President of the United States, the Governor of Massachusetts, the captain of a soccer team) and explain their roles.
8. Demonstrate understanding that members of a town, city, or nation in the United States are called citizens, and that their rights and responsibilities include
 - a. electing leaders who serve fixed terms
 - b. paying attention to the leader's actions, and
 - c. deciding whether or not to re-elect them on the basis of how well they have served citizens.
9. Explain that all people born in the United States are citizens, while some people become citizens after moving to the United States from another country. Understand that some residents of the United States are not citizens, but are still members of the community with rights and responsibilities.
10. Evaluate the qualities of a good citizen or member of the community, drawing on examples from history, literature, informational texts, news reports, and personal experiences.

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Grade 2

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
10. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 2.

Reading Literature [RL]

2. Retell stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3. Describe how characters in a story respond to major events and challenges.

Reading Informational [RI]

2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
3. Describe the connection between a series of historical events, scientific ideas or concepts, mathematical ideas or concepts, or steps in technical procedures in a text.
8. Describe how reasons support specific points the author makes in a text.

Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Distinguish long and short vowels when reading regularly spelled one-syllable words.
 - b. Know spelling-sound correspondences for additional common vowel teams.
 - c. Decode regularly spelled two-syllable words with long vowels.
 - d. Decode words with common prefixes and suffixes.
 - e. Identify words with inconsistent but common spelling-sound correspondences.
 - f. Recognize and read grade-appropriate irregularly spelled words.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.
 - b. Read grade-level text 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.

Pre-Requisite Mathematics for Success in the Following Grade

Writing [W]

1. Write opinion pieces that introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because*, *and*, *also*) to connect opinion and reasons, and provide a concluding statement or section.
2. Write informative/explanatory texts that introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section
4. Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3)

Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades.

Sentence Structure and Meaning

- a. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences and choose among sentence types depending on the meaning to be conveyed.
- b. Use adjectives and adverbs in sentences and choose between them depending on what is to be modified.

Word Usage

- c. Use collective nouns and frequently occurring irregular plural nouns.
- d. Use reflexive pronouns.
- e. Form and use the past tense of frequently occurring irregular verbs.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Print upper- and lowercase letters legibly and fluently.
 - b. Capitalize holidays, product names, and geographic names.
 - c. Use commas in greetings and closings of letters.
 - d. Use an apostrophe to form contractions and frequently occurring possessives.
 - e. Generalize learned spelling patterns when writing words (e.g., *cage* → *badge*; *boy* → *boil*).
 - f. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
 - g. Demonstrate understanding that context determines whether the writer uses a numeral or a written number (e.g., numerals in $1 + 3 = 4$, but written words in “When I was one, I was just begun, / When I was two, I was still quite new” from A. A. Milne’s poem “Now We Are Six”).
6. Use words and phrases acquired through conversations, activities in the grade 2 curriculum, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.

Mathematics

Operations and Algebraic Thinking

2.OA

A. Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.⁵

B. Add and subtract within 20.

2. Fluently add and subtract within 20 using mental strategies.⁶ By end of grade 2, know from memory all sums of two single-digit numbers and related differences.

C. Work with equal groups of objects to gain foundations for multiplication.

4. Use addition to find the total number of objects arranged in rectangular arrays with up to five rows and up to five columns; write an equation to express the total as a sum of equal addends.

Number and Operations in Base Ten

2.NBT

A. Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
 - a. 100 can be thought of as a bundle of ten tens—called a “hundred.”
 - b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2. Count within 1,000; skip-count by 5s, 10s, and 100s. Identify patterns in skip counting starting at any number.
3. Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.

B. Use place value understanding and properties of operations to add and subtract.

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
7. Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
9. Explain why addition and subtraction strategies work, using place value and the properties of operations.⁷

Measurement and Data

2.MD

A. Measure and estimate lengths in standard units.

⁵ See Glossary, Table 1.

⁶ Strategies such as counting on; making tens; decomposing a number; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.

⁷ Explanations may be supported by drawings or objects.

Pre-Requisite Mathematics for Success in the Following Grade

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

B. Relate addition and subtraction to length.

5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

Geometry

2.G

A. Reason with shapes and their attributes.

9. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.⁸ Identify triangles, squares, rectangles, rhombuses, trapezoids, pentagons, hexagons, and cubes.

Science and Technology/Engineering

Earth and Space Sciences

2-ESS

2-ESS2-4(MA). Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of a landform.

Life Science

2-LS

2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

Physical Science

2-PS

2-PS1-2. Test different materials and analyze the data obtained to determine which materials have the properties that are best suited for an intended purpose.*

2-PS3-1(MA). Design and conduct an experiment to show the effects of friction on the relative temperature and speed of objects that rub against each other.

