

California's
COMMON CORE
Content Standards for
ELA and Mathematics
Fourth Grade

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READING STANDARDS

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 gradespecific standards and retain or further develop skills and understandings mastered in preceding grades.

LITERATURE

Key Ideas and Details

3RD

1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

2. Recount 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 the 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.

4TH

1. Refer to details and examples in 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; summarize the 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).

5TH

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, distinguishing literal from nonliteral language.

5. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.

6. Distinguish their own point of view from that of the narrator or those of the characters.

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).

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. Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.

4. Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes. (See grade 5 Language standards 4-6 on page 22 for additional expectations.)

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.

READING STANDARDS

3RD

4TH

5TH

Integration of Knowledge and Ideas

7. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).

7. Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.

7. Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).

8. (Not applicable to literature)

8. (Not applicable to literature)

8. (Not applicable to literature)

9. Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).

9. Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.

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 Level & 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 2–3 text complexity band independently and proficiently.

10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

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

INFORMATIONAL TEXT

Key Ideas and Details

3RD

1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

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, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

4TH

1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.

3. Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

5TH

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 3 topic or subject area.

5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.

6. Distinguish their own point of view from that of the author of a text.

4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

6. Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

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. (See grade 5 Language standards 4-6 on page 22 for additional expectations.)

5. Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

6. Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

READING STANDARDS

3RD

4TH

5TH

Integration of Knowledge and Ideas

7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

7. Draw on 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. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).

8. Explain how an author uses reasons and evidence to support particular points in a 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).

9. Compare and contrast the most important points and key details presented in two texts on the same topic.

9. Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

9. Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Range of Reading & 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 2–3 text complexity band independently and proficiently.

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

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

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.

FOUNDATIONAL SKILLS

Phonics & Word Recognition

3RD

3. Know and apply grade-level phonics and word analysis skills in decoding words both in isolation and in text.
- Identify and know the meaning of the most common prefixes and derivational suffixes.
 - Decode words with common Latin suffixes.
 - Decode multisyllabic words.
 - Read grade-appropriate irregularly spelled words.

4TH

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

5TH

3. Know and apply grade-level phonics and word analysis skills in decoding words.
- Use combined knowledge of all lettersound 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.
- Read on-level text with purpose and understanding.
 - Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
 - Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

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

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

WRITING STANDARDS

The following standards for K–5 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. The expected growth in student writing ability is reflected both in the standards themselves and in the collection of annotated student writing samples in Appendix C.

WRITING

Text Types & Purposes

3RD

1. Write opinion pieces on topics or texts, supporting a point of view 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.

4TH

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 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 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 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.

5TH

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.

WRITING STANDARDS

3RD

4TH

5TH

Text Types & Purposes (continued)

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

- a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.
- b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.
- c. Use temporal words and phrases to signal event order.
- d. Provide a sense of closure.

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 dialogue and description to develop experiences and events or show the responses of characters to situations.
- c. Use a variety of transitional words and phrases 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.

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 & Distribution of Writing

4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

4. Produce clear and coherent writing (including multiple-paragraph texts) 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 above.)

4. Produce clear and coherent writing (including multiple-paragraph texts) 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 above.)

5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 3 on pages 18-19 and 20-21.)

5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 4.)

5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 5 on pages 18-19 and 20-21.)

WRITING STANDARDS

3RD

6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.

4TH

6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.

5TH

6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

Research to Build & Present Knowledge

7. Conduct short research projects that build knowledge about a topic.

7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic

8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes, paraphrase, and categorize information, and provide a list of sources.

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. (Begins in grade 4)

9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

a. Apply grade 4 Reading standards to literature (e.g., "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].").

b. Apply grade 4 Reading standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").

9. Draw evidence from 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 standards 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.

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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 & LISTENING

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.

3RD

4TH

5TH

Comprehension & Collaboration

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 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 (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
 - d. Explain their own ideas and understanding in light of the discussion.

2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 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 to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
 - d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

3. Identify the reasons and evidence a speaker or media source provides to support particular points.

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

3. Summarize the points a speaker or media source makes and explain how each claim is supported by reasons and evidence, and identify and analyze any logical fallacies.

SPEAKING & LISTENING

3RD

4TH

5TH

Presentation of Knowledge & Ideas

4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

- a. Plan and deliver an informative/explanatory presentation on a topic that: organizes ideas around major points of information, follows a logical sequence, includes supporting details, uses clear and specific vocabulary, and provides a strong conclusion.

