Mississippi Assessment Program (MAP)

English Language Arts and Mathematics

Performance Level Descriptors

August 2016

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Performance Level Descriptors:

This working document includes Performance Level Descriptors (PLDs) for the 2015-2016 Mississippi Assessment Program (MAP) assessments for English Language Arts and Mathematics. Performance levels are categories assigned to a specific performance on an assessment along the assessment scale/performance continuum. Performance Level Descriptors (PLDs) are descriptions of the specific knowledge and skills that a student at a given performance level should be able to demonstrate.

English Language Arts:

Level 1:
Students scoring at this level are unable to consistently demonstrate the skills necessary to read and write independently according to the specific grade level standards.

Level 2:
Students scoring at this level typically struggle to independently read texts at the appropriate complexity and may show difficulty meeting grade level reading, writing, and language standards without significant support from the teacher.

Level 3:
Students scoring at this level are beginning to independently read texts at the appropriate complexity levels and may or may not meet grade level reading, writing, and language standards with little to no support from the teacher.

Level 4:
Students scoring at this level are able to read texts at the appropriate complexity levels, while beginning to read texts at higher complexity levels. Students show mastery of most to all grade level reading, writing, and language standards.

Level 5:
Students scoring at this level are able to read very complex texts and show mastery of all grade level reading, writing, and language standards.

Mathematics:

Level 1:
Students scoring at this level will have limited success with the challenging content of the specific grade level standards.

Level 2:
Students scoring at this level will usually be able to solve simple, routine problems using standard algorithms and may be able to interpret basic graphs. However, these students may need significant support from their teachers.

Level 3:
Students scoring at this level can apply and extend previous understandings of mathematics content but may struggle with accuracy and precision. These students may also need support from their teachers to enhance learning and aid in mastery of grade level tasks.

Level 4:
Students scoring at this level typically apply previous understandings to solve real-world problems, interpret and analyze mathematical relationships in a variety of ways, and attend to grade level precision.

Level 5:
Students scoring at this level consistently use appropriate symbolic notation to set up and solve real-world problems by employing multiple problem solving approaches at or above grade level. These students are able to assess the reasonableness of their answers in context.

Performance Level Descriptors (PLDs)
ELA Grade 3

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• use elements of phonetic analysis to decode unknown words • use sequencing, predicting, and retelling to understand literary and informational texts • use signs and labels • identify characters, settings (e.g., literary and informational texts) • identify pictorial representations (illustrations) in informational texts	• apply phonetic analysis to decode unknown words • determine story elements, the main idea, and cause/effect in literary and informational texts • respond to literal comprehension questions and summarize short story selections • demonstrate an understanding of a variety of informational resources by following written directions and using captions • identify characters, settings, plots, and genre	• provide the main idea and supporting details, describe characters, and paraphrase literary texts • establish a purpose for reading • use structural analysis, describe multiple meanings of words, and interpret figurative language • describe characters and/or key details • recognize characters, themes, settings, plots, genre, points, and key details from texts (e.g.,	• provide the main idea and supporting details, draw conclusions, describe characters, and paraphrase literary genres and informational texts • establish a purpose for reading and explain connections between simple events in a literary work and their own lives • use structural analysis, describe multiple meanings of words, and interpret figurative language • describe characters and/or key details	• compare and contrast characters and/or key details describe defining characteristics (e.g., text structure and features) of literature and informational texts • synthesize characters, themes, settings, plots, genre, points and key details from multiple texts (e.g., literary and informational texts) • distinguish from the author's point of view, their own point of view • recognize visual representations.in

	(e.g., literary and informational texts) • recognize the author's purpose • use context clues to determine word meaning within context • identify visual representations (illustrations) in informational texts • recognize root words, prefixes, and suffixes	literary and informational texts) • make connections to self, text, and the world • determine the author's purpose, literary elements, point of view in literary genres and informational texts • determine the author's point of view and their own point of view • apply vocabulary across content using structural analysis and context clues • recognize visual representations in informational texts • use root words, prefixes, and suffixes to change word meanings • use reference material to determine meaning	describe defining characteristics (e.g., text structure and features) of literature and informational texts • recognize characters, themes, settings, plots, genre, points, and key details from multiple texts (e.g., literary and informational texts) • make connections to self, text, and the world • determine the author's purpose, literary elements, point of view and connections to self and others' cultures in literary genres and informational texts • determine the author's point of view and their own point of view • apply vocabulary across content using structural analysis and context clues • recognize visual representations in informational texts • use root words, prefixes, and suffixes to change word meanings • use reference material to determine meaning	informational texts and utilize those representations to aid in comprehension • use root words, prefixes, and suffixes to change word meanings and generate new vocabulary

Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• develop a story with a beginning, middle, and end if given a topic • edit a sentence for capitalization and punctuation • identify a variety of resources used in writing	• develop stories or compositions with a beginning, middle, and end for an intended audience • edit a simple sentence • have errors in grammar and/or spelling • use dictionaries, indexes, and electronic resources to write	• develop the topic and/or narrative elements using some reasoning, details, text- based evidence, and/or description • demonstrate some organization • include some linking words and phrases, descriptive words, and/or temporal words, limiting the clarity with which ideas are expressed • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language	• use pre-writing and drafting strategies to compose in a variety of forms and genres for an intended audience • use correct grammar and spelling • use a variety of strategies to plan research	• use pre-writing and drafting strategies to generate topics and plan approaches to writing tasks to develop a 3–5 paragraph composition that incorporates specific and relevant details • apply the writing process to compose a variety of forms and genres for an intended audience • select and use a variety of resource materials to plan and deliver a short research project, citing references • apply correct grammar and spelling