History and Social Science

Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

Content Topic 2: Geography and its effect on people [2.T1]

1. On a map of the world and on a globe, locate all the continents and some major physical characteristics on each continent (e.g., lakes, seas, bays, rivers and tributaries, mountains and mountain ranges, and peninsulas, deserts, plains).
2. On a map of the world and on a globe, locate the oceans of the world, and explain the importance of oceans and how they make the world habitable.

⁸ Sizes are compared directly or visually, not compared by measuring.

Pre-Requisite Mathematics for Success in the Following Grade

Content Topic 3: History: Migrations and cultures [2.T3]

1. Investigate reasons why people migrate (move) to different places around the world, recognizing that some migration is voluntary, some forced (e.g., refugees, people driven from their homelands, enslaved people)
2. Identify what individuals and families bring with them (e.g., memories, cultural traits, goods, ideas, and languages or ways of speaking) when they move to a different place and identify the significant impacts of migration; identify elements that define the culture of a society (e.g., language, literature, arts, religion, traditions, customs); explain how the community is enriched by contributions from all the people who form it today.

Content Topic 4: Civics in the context of geography: countries and governments [2.T4]

3. Locate and analyze information and present a short research report on the physical features, resources, and people of a country outside the United States.

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Grade 3

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
10. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 3.

Reading Literature [RL]

2. Retell stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in a text.
3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
4. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from figurative language.

Reading Informational [RI]

2. Determine the main idea of a text; recount the key details and explain how they support the main idea.
3. Describe the relationship between a series of historical events, scientific ideas or concepts, mathematical ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect
8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).

Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Identify and know the meaning of the most common prefixes and derivational suffixes.
 - b. Decode words with common Latin suffixes.
 - c. Decode multisyllable words.
 - d. Read grade-appropriate irregularly spelled words.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

Pre-Requisite Mathematics for Success in the Following Grade

- b.** Read grade-level prose 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 [W]

- 1.** Write opinion pieces on topics or texts, supporting an opinion with reasons.
 - a.** Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.
 - b.** Provide reasons that support the opinion.
 - c.** Use linking words and phrases (e.g., *because, therefore, since, for example*) to connect opinion and reasons.
 - d.** Provide a concluding statement or section.
- 2.** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - a.** Introduce a topic and group-related information together; include illustrations when useful to aiding comprehension.
 - b.** Develop the topic with facts, definitions, and details.
 - c.** Use linking words and phrases (e.g., *also, another, and, more, but*) to connect ideas within categories of information.
 - d.** Provide a concluding statement or section.
- 4.** Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3).

Language [L]

- 1.** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades.

Sentence Structure and Meaning

 - a.** Produce, expand, and rearrange complete simple, compound, and complex sentences.
 - b.** Ensure subject-verb and pronoun-antecedent agreement.⁹
 - c.** Use verbs in the present, past, and future tenses and choose among them depending on the overall meaning of the sentence.
 - d.** Use coordinating and subordinating conjunctions and choose between them depending on the overall meaning of the sentence.
 - e.** Form and use comparative and superlative adjectives and adverbs and choose between them depending on what is to be modified and the overall meaning of the sentence.

Word Usage

 - f.** Use abstract nouns.
 - g.** Form and use regular and irregular plural nouns and the past tense of regular and irregular verbs.

⁹ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K–5 resource section in this Framework.

Pre-Requisite Mathematics for Success in the Following Grade

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Write legibly and fluently by hand, using either printing or cursive handwriting.
 - b. Capitalize appropriate words in titles.
 - c. Use commas in addresses.
 - d. Use commas and quotation marks in dialogue.
 - e. Form and use possessives.
 - f. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*).
 - g. Demonstrate understanding that numerals used at the beginning of a sentence are written as words and capitalized (e.g., “Three pandas could be seen eating leaves high in the bamboo grove.”).
 - h. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
 - i. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases,⁸ including those that signal spatial and temporal relationships.

Mathematics

Operations and Algebraic Thinking

3.OA

A. Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in five groups of seven objects each.
2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.¹⁰
4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

B. Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of operations to multiply.¹¹
6. Understand division as an unknown-factor problem.

C. Multiply and divide within 100.

7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of

¹⁰ See Glossary, Table 2.

¹¹ Students need not use formal terms for these properties. Students are not expected to use distributive notation.

Pre-Requisite Mathematics for Success in the Following Grade

operations. By the end of grade 3, know from memory all products of two single-digit numbers and related division facts.