4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

- a. Plan and deliver a narrative presentation that: relates ideas, observations, or recollections; provides a clear context; and includes clear insight into why the event or experience is memorable.

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.

- a. Plan and deliver an opinion speech that: states an opinion, logically sequences evidence to support the speaker's position, uses transition words to effectively link opinions and evidence (e.g., consequently and therefore), and provides a concluding statement related to the speaker's position.
- b. Memorize and recite a poem or section of a speech or historical document using rate, expression, and gestures appropriate to the selection.

5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.

5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

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. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on for specific expectations.)

6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards for specific expectations.)

6. Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3 on pages 20 and 21 for specific expectations.)

LANGUAGE STANDARDS

The following standards for grades K–5 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. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

3RD

4TH

5TH

Conventions of Standard English

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Write legibly in cursive or joined italics, allowing margins and correct spacing between letters in a word and words in a sentence.
 - b. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.
 - c. Use reciprocal pronouns correctly.
 - d. Form and use regular and irregular plural nouns.
 - e. Use abstract nouns (e.g., childhood).
 - f. Form and use regular and irregular verbs.
 - g. Form and use the simple (e.g., I walked; I walk; I will walk) verb tenses.
 - h. Ensure subject-verb and pronoun-antecedent agreement.*
 - i. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
 - j. Use coordinating and subordinating conjunctions.
 - k. Produce simple, compound, and complex sentences.

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Write fluidly and legibly in cursive or joined italics.
 - b. Use interrogative, relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why).
 - c. Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses.
 - d. Use modal auxiliaries (e.g., can, may, must) to convey various conditions.
 - e. Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag).
 - f. Form and use prepositional phrases.
 - g. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.*
 - h. Correctly use frequently confused words (e.g., to, too, two; there, their).*

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).

LANGUAGE STANDARDS

3RD

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- Capitalize appropriate words in titles.
 - Use commas in addresses.
 - Use commas and quotation marks in dialogue.
 - Form and use possessives.
 - Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, happiness).
 - Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
 - Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

4TH

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- Use correct capitalization.
 - Use commas and quotation marks to mark direct speech and quotations from a text.
 - Use a comma before a coordinating conjunction in a compound sentence.
 - Spell grade-appropriate words correctly, consulting references as needed.

5TH

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- Use punctuation to separate items in a series.*
 - Use a comma to separate an introductory element from the rest of the sentence.
 - 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?).
 - Use underlining, quotation marks, or italics to indicate titles of works.
 - 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.
- Choose words and phrases for effect.*
 - Recognize and observe differences between the conventions of spoken and written standard English.

3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- Choose words and phrases to convey ideas precisely.*
 - Choose punctuation for effect.*
 - Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).

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

LANGUAGE STANDARDS

3RD

4TH

5TH

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.

- a. Use sentence-level context as a clue to the meaning of a word or phrase.
- b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable disagreeable, comfortable/uncomfortable, care/careless, heat/preheat).
- c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion).
- d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases in all content areas.

5. Demonstrate understanding of word relationships and nuances in word meanings.

- a. Distinguish the literal and non-literal meanings of words and phrases in context (e.g., take steps).
- b. Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful).
- c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered).

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.

- a. Use context (e.g., definitions, examples, or restatements 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., telegraph, photograph, autograph).
- 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 and to identify alternate word choices in all content areas.

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- a. Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context.
- b. Recognize and explain the meaning of common idioms, adages, and proverbs.
- c. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).

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 and to identify alternate word choices in all content areas.

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.

LANGUAGE STANDARDS

3RD

6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).

4TH

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 (e.g., wildlife, conservation, and endangered when discussing animal preservation).

4TH

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).

LANGUAGE PROGRESSIVE SKILLS, BY GRADE

The following skills, marked with an asterisk (*) in Language standards 1-3, are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking.

