

A white outline map of California is positioned on the left side of the page, extending from the top to the bottom. The text is overlaid on the right side of the map.

California's
COMMON CORE
Content Standards
Fifth Grade

California's
COMMON CORE
Content Standards for
ELA and Mathematics
Fifth 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

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).**

6TH

1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
3. Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.

Craft and Structure

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.**
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.**

4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
5. Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
6. Explain how an author develops the point of view of the narrator or speaker in a text.

READING STANDARDS

4TH

5TH

6TH

Integration of Knowledge and Ideas

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).**

7. Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they “see” and “hear” when reading the text to what they perceive when they listen or watch.

8. (Not applicable to literature)

8. (Not applicable to literature)

8. (Not applicable to literature)

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.**

9. Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.

Range of Reading & Level of Text Complexity

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.**

10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING STANDARDS

INFORMATIONAL TEXT

Key Ideas and Details

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.**

6TH

1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

Craft and Structure

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.

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.**

4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

5. Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
a. Analyze the use of text features (e.g., graphics, headers, captions) in popular media.

6. Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.

READING STANDARDS

4TH

5TH

6TH

Integration of Knowledge and Ideas

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.

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

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

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. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

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

7. Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

8. Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

9. Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).

Range of Reading & Level of Text Complexity

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.

10. By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

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

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.

6TH

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.

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

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.

6TH

1. Write arguments to support claims with clear reasons and relevant evidence.
 - a. Introduce claim(s) and organize the reasons and evidence clearly.
 - b. Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
 - c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
 - d. Establish and maintain a formal style.
 - e. Provide a concluding statement or section that follows from the argument presented.
2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
 - a. Introduce a topic **or thesis statement**; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/ effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
 - b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
 - c. Use appropriate transitions to clarify their relationships among ideas and concepts.
 - d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
 - e. Establish and maintain a formal style. Provide a concluding statement or section that follows from the information or explanation presented.

WRITING STANDARDS

4TH

5TH

6TH

Text Types & Purposes

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
- Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
 - Use dialogue and description to develop experiences and events or show the responses of characters to situations.
 - Use a variety of transitional words and phrases to manage the sequence of events.
 - Use concrete words and phrases and sensory details to convey experiences and events precisely.
 - 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.
- Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
 - Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
 - Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
 - Use concrete words and phrases and sensory details to convey experiences and events precisely.
 - 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, relevant descriptive details, and well-structured event sequences.
- Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
 - Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
 - Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
 - Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.
 - Provide a conclusion that follows from the narrated experiences or events.

Production & Distribution of Writing

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.)

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4. Produce clear and coherent writing in which the development, organization, and style 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 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.)

5. With some 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 6.)

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.

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.

6. 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 three pages in a single sitting.

WRITING STANDARDS

4TH

5TH

6TH

Research to Build & Present Knowledge

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

7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

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.**

8. Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

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

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- 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").

- 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]").

- a. Apply grade 6 Reading standards to literature (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics").
- b. Apply grade 6 Reading standards to literary nonfiction (e.g., "Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").

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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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.*

4TH

5TH

6TH

Comprehension & Collaboration

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) 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 teacherled) 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.**

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) with diverse partners on *grade 6 topics, texts, and issues*, 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 by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
 - c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
 - d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.

2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

3. Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.

SPEAKING & LISTENING

4TH

5TH

6TH

Presentation of Knowledge & Ideas

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.

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

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.)

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. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

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

4. Present claims and findings (e.g., argument, narrative, informative, response to literature presentations), sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
- a. Plan and deliver an informative/explanatory presentation that: develops a topic with relevant facts, definitions, and concrete details; uses appropriate transitions to clarify relationships; uses precise language and domain specific vocabulary; and provides a strong conclusion.

5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3.)

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 (*).

4TH

5TH

6TH

Conventions of Standard English

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*).*

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

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

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

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Ensure that pronouns are in the proper case (subjective, objective, possessive).
 - b. Use all pronouns, including intensive pronouns (e.g., *myself, ourselves*), correctly.
 - c. Recognize and correct inappropriate shifts in pronoun number and person.*
 - d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*
 - e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.*
 - b. Spell correctly.