Number and Operations in Base Ten

3.NBT

A. Use place value understanding and properties of operations to perform multi-digit arithmetic.

¹²

2. Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Number and Operations—Fractions

3.NF

A. Develop understanding of fractions as numbers for fractions with denominators 2, 3, 4, 6, and 8.

1. Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole (a single unit) is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
 - a. Represent a unit fraction, $\frac{1}{b}$, on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the fraction $\frac{1}{b}$ is located $\frac{1}{b}$ of a whole unit from 0 on the number line.
 - b. Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
 - a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
 - b. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
 - c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
 - d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Measurement and Data

3.MD

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

7. Relate area to the operations of multiplication and addition.

¹² A range of algorithms may be used.

Pre-Requisite Mathematics for Success in the Following Grade

- a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
- b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
- c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
- d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.

Geometry

3.G

A. Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Compare and classify shapes by their sides and angles (right angle/non-right angle). Recognize rhombuses, rectangles, squares, and trapezoids as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Science and Technology/Engineering

Earth and Space Sciences

3-ESS

3-ESS2-2. Obtain and summarize information about the climate of different regions of the world to illustrate that typical weather conditions over a year vary by region.

Life Science

3-LS

3-LS3-1. Provide evidence, including through the analysis of data, that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals within the same species may provide advantages to these individuals in their survival and reproduction.

Physical Science

3-PS

3-PS2-1. Provide evidence to explain the effect of multiple forces, including friction, on an object. Include balanced forces that do not change the motion of the object and unbalanced forces that do change the motion of the object.

History and Social Science

Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topics 5 and 6 are identified here with the assumption that earlier Topics were introduced earlier in the year.

Content Topic 5: The Puritans, the Massachusetts Bay Colony, Native Peoples, and Africans [3.T5]

4. Explain that in the 17th and 18th century slavery was legal in all the French, Dutch, and Spanish, and English colonies, including Massachusetts and that colonial Massachusetts had both free and enslaved Africans in its population.

Content Topic 6: Massachusetts in the 18th century through the American Revolution [3.T6]

2. Analyze the connection between events, locations, and individuals in Massachusetts in the early 1770s and the beginning of the American Revolution, using sources such as historical maps, paintings, and texts of the period.
4. Explain how, after the Revolution, the leaders of the new United States had to write a plan for how to govern the nation, and that this plan is called the Constitution. Explain that the rights of citizens are spelled out in the Constitution's first ten Amendments, known as the Bill of Rights; explain that full citizenship rights were restricted to white male property owners over the age of 21 in the new Republic.

Pre-Requisite Mathematics for Success in the Following Grade

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement as an integral part of opposed to advancing new concepts.

Grade 4

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
10. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 4.

Reading Literature [RL]

2. Determine a theme of a story, drama, or poem from details in the text; summarize a text.
3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
4. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean); explain how figurative language (e.g., simile, metaphor) enriches a text.

Reading Informational [RI]

2. Determine the main idea of a text and explain how it is supported by key details; summarize a text.
3. Explain events, procedures, ideas, or concepts in a historical, scientific, mathematical, or technical text, including what happened and why, based on specific information in the text.
8. Explain how an author uses reasons and evidence to support particular points in a text.

Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.
 - b. Read grade-level prose 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.

Pre-Requisite Mathematics for Success in the Following Grade

Writing [W]

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 related ideas are grouped in paragraphs and sections to support the writer's purpose.
 - b. Provide reasons that are supported by facts and details.
 - c. Link opinion and reasons using words and phrases (e.g., *for instance, in order to, in addition*).
 - 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 and group related information in paragraphs and sections; include text features (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 categories of information using words and phrases (e.g., *another, for example, also, because*).
 - 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.
4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3)

Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 4 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)

Sentence Structure and Meaning

 - a. Produce complete sentences, using knowledge of subject and predicate to recognize and correct inappropriate sentence fragments and run-on sentences.¹³
 - b. Correctly use frequently confused words (e.g., *their/there*).
 - c. Use helping verbs, also known as auxiliaries (e.g., *can, may, might, should*), to convey various conditions of possibility, likelihood, obligation, or permission, choosing among helping verbs depending on the overall meaning of the sentence.
 - d. Use relative pronouns and relative adverbs to add more information about a noun or verb used in a sentence.

¹³ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K–5 resource section in this Framework.

Pre-Requisite Mathematics for Success in the Following Grade

- e. Form and use prepositional phrases in sentences to add more information about qualities such as location, time, agency, and direction.