Standard	Grade(s)							
	3	4	5	6	7	8	9-10	11-12
L.3.1f. Ensure subject-verb and pronoun-antecedent agreement.								
L.3.3a. Choose words and phrases for effect.								
L.4.1f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.								
L.4.1g. Correctly use frequently confused words (e.g., <i>to/too/two</i> ; <i>there/their</i>).								
L.4.3a. Choose words and phrases to convey ideas precisely.*								
L.4.3b. Choose punctuation for effect.								
L.5.1d. Recognize and correct inappropriate shifts in verb tense.								
L.5.2a. Use punctuation to separate items in a series.†								
L.6.1c. Recognize and correct inappropriate shifts in pronoun number and person.								
L.6.1d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).								
L.6.1e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.								
L.6.2a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.								
L.6.3a. Vary sentence patterns for meaning, reader/listener interest, and style.‡								
L.6.3b. Maintain consistency in style and tone.								
L.7.1c. Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.								
L.7.3a. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.								
L.8.1d. Recognize and correct inappropriate shifts in verb voice and mood.								
L.9-10.1a. Use parallel structure.								

*Subsumed by L.7.3a

†Subsumed by L.9-10.1a

‡Subsumed by L.11-12.3a

STANDARD 10: RANGE, QUALITY, AND COMPLEXITY OF STUDENT READING K-5

Measuring Text Complexity: Three Factors



Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader variables (such as motivation, knowledge, and experiences) and task variables (such as purpose and the complexity generated by the task assigned and the questions posed)

Note: More detailed information on text complexity and how it is measured is contained in Appendix A

Range of Text Types for K-5

Students in grades K-5 apply the Reading standards to the following range of text types, with texts selected from a broad range of cultures and periods.

Literature		Informational Text	
Stories	Drama	Literary Nonfiction	
Includes children's adventure stories, folktales, legends, fables, fantasy, realistic fiction, and myth	Includes staged dialogue and brief familiar scenes	Includes biographies and autobiographies; history, social studies, science, and the arts; technical texts, including directions, forms, and information displayed in graphs, charts, or maps; and digital sources on a range of topics	
	Poetry		
	Includes nursery rhymes and the subgenres of the narrative poem, limerick, and free verse poem		

TEXT ILLUSTRATING THE COMPLEXITY, QUALITY, AND RANGE OF STUDENT READING K-5

	Literature: Stories, Dramas, Poetry	Informational Texts: Literary Nonfiction and Historical, Scientific, and Technical Texts
K*	<ul style="list-style-type: none"> • <i>Over in the Meadow</i> by John Langstaff (traditional) (c1800)* • <i>A Boy, a Dog, and a Frog</i> by Mercer Mayer (1967) • <i>Pancakes for Breakfast</i> by Tomie DePaola (1978) • <i>A Story, A Story</i> by Gail E. Haley (1970)* • <i>Kitten's First Full Moon</i> by Kevin Henkes (2004)* 	<ul style="list-style-type: none"> • <i>My Five Senses</i> by Ailiki (1962)** • <i>Truck</i> by Donald Crews (1980) • <i>I Read Signs</i> by Tana Hoban (1987) • <i>What Do You Do With a Tail Like This?</i> by Steve Jenkins and Robin Page (2003)* • <i>Amazing Whales!</i> by Sarah L. Thomson (2005)*
1*	<ul style="list-style-type: none"> • "Mix a Pancake" by Christina G. Rossetti (1893)** • <i>Mr. Popper's Penguins</i> by Richard Atwater (1938)* • <i>Little Bear</i> by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)** • <i>Frog and Toad Together</i> by Arnold Lobel (1971)** • <i>Hil Fly Guy</i> by Tedd Arnold (2006) 	<ul style="list-style-type: none"> • <i>A Tree Is a Plant</i> by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)** • <i>Starfish</i> by Edith Thacher Hurd (1962) • <i>Follow the Water from Brook to Ocean</i> by Arthur Dorros (1991)** • <i>From Seed to Pumpkin</i> by Wendy Pfeffer, illustrated by James Graham Hale (2004)* • <i>How People Learned to Fly</i> by Fran Hodgkins and True Kelley (2007)*
2-3	<ul style="list-style-type: none"> • "Who Has Seen the Wind?" by Christina G. Rossetti (1893) • <i>Charlotte's Web</i> by E. B. White (1952)* • <i>Sarah, Plain and Tall</i> by Patricia MacLachlan (1985) • <i>Tops and Bottoms</i> by Janet Stevens (1995) • <i>Poppleton in Winter</i> by Cynthia Rylant, illustrated by Mark Teague (2001) 	<ul style="list-style-type: none"> • <i>A Medieval Feast</i> by Ailiki (1983) • <i>From Seed to Plant</i> by Gail Gibbons (1991) • <i>The Story of Ruby Bridges</i> by Robert Coles (1995)* • <i>A Drop of Water: A Book of Science and Wonder</i> by Walter Wick (1997) • <i>Moonshot: The Flight of Apollo 11</i> by Brian Floca (2009)
4-5	<ul style="list-style-type: none"> • <i>Alice's Adventures in Wonderland</i> by Lewis Carroll (1865) • "Casey at the Bat" by Ernest Lawrence Thayer (1888) • <i>The Black Stallion</i> by Walter Farley (1941) • "Zlateh the Goat" by Isaac Bashevis Singer (1984) • <i>Where the Mountain Meets the Moon</i> by Grace Lin (2009) 	<ul style="list-style-type: none"> • <i>Discovering Mars: The Amazing Story of the Red Planet</i> by Meivin Berger (1992) • <i>Hurricanes: Earth's Mightiest Storms</i> by Patricia Lauber (1996) • <i>A History of US</i> by Joy Hakim (2005) • <i>Horses</i> by Seymour Simon (2006) • <i>Quest for the Tree Kangaroo: An Expedition to the Cloud Forest of New Guinea</i> by Sy Montgomery (2006)