Performance Level Descriptors (PLDs)
ELA Grade 4

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• apply phonetic analysis to decode words • recognize story elements, the main idea, and basic text structures • respond to literal comprehension questions and summarize short story selections • describe characters, settings, and events from texts (e.g., literary and informational texts) • recognize the author's purpose • use context clues to determine word meaning within context	• provide main ideas and supporting details • establish a purpose for reading • use structural analysis, describe multiple meanings of words, and interpret figurative language • describe characters and/or key details • describe defining characteristics (e.g., text structure and features) of literary and informational texts • describe characters, settings, and events from	• provide main ideas and supporting details, draw conclusions, describe characters, and paraphrase literary genres and informational texts • establish a purpose for reading and explain connections between simple events in a literary work and their own lives • use structural analysis, describe multiple meanings of words, and interpret figurative language	• use vocabulary across content, including mythology, using structural analysis and context clues (e.g., Greek and Latin affixes and roots) • interpret visual and quantitative information (e.g., charts, graphs, and web pages) and use that information to contribute to understanding the text (informational) • use reference material to determine meaning	• analyze elements of literature to construct meaning and justify the author's purpose • compare and contrast the theme and evaluate connections among facts, ideas, events, and concepts in diverse literary and informational texts across the curriculum – summarize the text • compare and contrast characters, select defining characteristics (e.g., text structure and features) of literary and informational

• identify visual representations (illustrations).in informational texts • recognize root words, prefixes, and suffixes	multiple texts (e.g., literary and informational texts) • recognize characters, themes, settings, plots, genre, and points from multiple texts (e.g., literary and informational texts) • make connections to self, text, and the world • determine the author's purpose, literary elements, point of view, and connections to self and others' cultures in literary genres and informational texts • determine the author's point of view and their own point of view • apply vocabulary across content using structural analysis and context clues • recognize visual representations in informational texts • use root words, prefixes, and suffixes to change word meanings • use reference material to determine meaning	• describe characters and/or key details • describe defining characteristics (e.g., text structure and features) of literature and informational texts • compare and contrast characters, settings, and events from the same text (e.g., literary and informational texts) • describe characters, themes, settings, plots, genre, and points of view from the same text (e.g., literary and informational texts) • make connections to self, text, and the world • determine the author's purpose, literary elements, point of view, and connections to self and others • determine the author's point of view and their own point of view • apply vocabulary across content using structural analysis and context clues • recognize visual representations in informational texts • use root words, prefixes, and suffixes to change word meanings • use reference material to determine meaning	• compare and contrast characters and/or key details • describe defining characteristics (e.g., text structure and features) of literature and informational texts • describe, in-depth, characters, settings, events, and key details from multiple texts (e.g., literary and informational texts) • make connections between the text or drama and a visual or oral presentation of the text • distinguish from the author's point of view and their own point of view • recognize visual representation in informational texts and use those representations to aid in comprehension • use root words, prefixes, and suffixes to change word meanings and generate new vocabulary	texts, and draw on specific details (e.g., characters, thoughts, words, or actions) • make connections between the text or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text • describe, in-depth, characters, settings, events, and key details from multiple texts (e.g., literary and informational texts) (cite text-based evidence) • interpret visual and quantitative information (e.g., charts, graphs, web pages) and explain how the information contributes to the understanding of text • use two or more resource materials to gain meaning from text

Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• develop stories with a beginning, middle, and end for an intended audience • use dictionaries, indexes, and electronic resources to write	• use pre-writing and drafting process to compose a variety of forms and genres for an intended audience • use correct grammar and spelling • use a variety of strategies to plan research	• address the prompts and provide basic development of ideas • demonstrate organization that sometimes is controlled • develop topics and/or narrative elements in a manner that is general in its appropriateness to the task and purpose • include some linking words and phrases, descriptive words, and/or temporal words, limiting the clarity with which ideas are expressed • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language	• compose with a variety of forms and genres, using relevant details for an intended audience • use pre-writing and drafting strategies to generate topics and plan approaches to writing tasks to develop a 3–5 paragraph composition that incorporates specific and relevant details • apply correct grammar and spelling • select and use strategies to compile information for research topics	• use writing strategies to address a specific writing purpose while responding to a variety of materials • use the pre-writing and drafting strategies to generate topics and plan approaches to writing tasks to develop a 3–5 paragraph composition that incorporates specific and relevant details • identify and use electronic and non-electronic sources to include different types of information and create assigned compositions • edit their own writing and the writing of others and make corrections in organization, content, usage, mechanics, and spelling

Performance Level Descriptors (PLDs)
ELA Grade 5

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• recognize some figurative language and denotation • make connections to self and text • read and identify types of poetry • identify root words, prefixes, and suffixes to spell words • use reference material to determine meaning	• locate and recognize figurative language and denotation • recognize connections between multiple texts and between elements within a text • read and give examples of types of poetry • select root words, prefixes, and suffixes to spell words and change word meanings • use reference materials to plan a short research project	• define figurative language and denotation • make connections between multiple texts • compare and contrast different of types of poetry • select root words, prefixes, and suffixes to spell words and change word meanings • use reference materials to plan a short research project	• label figurative language, use denotation, select defining characteristics, and construct background in literary and informational texts • compare and contrast to make connections between multiple texts and between elements within a text • read and classify types of poetry • use root words, prefixes, and suffixes to spell words, change word meanings, and generate new vocabulary	• analyze figurative language, synthesize denotation, interpret defining characteristics, and summarize background in literary and informational texts • critique and justify connections between multiple texts and between elements within a text • interpret and create poetry • examine root words, affixes to construct unknown words and generate new vocabulary

			• use resource materials to plan and deliver a short research project	• use a variety of reference materials to plan, critique, revise, and deliver a research project

Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• explain the prescribed writing process and write a 3-paragraph composition with relevant details • use a variety of strategies to plan research	• use the prescribed writing process to plan and write a 3–5 paragraph composition with relevant details and transitional words • select and use strategies to compile information for written reports	• address the prompts and provide basic development of ideas • demonstrate organization that sometimes is controlled • develop the topic and/or narrative elements minimally by using some reasoning, details, and/or description • develop topic and/or narrative elements in a manner that is general in its appropriateness to the task, purpose, and audience • demonstrate some coherence, clarity, and cohesion • include some descriptions, sensory details, linking and transitional words, or domain-specific words • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language	• use the prescribed writing process to generate topics and plan and develop a 5-paragraph composition for a specific audience and purpose, using relevant details and transitional words • select and use a variety of resource materials to plan and deliver a short research project, citing references	• use the prescribed writing process to compose a multi-paragraph/multi-page product (e.g., narrative, informative, descriptive, and persuasive) for a specific audience and purpose, using relevant details, transitional words, and 6–8 paragraphs in length (or longer, up to 3 pages) • identify relevancy and content validity of available electronic and print resources to plan, write, and present a research project with documentation and in-text citations

Performance Level Descriptors (PLDs)
ELA Grade 6

Note: Statements in italics will be used in 2017–2018.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• read and comprehend readily accessible and simple literary and informational texts appropriate to their grade level • recognize structure and elements of literature identify the author's purpose in a variety of genres • state the theme and identify connections among facts, ideas, events, and concepts in literary and informational texts to self	• read and comprehend longer, moderately complex literary and informational text appropriate to their grade level • cite textual evidence to support claims • identify structure and elements of literature (and understand figurative/connotative language) • identify the author's purpose in a variety of genres	• read and comprehend complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • recognize the author's/reader's purpose or point of view in a variety of genres	• read and comprehend lengthy and complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • determine meaning and recognize the author's/reader's purpose	• read and extend the ideas in specialized and complex literary and informational texts appropriate to and above their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • evaluate meaning and critique the author's/reader's purpose

	• determine the theme and recognize connections among facts, ideas, events, and concepts in literary and informational texts to self and other texts	• determine and explain the theme and explain connections among facts and ideas in literary and informational texts	or point of view in a variety of genres • determine and explain the theme and evaluate connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world	or point of view in a variety of genres • analyze the theme and defend connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world
Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• complete a writing task for an intended audience that argues, informs, or narrates • reference text that supports the writing • write a relevant topic sentence • *select and use strategies to compile information for written reports*	• complete a writing task that argues, informs, and/or narrates, with details • write a relevant introductory paragraph • *select and use a variety of resource materials to plan and deliver a short research project, citing references*	• address the prompt and provide basic development of ideas • demonstrate basic coherence, clarity, and/or cohesion • provide some development of the claim, topic, and/or narrative elements, using basic reasoning, details, text-based evidence, and/or description • develop claim, topic, and/or narrative elements in a manner that is somewhat appropriate to the task, purpose, and audience • employ a style that is generally effective, with basic awareness of the norms of the discipline • draw some evidence from literary or informational texts to	• complete an informative, narrative, or argumentative writing task utilizing text • include specific and relevant details and transitional words • demonstrate command of the conventions of Standard English grammar and usage • write a relevant introductory and concluding paragraph • *select and use a variety of resource materials, electronic and non-electronic, to plan, develop, and deliver a research project using computer-generated graphic aids*	• complete a writing task that is well-organized and coherent and that argues, informs, and/or narrates • write a relevant thesis statement and a progression of ideas in complete sentences • *use note-taking strategies and outlines to develop a research project, documenting and citing sources*

		support analysis, reflection, and research • include some descriptions, sensory details, linking or transitional words, words to indicate tone, or domain-specific vocabulary • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language		

Performance Level Descriptors (PLDs)
ELA Grade 7

Note: Statements in italics will be used in 2017–2018.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• read and comprehend readily accessible and simple literary and informational texts appropriate to their grade level • recognize textual evidence to support claims • identify structure and elements of literature • recognize the author's purpose in a variety of genres • state the theme and identify connections among facts, ideas,	• read and comprehend longer, moderately complex literary and informational text appropriate to their grade level • identify textual evidence to support claims • identify structure and elements of literature (and understand figurative/connotative language) • identify the author's purpose in a variety of genres	• read and comprehend complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • recognize the author's/reader's purpose or point of view in a variety of genres	• read and comprehend lengthy and complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • determine meaning and recognize the author's/reader's purpose	• read and extend the ideas in specialized and complex literary and informational texts appropriate to and above their grade level • cite and analyze textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • evaluate meaning and critique the

events, and concepts in literary and informational texts to self	• determine the theme and recognize connections among facts, ideas, events, and concepts in literary and informational texts to self and other texts	• determine and explain the theme and explain connections among facts and ideas in literary and informational texts	or point of view in a variety of genres • determine and explain the theme and evaluate connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world	author's/reader's purpose or point of view in a variety of genres • analyze the theme and defend connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world
Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• complete a writing task for an intended audience that argues, informs, or narrates • reference text that supports the writing • write a relevant topic sentence • *select and use strategies to compile information for written reports*	• complete a writing task that argues, informs, and/or narrates, with details • write a relevant introductory paragraph • *select and use a variety of resource materials to plan and deliver a short research project, citing references*	• address the prompt and provide basic development of ideas • demonstrate basic coherence, clarity, and/or cohesion • provide some development of the claim, topic, and/or narrative elements, using basic reasoning, details, text-based evidence, and/or description • develop claim, topic, and/or narrative elements in a manner that is somewhat appropriate to the task, purpose, and audience • employ a style that is generally effective, with basic awareness of the norms of the discipline • draw some evidence from literary or informational texts to	• complete an informative, narrative, or argumentative writing task utilizing text • include specific and relevant details and transitional words • demonstrate command of the conventions of Standard English grammar and usage • write a relevant introductory and concluding paragraph • *select and use a variety of resource materials, electronic and non-electronic, to plan, develop, and deliver a research project using computer-generated graphic aids*	• complete a writing task that is well-organized and coherent and that argues, informs, and/or narrates • write a relevant thesis statement and a progression of ideas in complete sentences • *use note-taking strategies and outlines to develop a research project, documenting and citing sources*

		support analysis, reflection, and research • include some descriptions, sensory details, linking or transitional words, words to indicate tone or domain-specific vocabulary • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language		