Word Usage

- f. Form and use progressive verb tenses.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Write legibly and fluently by hand, using either printing or cursive handwriting; write their given name signature in cursive.
 - b. Use correct capitalization.
 - c. Use commas and quotation marks to mark direct speech and quotations from a text.
 - d. Use a comma before a coordinating conjunction in a compound sentence.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
 6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., *quizzed, whined, stammered*) and that are basic to a particular topic

Mathematics

Operations and Algebraic Thinking

4.OA

A. Use the four operations with whole numbers to solve problems.

2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.¹⁴
3. Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
 - a. Know multiplication facts and related division facts through 12×12 .

Number and Operations in Base Ten

4.NBT

A. Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.

2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

B. Use place value understanding and properties of operations to perform multi-digit arithmetic on whole numbers less than or equal to 1,000,000.

4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

¹⁴ See Glossary, Table 2.

Pre-Requisite Mathematics for Success in the Following Grade

Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Number and Operations—Fractions

4.NF

A. Extend understanding of fraction equivalence and ordering for fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

1. Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{(n \times a)}{(n \times b)}$ by using visual fraction models, with attention to how the numbers and sizes of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.
2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers for fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

3. Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.
 - a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (The whole can be a set of objects.)
 - b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using drawings or visual fraction models. *Examples:* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + \frac{1}{8} = \frac{8}{8} + \frac{1}{8} + \frac{1}{8}$.
 - c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
 - d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.

C. Understand decimal notation for fractions, and compare decimal fractions.

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.¹⁵
6. Use decimal notation to represent fractions with denominators 10 or 100.
7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

¹⁵ Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

Measurement and Data

4.MD

A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

1. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
2. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

Geometry

4.G

A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Science and Technology/Engineering

Earth and Space Sciences

4-ESS

4-ESS2-1. Make observations and collect data to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering and moved around through erosion.

Life Science

4-LS

4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.

Physical Science

4-PS

4-PS3-2. Make observations to show that energy can be transferred from place to place by sound, light, heat, and electric currents.

4-PS4-2. Develop a model to describe that light must reflect off an object and enter the eye for the object to be seen.

History and Social Science

Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topic 4 are identified here with the assumption that earlier Topics were introduced earlier in the year.

Content Topic 4: The Expansion of the United States over time and its regions today [4.T4]

3. Explain that many different groups of people immigrated to the United States from other places voluntarily and some were brought to the United States against their will (as in the case of people of Africa).
4. Show understanding that in the middle of the 19th century, the people of the United States were deeply divided over the question of slavery and its expansion into newly settled parts of the West, which led to the Civil War from 1861 to 1865.

Content Topic 4a: The Northeast [4.T4a]

1. On a political map of the United States, locate the states in the Northeast.
5. Describe the diverse cultural nature of the region, including contributions of Native Peoples (e.g., Wampanoag, Iroquois, Abenaki), Africans, Europeans (e.g., the early settlements of the Dutch in New York, French near Canada, Germans in Pennsylvania, the English in Massachusetts, Rhode Island, Connecticut, Vermont and New Hampshire, subsequent 19th and early 20th century immigration by groups such as Irish, Italian, Portuguese, and Eastern Europeans) and various other immigrant groups from other regions of the world in the later 20th and 21st centuries (e.g., Puerto Ricans, Dominicans, Mexicans, Salvadorans, Colombians, Guatemalans, Brazilians, Haitians, Vietnamese, Cambodians, Chinese, Indians, and Somalis).

The Southeast, Midwest, Southwest, and West [4.T4b-e]

1. On a political map of the United States, locate the states in the Southeast, Midwest, Southwest, and West.
5. Describe the diverse cultural nature of the region.

Pre-Requisite Mathematics for Success in the Following Grade

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement as an integral part of opposed to advancing new concepts.

Grade 5

English Language Arts and Literacy

Reading Literature *and* Informational [RL/RI]

1. Quote or paraphrase a text accurately when explaining what the text states explicitly and when drawing inferences from the text. (See grade 5 Writing Standard 8 for more on paraphrasing.)
10. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 5.

Reading Literature [RL]

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 a 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).
4. Determine the meaning of words and phrases as they are used in a text; identify and explain the effects of figurative language such as metaphors and similes.

Reading Informational [RI]

2. Determine one or more main ideas of a text and explain how they are supported by key details; summarize a text.
3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, mathematical, or technical text based on specific information in the text.
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).

Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

Pre-Requisite Mathematics for Success in the Following Grade

- b.** Read grade-level prose 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 [W]

- 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 in paragraphs and sections 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 in paragraphs and sections; include text features (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.
- 4.** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3.)
- 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.

Language [L]

- 1.** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 5 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)

Sentence Structure and Meaning

 - a.** Use verb tense to convey various times, sequences, states, and conditions, choosing among verb tenses depending on the overall meaning of the sentence.