Note: Given space limitations, the illustrative texts listed above are meant only to show individual titles that are representative of a wide range of topics and genres. (See Appendix B for excerpts of these and other texts illustrative of K–5 text complexity, quality, and range.) At a curricular or instructional level, within and across grade levels, texts need to be selected around topics or themes that generate knowledge and allow students to study those topics or themes in depth. On the next page is an example of progressions of texts building knowledge across grade levels.

*Children at the kindergarten and grade 1 levels should be expected to read texts independently that have been specifically written to correlate to their reading level and their word knowledge. Many of the titles listed above are meant to supplement carefully structured independent reading with books to read along with a teacher or that are read aloud to students to build knowledge and cultivate a joy in reading.

STAYING ON TOPIC WITHIN A GRADE AND ACROSS GRADES: HOW TO BUILD KNOWLEDGE SYSTEMATICALLY IN ENGLISH LANGUAGE ARTS K-5

Building knowledge systematically in English language arts is like giving children various pieces of a puzzle in each grade that, over time, will form one big picture. At a curricular or instructional level, texts—within and across grade levels—need to be selected around topics or themes that systematically develop the knowledge base of students. Within a grade level, there should be an adequate number of titles on a single topic that would allow children to study that topic for a sustained period. The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics. Children in the upper elementary grades will generally be expected to read these texts independently and reflect on them in writing. However, children in the early grades (particularly K–2) should participate in rich, structured conversations with an adult in response to the written texts that are read aloud, orally comparing and contrasting as well as analyzing and synthesizing, in the manner called for by the Standards.

Preparation for reading complex informational texts should begin at the very earliest elementary school grades. What follows is one example that uses domain-specific nonfiction titles across grade levels to illustrate how curriculum designers and classroom teachers can infuse the English language arts block with rich, age-appropriate content knowledge and vocabulary in history/social studies, science, and the arts. Having students listen to informational read-alouds in the early grades helps lay the necessary foundation for students’ reading and understanding of increasingly complex texts on their own in subsequent grades.