Performance Level Descriptors (PLDs)
ELA Grade 8

Note: Statements in italics will be used in 2017–2018.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• read and comprehend readily accessible and simple literary and informational texts appropriate to their grade level • recognize textual evidence to support claims • recognize structure and elements of literature • recognize the author's purpose in a variety of genres • state the theme and identify connections among facts, ideas,	• read and comprehend longer, moderately complex literary and informational text appropriate to their grade level • identify textual evidence to support claims • identify structure and elements of literature (and understand figurative/connotative language) • identify the author's purpose in a variety of genres	• read and comprehend complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • recognize the author's/reader's purpose or point of view in a variety of genres	• read and comprehend lengthy and complex literary and informational texts appropriate to their grade level • cite textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • determine meaning and recognize the author's/reader's purpose	• read and extend the ideas in specialized and complex literary and informational texts appropriate to and above their grade level • cite and analyze textual evidence to support claims and make inferences • analyze structure and elements of literature (and identify and understand figurative/ connotative language) • evaluate meaning and critique the

events, and concepts in literary and informational texts to self	• determine the theme and recognize connections among facts, ideas, events, and concepts in literary and informational texts to self and other texts	• determine and explain the theme and explain connections among facts and ideas in literary and informational texts	or point of view in a variety of genres • determine and explain the theme and evaluate connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world	author's/reader's purpose or point of view in a variety of genres • analyze the theme and defend connections among facts, ideas, events, and concepts in literary and informational texts to self, other texts, and the world
Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• complete a writing task for an intended audience that argues, informs, or narrates • reference text that supports the writing • write a relevant topic sentence • *select and use strategies to compile information for written reports*	• complete a writing task that argues, informs, and/or narrates, with details • write a relevant introductory paragraph • *select and use a variety of resource materials to plan and deliver a short research project, citing references*	• address the prompt and provide basic development of ideas • demonstrate basic coherence, clarity, and/or cohesion • provide some development of the claim, topic, and/or narrative elements, using basic reasoning, details, text-based evidence, and/or description • develop claim, topic, and/or narrative elements in a manner that is somewhat appropriate to the task, purpose, and audience • employ a style that is generally effective, with basic awareness of the norms of the discipline • draw some evidence from literary or informational texts to	• complete an informative, narrative, or argumentative writing task utilizing text • includes specific and relevant details and transitional words • demonstrate command of the conventions of Standard English grammar and usage • write a relevant introductory and concluding paragraph • *select and use a variety of resource materials, electronic and non-electronic, to plan, develop, and deliver a research project using computer-generated graphic aids*	• complete a writing task that is well-organized and coherent and that argues, informs, and/or narrates • write a relevant thesis statement and a progression of ideas in complete sentences • *use note-taking strategies and outlines to develop a research project, documenting and citing sources*

		support analysis, reflection, and research • include some descriptions, sensory details, linking or transitional words, words to indicate tone, or domain-specific vocabulary • demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language		

Performance Level Descriptors (PLDs)
English II

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Reading				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• discuss the historical, cultural, political, and biographical influences in a variety of genres • examine literary elements and devices and analyze organizational patterns • define persuasive language and claims or propaganda	• analyze the historical, cultural, political, and biographical influences in a variety of genres • explain literary elements and devices and analyze organizational patterns • explain persuasive language and claims or propaganda in informational texts	• analyze literary elements and devices and analyze organizational patterns • analyze the role of persuasive language and claims or propaganda in informational texts	• research and analyze historical, cultural, political, and biographical influences in a variety of genres • interpret and explain literary elements and devices and analyze organizational patterns • critique the role of persuasive language and claims or propaganda in informational texts	• critique the effects of historical, cultural, political, and biographical influences in a variety of genres • evaluate the effects of literary elements and devices on meaning and critique the organizational patterns for purpose • analyze and evaluate the effectiveness of persuasive language and claims or propaganda in informational texts

Writing				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• use the prescribed writing process to draft narrative, informative, descriptive, persuasive, and functional writing of 3–4 cumulative pages • develop a thesis statement and a progression of ideas in complete sentences with correct mechanics • select and use a variety of resource materials, electronic and non-electronic, to plan, develop, organize, and deliver a research project with a minimum of 2 typed pages, excluding a title page and citation page, in an accepted format	• use the prescribed writing process to develop narrative, informative, descriptive, persuasive, and functional writing of 4–6 cumulative pages • construct a clearly written thesis statement, use a logical progression of ideas with transitions, and include precise word choice, correct mechanics, and complete and varied sentences • select and use a variety of resource materials, electronic and non-electronic, to plan, develop, organize, and deliver a research project with a minimum of 3 typed pages, excluding a title page and citation page, in an accepted format	• address the prompt and provide basic development of ideas • demonstrate basic coherence, clarity, and/or cohesion • provide some development of the claim, topic, and/or narrative elements, using basic reasoning, details, text-based evidence, and/or description • develop claim, topic, and/or narrative elements in a manner that is somewhat appropriate to the task, purpose, and audience • employ a style that is generally effective, with basic awareness of the norms of the discipline • draw some evidence from literary or informational texts to support analysis, reflection, and research • include some descriptions, sensory details, linking or transitional words, words to indicate tone, or domain-specific vocabulary	• define topic and the prescribed writing process to compose narrative, informative, descriptive, persuasive, and functional writing of 6–8 cumulative pages for specific purposes and audiences • construct a clearly written and effectively placed thesis statement, relate a logical progression of ideas with transitions, and include precise word choice, correct mechanics, and complete and varied sentences • select and use a variety of resource materials, electronic and non-electronic, to plan, develop, organize, and deliver a research project with a minimum of 3–4 typed pages, excluding a title page and citation page, in an accepted format	• incorporate the prescribed writing process to define a topic and plan, organize, and compose narrative, informative, descriptive, persuasive, functional, and interdisciplinary writing of 8–10 cumulative pages for specific purposes and audiences and with a credible authorial voice • incorporate a clearly written and correctly placed thesis statement with a logical progression of ideas, effective transitions, practice precise word choice, correct mechanics, and complete and varied sentences • define the topic, audience, and purpose, and select and use a variety of resource materials, electronic and non-electronic, to plan, develop, organize, and deliver a research project, in an accepted format that is enhanced by elements such as computer-generated graphics, digital pictures, web page, or hypertext links, with