LANGUAGE STANDARDS

4TH

5TH

6TH

Knowledge of Language

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

3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- Vary sentence patterns for meaning, reader/listener interest, and style.*
 - Maintain consistency in style and tone.*

Vocabulary Acquisition and Use

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.
- Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
 - Use common, grade appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph*, *photograph*, *autograph*).
 - 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.**

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.
- Use context (e.g., cause effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
 - Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph*, *photosynthesis*).
 - 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.**

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content*, choosing flexibly from a range of strategies.
- Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
 - Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*).
 - Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
 - Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

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

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Interpret figurative language, including similes and metaphors, in context.
 - Recognize and explain the meaning of common idioms, adages, and proverbs.
 - Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Interpret figures of speech (e.g., personification) in context.
 - Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.
 - Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *stingy*, *scrimping*, *economical*, *unwasteful*, *thrifty*).

LANGUAGE STANDARDS

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).

5TH

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).

6TH

6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

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

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 aloud 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
<p>The Human Body</p> <p>Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.</p>	<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 Marilyn 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 5 - OVERVIEW

In Grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.
3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

MATHEMATICS STANDARDS

OPERATIONS & ALGEBRAIC THINKING

WRITE AND INTERPRET NUMERICAL EXPRESSIONS.

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.
- 2.1 Express a whole number in the range 2-50 as a product of its prime factors. For example, find the prime factors of 24 and express 24 as $2 \times 2 \times 2 \times 3$.

ANALYZE PATTERNS AND RELATIONSHIPS.

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

MATHEMATICS STANDARDS

NUMBER & OPERATIONS IN BASE TEN

UNDERSTAND THE PLACE VALUE SYSTEM.

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

PERFORM OPERATIONS WITH MULTI-DIGIT WHOLE NUMBERS AND WITH DECIMALS TO HUNDREDTHS.

5. Fluently multiply multi-digit whole numbers using the standard algorithm
6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
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; relate the strategy to a written method and explain the reasoning used.

MATHEMATICS STANDARDS

NUMBER & OPERATIONS—FRACTIONS

USE EQUIVALENT FRACTIONS AS A STRATEGY TO ADD AND SUBTRACT FRACTIONS.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
2. Solve word problems involving addition and subtraction of fractions referring to the same whole, 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. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.

APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO MULTIPLY AND DIVIDE FRACTIONS.

3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions, mixed numbers, or decimal fractions, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50- pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)
 - 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 $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

MATHEMATICS STANDARDS

APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO MULTIPLY AND DIVIDE FRACTIONS.

7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.¹
 - a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.
 - b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.
 - c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?

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

MATHEMATICS STANDARDS

MEASUREMENT & DATA

SOLVE PROBLEMS INVOLVING MEASUREMENT AND ESTIMATION OF INTERVALS OF TIME, LIQUID VOLUMES, AND MASSES OF OBJECTS.

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

REPRESENT AND INTERPRET DATA.

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

GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF VOLUME AND RELATE VOLUME TO MULTIPLICATION AND TO ADDITION.

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

MATHEMATICS STANDARDS

GEOMETRY

GRAPH POINTS ON THE COORDINATE PLANE TO SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS.

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

CLASSIFY TWO-DIMENSIONAL FIGURES INTO CATEGORIES BASED ON THEIR PROPERTIES..

3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
 - 3.1 Distinguish among rectangles, parallelograms, and trapezoids.
4. Classify two-dimensional figures in a hierarchy based on properties.
5. Know that the sum of the angles of any triangle is 180° and the sum of the angles of any quadrilateral is 360° and use this information to solve problems. (CA-Standard MG 2.2)
6. Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area of a rectangle (i.e. two of the same triangles make a parallelogram with twice the area; a parallelogram is compared with a rectangle of the same area by cutting and pasting a right triangle on the parallelogram). (CA-Standard MG 1.1)