Exemplar Texts on a Topic Across Grades	K	1	2–3	4–5
The Human Body Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.	<p>The five senses and associated body parts</p> <ul style="list-style-type: none"> • <i>My Five Senses</i> by Ailiki (1989) • <i>Hearing</i> by Maria Rius (1985) • <i>Sight</i> by Maria Rius (1985) • <i>Smell</i> by Maria Rius (1985) • <i>Taste</i> by Maria Rius (1985) • <i>Touch</i> by Maria Rius (1985) <p>Taking care of your body: Overview (hygiene, diet, exercise, rest)</p> <ul style="list-style-type: none"> • <i>My Amazing Body: A First Look at Health & Fitness</i> by Pat Thomas (2001) • <i>Get Up and Go!</i> by Nancy Carlson (2008) • <i>Go Wash Up</i> by Doering Tourville (2008) • <i>Sleep</i> by Paul Showers (1997) • <i>Fuel the Body</i> by Doering Tourville (2008) 	<p>Introduction to the systems of the human body and associated body parts</p> <ul style="list-style-type: none"> • <i>Under Your Skin: Your Amazing Body</i> by Mick Manning (2007) • <i>Me and My Amazing Body</i> by Joan Sweeney (1999) • <i>The Human Body</i> by Gallimard Jeunesse (2007) • <i>The Busy Body Book</i> by Lizzy Rockwell (2008) • <i>First Encyclopedia of the Human Body</i> by Fiona Chandler (2004) <p>Taking care of your body: Germs, diseases, and preventing illness</p> <ul style="list-style-type: none"> • <i>Germs Make Me Sick</i> by Mariilyn Berger (1995) • <i>Tiny Life on Your Body</i> by Christine Taylor-Butler (2005) • <i>Germ Stories</i> by Arthur Kornberg (2007) • <i>All About Scabs</i> by Genichiro Yagu (1998) 	<p>Digestive and excretory systems</p> <ul style="list-style-type: none"> • <i>What Happens to a Hamburger</i> by Paul Showers (1985) • <i>The Digestive System</i> by Christine Taylor-Butler (2008) • <i>The Digestive System</i> by Rebecca L. Johnson (2006) • <i>The Digestive System</i> by Kristin Petrie (2007) <p>Taking care of your body: Healthy eating and nutrition</p> <ul style="list-style-type: none"> • <i>Good Enough to Eat</i> by Lizzy Rockwell (1999) • <i>Showdown at the Food Pyramid</i> by Rex Barron (2004) <p>Muscular, skeletal, and nervous systems</p> <ul style="list-style-type: none"> • <i>The Mighty Muscular and Skeletal Systems</i> Crabtree Publishing (2009) • <i>Muscles</i> by Seymour Simon (1998) • <i>Bones</i> by Seymour Simon (1998) • <i>The Astounding Nervous System</i> Crabtree Publishing (2009) • <i>The Nervous System</i> by Joelle Riley (2004) 	<p>Circulatory system</p> <ul style="list-style-type: none"> • <i>The Heart</i> by Seymour Simon (2006) • <i>The Heart and Circulation</i> by Carol Ballard (2005) • <i>The Circulatory System</i> by Kristin Petrie (2007) • <i>The Amazing Circulatory System</i> by John Burstein (2009) <p>Respiratory system</p> <ul style="list-style-type: none"> • <i>The Lungs</i> by Seymour Simon (2007) • <i>The Respiratory System</i> by Susan Glass (2004) • <i>The Respiratory System</i> by Kristin Petrie (2007) • <i>The Remarkable Respiratory System</i> by John Burstein (2009) <p>Endocrine system</p> <ul style="list-style-type: none"> • <i>The Endocrine System</i> by Rebecca Olien (2006) • <i>The Exciting Endocrine System</i> by John Burstein (2009)

MATHEMATICS STANDARDS

Introduction

Toward greater focus and coherence

Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. Mathematical process goals should be integrated in these content areas.

—National Research Council, 2009

The composite standards [of Hong Kong, Korea and Singapore] have a number of features that can inform an international benchmarking process for the development of K–6 mathematics standards in the U.S. First, the composite standards concentrate the early learning of mathematics on the number, measurement, and geometry strands with less emphasis on data analysis and little exposure to algebra. The Hong Kong standards for grades 1–3 devote approximately half the targeted time to numbers and almost all the time remaining to geometry and measurement.

— Ginsburg, Leinwand and Decker, 2009

Because the mathematics concepts in [U.S.] textbooks are often weak, the presentation becomes more mechanical than is ideal. We looked at both traditional and non-traditional textbooks used in the US and found this conceptual weakness in both.

— Ginsburg et al., 2005

There are many ways to organize curricula. The challenge, now rarely met, is to avoid those that distort mathematics and turn off students.

— Steen, 2007

For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is “a mile wide and an inch deep.” These Standards are a substantial answer to that challenge.

It is important to recognize that “fewer standards” are no substitute for focused standards. Achieving “fewer standards” would be easy to do by resorting to broad, general statements. Instead, these Standards aim for clarity and specificity.