Pre-Requisite Mathematics for Success in the Following Grade

- b. Recognize and correct inappropriate shifts in verb tense.¹⁶
- c. Use active and passive verbs, choosing between them depending on the overall meaning of the sentence.

Word Usage

- d. Form and use perfect verb tenses.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- a. Write legibly and fluently by hand, using either print or cursive handwriting; write their given and family name signature in cursive.
 - b. Use punctuation to separate items in a series.¹⁷
 - c. Use a comma to separate an introductory element from the rest of the sentence.
 - d. 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?*).
 - e. Use underlining, quotation marks, or italics to indicate titles of works.
 - f. Spell grade-appropriate words correctly, consulting references as needed.
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

Number and Operations in Base Ten

5.NBT

A. Understand the place value system.

- 1. Recognize that in a multi-digit number, including decimals, a digit in any place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.
- 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.,
 $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (\frac{1}{10}) + 9 \times (\frac{1}{100}) + 2 \times (\frac{1}{1000})$.
 - b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

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

- 5. Fluently multiply multi-digit whole numbers. (Include two-digit \times four-digit numbers and, three-digit \times three-digit 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, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

¹⁶ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K–5 resource section in this Framework.

¹⁷ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K–5 resource section in this Framework.

Pre-Requisite Mathematics for Success in the Following Grade

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 and between multiplication and division; relate the strategy to a written method and explain the reasoning used.

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.
2. Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

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 ($\frac{a}{b} = a \div b$). 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.
4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - a. Interpret the product $\frac{a}{b} \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.
 - b. 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. 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); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{n \times a}{n \times b}$ to the effect of multiplying $\frac{a}{b}$ 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.

Measurement and Data

5.MD

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.

Pre-Requisite Mathematics for Success in the Following Grade

- 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 which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

Geometry

5.G

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.
4. Classify two-dimensional figures in a hierarchy based on properties.

Science and Technology/Engineering

Earth and Space Sciences

5-ESS

5-ESS1-2. Use a model to communicate Earth’s relationship to the Sun, Moon, and other stars that explain (a) why people on Earth experience day and night, (b) patterns in daily changes in length and direction of shadows over a day, and (c) changes in the apparent position of the Sun, Moon, and stars at different times during a day, over a month, and over a year.

5-ESS2-1. Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation.

Life Science

5-LS

5-LS1-1. Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction.

5-LS2-1. Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil.

Physical Science

5-PS

5-PS1-1. Use a particle model of matter to explain common phenomena involving gases, and phase changes between gas and liquid and between liquid and solid.

History and Social Science

Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topic 5 are identified here with the assumption that earlier Topics were introduced earlier in the year. It is critical students learn about the historical significance and lasting impact of slavery on our nation through effective instruction, which approaches the content consciously, critically, and carefully, with attention paid to context and point of view.

Content Topic 5: Slavery, the legacy of the Civil War and the struggle for civil rights for all [5.T5]

2. Identify the major reasons for the Civil War (e.g., slavery, political and economic competition in Western territories, the emergence of the Republican Party) and the war's most important outcomes (e.g., end of slavery, Reconstruction, expanded role of the federal government, industrial growth in the North).
3. Explain the ideas and roles of some of the people of the pre-Civil War era who led the struggle against slavery (abolitionism) and for voting and property rights for African Americans (e.g., Harriet Tubman, Nat Turner, Sojourner Truth, Frederick Douglass, William Lloyd Garrison, Harriet Beecher Stowe).
7. Explain the consequences of the Emancipation Proclamation and the 13th, 14th, and 15th Amendments for the rights of African Americans. a. advocacy for women's rights surrounding the passage of the 14th and 15th Amendments and its relationship to the later movement for women's rights b. women's attainment of the right to vote with the passage of the 19th Amendment of 1920
8. Describe living conditions for African Americans following the Civil War, during the Jim Crow era, including limited educational and economic opportunities, separate public facilities (e.g., segregated schools and colleges, neighborhoods, sections in buses, trains, restaurants, and movie theaters), the organized perpetuation of white supremacist beliefs and the threat of violence from extra-legal groups such as the Ku Klux Klan. Describe the role African American churches, civic organizations, and newspapers played in supporting and unifying African American communities. Research and analyze one of the people, organizations, events, or legislative acts from the 20th century that contributed to expanding civil rights of African Americans, women, and others in the United States.
9. Explain how the 20th century African American Civil Rights movement served as a model for other movements for civil rights (e.g., the second phase of the women's movement in the 1960s and 1970s, the disability rights movement, the LGBTQ movement).