		• demonstrate basic command of the conventions of Standard English consistent with edited writing • contains few patterns of errors in grammar and usage that impede understanding • demonstrate partial control over language		cited primary and secondary sources, with a minimum of 3–5 typed/content pages, excluding a title page and citation page

Performance Level Descriptors (PLDs)
Math Grade 3

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Operations and Algebraic Thinking				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• multiply and divide within 100, when a remainder does not exist • identify patterns in arithmetic	• understand the relationship between multiplication and division • use multiplication and division within 100 to solve problems involving equal groups	• understand properties of multiplication • explain the relationship between multiplication and division • use multiplication and division within 100 to solve problems involving equal groups and arrays • represent an unknown product or quotient in a multiplication or division equation, with factors 0–10 • represent division as an unknown-factor problem	• apply properties of multiplication • represent and solve a multiplication or division situation as an equation • use multiplication and division within 100 to solve word problems involving equal groups, area, and measurement • explain patterns in arithmetic • solve two-step (two operational steps) word problems involving the four operations in which the unknown quantity is in a variety of positions, with whole numbers and whole dollar amounts	• solve two-step (two operational steps) word problems involving the four operations, including rounding where appropriate, with whole numbers and whole dollar amounts

Numbers and Operations in Base Ten				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand place value of numbers	• use place value understanding to add and subtract	• use place value understanding to round whole numbers to the nearest 10 or 100 • add and subtract (including subtracting across zeros) within 1,000 using strategies and algorithms based on place value • use repeated addition to multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and the properties of operations	• use properties of operations to perform multi-digit arithmetic • multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value	• assess the reasonableness of answers
Number and Operations – Fractions				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand a fraction as a part of whole using a visual fraction model • understand a fraction as unit fraction	• identify fractions on a number line diagram as well as other visual fraction models	• represent fractions on a number line diagram as well as other visual fraction model • identify simple equivalent fractions • express whole numbers as fractions • identify fractions that are equivalent to whole numbers	• develop understanding of fractions as numbers • understand and represent equivalence of fractions and fraction as a whole • compare fractions with the same numerator or denominator by using symbols and models	• justify the comparison of fractions with the same numerator or denominator

Measurement and Data				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• tell and write time in nearest minute • solve problems involving measurement of liquid volumes and masses of objects • relate area to repeated addition • recognize perimeter as an attribute of plane figures	• solve problems involving estimation of liquid volumes and masses of objects • interpret data to solve one-step problems using information presented in a scaled bar graph • relate area to multiplication • solve problems involving perimeter given the side lengths • identify correct measurement from figures with appropriate scale provided	• add/subtract time intervals in minutes • solve one-step problems involving measurement and estimation of liquid volumes and masses of objects • generate data and represent measurements using scaled picture graphs and scaled bar graphs • represent area and perimeter using multiplication and addition • generate measurement data by measuring lengths to the nearest half inch using a line plot	• solve word problems involving addition and subtraction of time intervals in minutes • complete a scaled picture graph and a scaled bar graph to represent a data set • understand concepts of area • solve problems involving perimeter with missing side lengths and area • generate measurement data by measuring lengths to the nearest half inch and represent data by creating a line plot	• solve two-step (two operational steps) word problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects • find area using different strategies • solve problems involving area and perimeter where perimeter and area measurements are compared • generate measurement data by measuring lengths to the nearest half and quarter inch, represent data by creating a line plot, and use the line plot to answer questions or solve problems

Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• partition rectangles into parts with equal areas	• partition shapes into parts with equal areas • express the area of each part as a unit fraction of the whole	• understand the properties of quadrilaterals and the subcategories of quadrilaterals • represent shapes in different categories that share attributes • identify examples of quadrilaterals and the subcategories of quadrilaterals	• reason with shapes and their attributes	• draw examples and non-examples of quadrilaterals with specific attributes

Performance Level Descriptors (PLDs)
Math Grade 4

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Operations and Algebraic Thinking				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand the difference between factors and multiples	• identify a number or shape pattern that follows a given rule • solve word problems with all four operations	• find all factor pairs or determine multiples of whole numbers within 100 • identify prime and composite numbers within 100 • distinguish multiplicative comparison from additive comparison • solve multiplication and division problems involving multiplicative comparison • use symbols for unknown quantities • use drawings to represent the problem	• generate number or shape pattern with a given rule • list all factors of whole numbers (1–100) • identify whether a given number 1 to 100 is a multiple of a given one-digit number • determine whether the whole number is prime or composite • interpret remainders in a division situation • interpret, represent, and solve multi-step problems (two or more operational steps) using the four operations	• explain why number or shape patterns follow a given rule • use factors and multiples • solve multi-step word problems (two or more operational steps) using the four operations and interpret remainders