Assessing the coherence of a set of standards is more difficult than assessing their focus. William Schmidt and Richard Houang (2002) have said that content standards and curricula are coherent if they are:

*articulated over time as a sequence of topics and performances that are logical and reflect, where appropriate, the sequential or hierarchical nature of the disciplinary content from which the subject matter derives. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, **but also the key ideas** that determine how knowledge is organized and generated within that discipline. This implies that “to be coherent,” a set of content standards must evolve from particulars (e.g., the meaning and operations of whole numbers, including simple math facts and routine computational procedures associated with whole numbers and fractions) to deeper structures inherent in the discipline. These deeper structures then serve as a means for connecting the particulars (such as an understanding of the rational number system and its properties). (emphasis added)*

These Standards endeavor to follow such a design, not only by stressing conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the laws of arithmetic to structure those ideas.

In addition, the “sequence of topics and performances” that is outlined in a body of mathematics standards must also respect what is known about how students learn. As Confrey (2007) points out, developing “sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise.” In recognition of this, the development of these Standards began with research-based learning progressions detailing what is known today about how students’ mathematical knowledge, skill, and understanding develop over time.

MATHEMATICS STANDARDS

Understanding mathematics

These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with disabilities reading should allow for use of Braille, screen reader technology, or other assistive devices, while writing should include the use of a scribe, computer, or speech-to-text technology. In a similar vein, speaking and listening should be interpreted broadly to include sign language. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of college and career readiness for all students.

K	1	2	3	4	5	6	7	8	HS
Counting & Cardinality									
Number & Operations Base Ten						Ratios & Proportional Relationships			Number & Quantity
			Number & Operations Fractions			The Number System			
Operations & Algebraic Thinking						Expressions & Equations			Algebra
								Functions	Functions
Geometry									Geometry
Measurement & Data						Statistics & Probability			Statistics & Probability

Findell & Foughty (2011)

College and Career-Readiness through the Common Core State Standards for Mathematics

MATHEMATICS STANDARDS

Grade 4 - Overview

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

1. Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.
2. Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.
3. Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

MATHEMATICS STANDARDS

OPERATIONS & ALGEBRAIC THINKING

USE THE FOUR OPERATIONS WITH WHOLE NUMBERS TO SOLVE PROBLEMS.

1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
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.¹
3. Solve multistep 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 and explain why a rounded solution is appropriate.

GAIN FAMILIARITY WITH FACTORS AND MULTIPLES.

4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

GENERATE AND ANALYZE PATTERNS.

5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

¹See Glossary, Table 2.

MATHEMATICS STANDARDS

NUMBER AND OPERATIONS IN BASE TEN²

GENERALIZE PLACE VALUE UNDERSTANDING FOR MULTI-DIGIT WHOLE NUMBERS.

1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.
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.
3. Use place value understanding to round multi-digit whole numbers to any place.

USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO PERFORM MULTI-

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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- 5.1 Solve problems involving multiplication of multi-digit numbers by two-digit numbers. (CAStandardNS 3.3)
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.

MATHEMATICS STANDARDS

NUMBER AND OPERATIONS—FRACTIONS³

EXTEND UNDERSTANDING OF FRACTION EQUIVALENCE & ORDERING.

1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
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 $1/2$. 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.

BUILD FRACTIONS FROM UNIT FRACTIONS BY APPLYING AND EXTENDING PREVIOUS UNDERSTANDINGS OF OPERATIONS ON WHOLE NUMBERS.

3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
 - a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
 - 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 a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.
 - 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 visual fraction models and equations to represent the problem.
4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
 - a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.
 - b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)
 - c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

UNDERSTAND DECIMAL NOTATION FOR FRACTIONS, & 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 100.⁴ For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.
6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
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 the number line or another visual model.

²Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

³Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

⁴Students 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.

MATHEMATICS STANDARDS

MEASUREMENT & DATA

SOLVE PROBLEMS INVOLVING MEASUREMENT AND CONVERSION OF MEASUREMENTS FROM A LARGER

1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...
2. 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.
3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

REPRESENT AND INTERPRET DATA.

4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF ANGLE & MEASURE ANGLES.

5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
 - a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one degree angle," and can be used to measure angles.
 - b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

MATHEMATICS STANDARDS

GEOMETRY

REASON WITH SHAPES AND THEIR ATTRIBUTES.

1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. (Two dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.)
3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.