Numbers and Operations in Base Ten				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand place value for multi-digit whole numbers	• use place value understanding to add and subtract (including across zeros) multi-digit numbers • round multi-digit numbers to any place	• recognize a digit in one place represents ten times what it represents in the place to its right • read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form • multiply two-digit numbers by a one-digit whole number • find whole-number quotients and remainders with two digit dividends and one-digit divisors	• compare two multi-digit numbers using >, =, and < symbols • multiply three-and four-digit numbers by a one-digit whole number • find whole-number quotients and remainders with three-and four-digit dividends and one-digit divisors	• use place value understanding to assess the reasonableness of answers

Number and Operations - Fractions				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• extend understanding of fraction equivalence and ordering	• understand decimal notation for fractions with denominators of 10 and 100 • compare decimal fractions with denominators of 10 and 100	• recognize an equivalent fraction as (n × a) / (n × b) where “n” cannot be 0 • compare two decimals to hundredths by reasoning about their size • record the results of comparisons with the symbols >, =, or < • compose and decompose fractions from unit fractions • decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation • add and subtract fractions with like denominators • multiply a fraction by a whole number	• add two fractions with respective denominators 10 and 100 • add and subtract mixed numbers with like denominators • solve word problems involving addition and subtraction of fractions and mixed numbers with like denominators • solve word problems with multiplication of a fraction by a whole number	• compare and justify two different fractions with different numerators and denominators

Measurement and Data				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• interpret data • know relative size of measurement units	• represent data • solve one-step problems involving measurement without conversions • identify angles • measure angles	• express measurements in larger units in terms of smaller units • record measurement equivalents in a two-column table • solve mathematical measurement problems using addition, subtraction, and multiplication of simple fractions • represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale • apply the area and perimeter formula with unknown factors for rectangles • understand concepts of angle measurement • recognize angle measure as additive	• solve problems involving conversion of measurements from a larger unit to a smaller unit • use four operations to solve word problems involving measurement with whole number amounts • sketch angles of specified measure • find unknown angles • solve problems involving addition and subtraction of fractions by using information presented in a line plot	• solve word problems involving measurement that include simple fractions and decimals

Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• identify lines and angles	• draw lines and angles	• draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines • recognize and identify quadrilaterals and right triangles	• recognize the symmetry of shapes • classify shapes by properties of their lines and angles	• justify the labels given to certain shapes • explain why a line or angle is correctly or incorrectly labeled

Performance Level Descriptors (PLDs)
Math Grade 5

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Operations and Algebraic Thinking				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• know the difference between an expression and an equation	• analyze patterns and relationships • use parentheses to write simple numerical expressions	• generate two numerical patterns using two given rules • form ordered pairs consisting of corresponding terms from the two patterns and graph the ordered pairs on a coordinate plane	• write numerical expressions • use parentheses and other mathematical symbols appropriately • explain numerical expressions • explain the relationship between two sets of patterns	• evaluate and justify numerical expressions

Numbers and Operations in Base Ten				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand the place value system	• perform operations with multi-digit whole numbers	• 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 • read, write, and compare decimals to the thousandths • use place value to round decimals • fluently multiply multi-digit whole numbers using the standard algorithm	• perform operations with decimals to hundredths	• illustrate and explain calculations by using equations, rectangular arrays and/or area models
Number and Operations – Fractions				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• multiply fractions	• multiply and divide fractions	• use equivalent fractions as a strategy to add and subtract fractions and mixed numbers with unlike denominators • model multiplication and division with fractions • interpret a fraction as division of the numerator by the denominator	• interpret and explain multiplication as scaling • solve real world problems involving multiplication of fractions and mixed numbers using visual models • use benchmark fractions to assess the reasonableness of answers	• solve word problems involving fractions that require the use of at least two operational steps

Measurement and Data				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• interpret data • recognize volume as an attribute of a 3-dimensional figure	• find volume of a rectangular prism by packing it with unit cubes or counting the unit cubes • convert like measurement units within a given measurement system	• make a line plot to display a data set of measurements in fractions of a unit • find volume by relating it to multiplication and applying the formula	• find volume by using multiplication and addition • represent data (e.g., line plot with fractions)	• solve real-world volume problems involving two or more operational steps
Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• identify two-dimensional figures based on properties	• classify two-dimensional figures according to a hierarchy • understand the parts of a coordinate plane	• apply the basic conventions of plotting points in the coordinate system	• represent real-world and mathematical problems using the coordinate plane • graph points on the coordinate plane	• compare two figures by analyzing the similarities and differences

Performance Level Descriptors (PLDs)
Math Grade 6

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Ratios and Proportional Reasoning				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• relate quantities by making a table of equivalent ratios • convert between equivalent fractions • understand that percent is out of 100	• understand ratio concepts • know three ways to write a ratio: ratio, proportion, and fraction • find unit given quantities • convert units	• understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$ • solve unit rate problems including those involving unit pricing and constant speed	• use ratio reasoning and/or proportions to solve problems • identify important quantities in context • solve proportions using multiple methods (see standard for methods)	• solve multi-step word problems involving ratios • use the information in the problem to find quantities needed to solve the ratio (e.g., sum all marbles to find ratios to total) • use unit rate to find any quantity and vice versa • set up table from scratch given a problem • find whole, part, or percent given only two of the three quantities • convert between the methods to solve proportions (e.g., given tape diagram, double number line, table)

The Number System				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• compute fluently with multi-digit numbers • find common factors and multiples • label a number line • connect directions to positive/negative axis	• apply and extend previous understandings of multiplication and division to divide fractions by fractions — without context • apply and extend previous understandings of numbers to positive and negative numbers • plot points by starting at the origin	• use positive and negative numbers to represent quantities in real-world contexts • understand a rational number as a point on the number line • understand the absolute value of a rational number as its distance from 0 on the number line • understand subtraction of integers as adding the additive inverse • show that the distance between two integers on the number line is the absolute value of their difference	• divide fractions by fractions in context or with a visual model • apply and extend previous understandings of numbers to the system of rational numbers (e.g., comparisons and ordering of rational numbers) • understand and apply the distributive property • understand absolute value and that opposites are not the same • graph points in all four quadrants starting at any point • find the greatest common factor and the least common multiple • compute fluently with multi-digit decimals using the standard algorithm	• estimate the reasonableness of answers • write and solve equations involving multiplication and division of fractions • reflect across either axis • interpret absolute value in real-world context (e.g., overdrawn accounts)

Expressions and Equations				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• use substitution to solve one-step equations and inequalities	• apply previous understandings of arithmetic to algebraic expressions • substitute from a set for equation and inequality	• write and evaluate numerical expressions involving whole-number exponents • perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations) • understand solving an equation or inequality as a process of answering a question • apply the properties of operations to generate equivalent expressions	• extend previous understandings of arithmetic to algebraic expressions • translate real-world problems to algebraic expressions • apply the order of operations to algebraic expressions consistently • reason about one-variable equations and inequalities • represent quantitative relationships between dependent and independent variables (from graph or table, write two-variable equation in terms of dependent and independent variables) • graph an inequality on a number line	• analyze quantitative relationships between dependent and independent variables

Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• solve mathematical problems involving area of simple figures (e.g., squares, rectangles, and triangles) given the formula	• solve mathematical volume problems with whole numbers • understand composite figures • infer shapes from three coordinate pairs • identify a three-dimensional solid produced by nets	• find the area of right triangles, other triangles, special quadrilaterals, and polygons • use the formulas V = lwh and V = bh to find volumes of right rectangular prisms with fractional edge lengths • use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate	• solve real-world problems (e.g., including shaded area problems) involving area, surface area (nets), and volume with fractional edge lengths	• write and evaluate problems involving area, surface area, and volume, including problems with unknown numbers • decompose from 3D solid to net form in real world context
Statistics and Probability				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• describe distributions based on overall shape • find the mean	• summarize (calculate) distributions using mean, median, mode, and range • read graphs (e.g., scatter plot and histogram)	• describe the nature of the attribute under investigation, including how it was measured and its units of measurement • display numerical data in plots on a number line, including dot plots, histograms, and box plots • summarize numerical data sets in relation to their context quantitative measures of center (median and/or mean)	• develop an understanding of statistical variability • summarize and describe distributions — develop graphs from data and answer statistical questions • understand which measure is best for data • understand outliers	• make predictions based on data — which measure will change if data is taken away

Performance Level Descriptors (PLDs)
Math Grade 7

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Ratios and Proportional Reasoning				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• evaluate a proportional relationship	• use proportional relationships to solve real-world and mathematical problems • understand the notation and compute complex fractions • recognize a proportional relationship on a graph • solve single-step percent problems	• compute unit rates of quantities associated with ratios of fractions • use proportional relationships to solve one or two-step ratio and percent problems	• compute unit rates associated with ratios of fractions, including lengths, areas, and other quantities measured in like or different units • identify the relationships that are proportional and compute the constant of proportionality • write and evaluate (solve) proportional relationships and use them to solve real-world (including complex fractions and calculating unit rate) and mathematical problems • determine the relationship based on the graph or a table of a set of values including creating the table • solve multi-step percent problems	• analyze and apply proportional equations, including equations with unknown numbers

The Number System				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• use a number line to add and subtract positive numbers • multiply and divide positive rational numbers	• apply previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers • convert a fraction to a decimal using long division • add two positive or two negative numbers using the number line	• perform operations on positive and negative rational numbers in mathematical and real-world problems	• extend previous understandings of operations with fractions to multiply, divide, add, and subtract rational numbers (e.g., negative numbers) with the number line, or using properties of operations	• construct and evaluate multi-step mathematical problems that describe real-world situations using rational numbers
Expressions and Equations				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• solve real-world and mathematical problems using numerical expressions and equations • solve one-step equations	• use properties of operations to generate equivalent expressions using whole numbers • graph simple equations and inequalities	• solve two-step linear equations with rational coefficients • construct simple equations and inequalities to solve problems by reasoning about the quantities	• solve multi-step real-world and mathematical problems— include all rational coefficients • check solutions for reasonableness using algebraic expressions, equations, and inequalities • interpret graphs of solution sets of equations and inequalities	• solve multi-step problems by explaining each step • assess the reasonableness of answers using mental computation and estimation strategies

Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• describe geometrical figures • solve real-world and mathematical problems involving angle measure and area	• describe the relationships between geometrical figures • solve real-world and mathematical problems involving surface area and volume • apply knowledge of ratios to scale problems	• solve mathematical problems involving circumference, area, surface area, and volume of two- and three-dimensional objects • construct triangles with given angle and side conditions • use facts about angle relationships to determine the measure of unknown angles	• draw and construct geometrical figures • calculate the area and circumference of circles without the formula • understand the relationship between area and circumference • solve for missing angles — multi-step problems • slice prisms and pyramids (square and triangular) • solve problems involving scale factors	• manipulate equations involving angle measures, area formulas, surface area formulas, and volume formulas to solve for unknown numbers
Statistics and Probability				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• describe a population • compare the likelihood of two given probabilities	• use random sampling to draw inferences about a population • understand which measure is best for data gathered from two populations	• draw inferences about a population from a table or graph of random samples • draw informal comparative inferences about two populations • find probabilities when given sample spaces for simple events using methods such as organized lists and tables	• investigate chance processes and develop, use, and evaluate probability models • use multiple samples to assess the variation • compare two populations quantitatively (measures of center and variability), using data from random sample • develop a probability model of the event • solve real-world problems using combinations and permutations	• use probability models to justify predictions • compare theoretical probability to experimental probability to analyze the result

Performance Level Descriptors (PLDs)
Math Grade 8

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
The Number System				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• know that there are numbers that are not rational	• approximately locate single irrational terms on a number line • identify irrational numbers	• use decimal expansion to demonstrate understanding of the difference between rational and irrational numbers	• use rational numbers to approximate the values of single irrational terms • convert a repeating decimal to fraction form	• use rational numbers to approximate the values of irrational expressions with more than one term • approximately locate irrational expressions with more than one term on a number line

Expressions and Equations				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• solve two-step linear equations in one variable • know that $\sqrt{2}$ is irrational • identify scientific notation • convert between expanded multiplication and exponential form	• identify perfect squares and their square roots, and perfect cubes and their cube roots • know properties of exponents • convert between scientific and standard forms • interpret scientific notation that has been generated by technology • solve two-step linear inequalities in one variable and graph the solution sets • identify slope from a graph, using slope triangles	• perform operations with numbers expressed in scientific notation • solve multi-step linear equations and inequalities in one variable, with integer coefficients • solve equations within the form $x^2 = p$, where *p* is a positive rational number • graph proportional relationships, interpreting the unit rate as the slope of the graph • find slope using multiple techniques • find the *y*-intercept of a line • understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs • solve systems of equations that have the same coefficients by inspection	• apply the properties of integer exponents • perform operations where both decimal and scientific notation are used • solve multi-step linear equations and inequalities in one variable, with rational coefficients • give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions • solve equations within the form $x^3 = p$, where *p* is a positive rational number • compare two different proportional relationships represented in different ways • derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at *b* • solve systems of linear equations graphically and algebraically	• solve word problems by writing and evaluating simultaneous linear equations and interpret the solution in terms of the problem • use scientific notation to solve real-world problems • use slope to solve rate of change problems • explain why the slope *m* is the same between any two distinct points on a non-vertical line in the coordinate plane

Functions				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• identify whether a relation is a function • identify independent and dependent variables • select the graph of a function given input and output pairs	• distinguish linear and non-linear functions • interpret the equation $y = mx + b$ as defining a linear function • give examples of functions that are not linear • evaluate linear functions	• construct a function to model a linear relationship between two quantities in a table or a graph • determine the rate of change and initial value of a function from a description of a relationship or from two (x, y) values • interpret the rate of change and initial value of a linear function in terms of the graph or table of values • evaluate non-linear functions	• describe qualitatively the functional relationship between two quantities by analyzing a graph • construct functions to model two linear relationships in a real-world problem and then compare the functions • interpret the rate of change and initial value of a linear function in terms of the situation it models • compare properties of two functions each represented in different ways (e.g., table, equation, or graph)	• create and interpret a graph from a situation • sketch a graph that exhibits the qualitative features of a function that has been described verbally

Geometry				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand congruence and similarity using physical models, transparencies, or geometry software • recognize corresponding sides or angles between a pre-image and image	• apply the Pythagorean Theorem to solve two-dimensional problems for missing hypotenuse, given a drawing • solve mathematical problems involving volume of cylinders • perform a single rigid transformation • use transversals to solve for angle measures only	• solve mathematical problems involving the volumes of cones, and spheres • apply the Pythagorean Theorem to solve two-dimensional problems for any missing side, including the hypotenuse or either leg, given a drawing with sides labeled	• perform multi-step transformations of figures and understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rigid transformations • solve real-world problems involving volume of spheres, cones and cylinders • understand and apply the Pythagorean Theorem to solve three-dimensional mathematical problems or two-dimensional real-world problems • use transversals to solve equations involving angle measures	• use knowledge of congruence and similarity to solve for missing values • give ordered pairs at each step of transformations and generalize effects of transformations • understand and apply the Pythagorean Theorem to solve three-dimensional real-world problems • explain a proof of the Pythagorean theorem • use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal

Statistics and Probability				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• plot scatter plots for bivariate data with a given scale • identify linear and nonlinear associations from a graph	• use a given linear model to solve problems involving bivariate data • informally fit a straight line to data by choosing the graph with the line that is the best estimate • identify associations on a graph as positive or negative	• use the patterns of association in bivariate data by interpreting scatter plots and two-way tables • sketch a line of best fit for a scatter plot that suggests a linear association • fill in missing information in a partially completed two-way table • identify clusters or outliers	• investigate patterns of associations in bivariate data • analyze the pattern and create a model equation for the line of best fit from a graph • construct and interpret a two-way table summarizing data	• analyze the pattern and create a model equation for linear patterns from data presented in a table • summarize data on two categorical variables collected from the same subjects • describe patterns such as clustering, outliers, positive, outliers, positive or negative association, linear association, and nonlinear association

Performance Level Descriptors (PLDs)
Algebra I

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	Performance Level 5
A student performing below the Basic level inconsistently demonstrates the knowledge or skills that define basic level performance.	Students at the Basic level demonstrate partial mastery of the knowledge and skills in the course and may experience difficulty in the next grade or course in the content area. These students are able to perform some of the content standards at a low level of difficulty, complexity, or fluency as specified by the grade-level content standards.	Students at the Passing level demonstrate general mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform approaching or at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Proficient level demonstrate solid academic performance and mastery of the knowledge and skills required for success in the grade or course in the content area. These students are able to perform at the level of difficulty, complexity, or fluency specified by the grade-level content standards.	Students at the Advanced level consistently perform in a manner clearly beyond that required to be successful in the grade or course in the content area. These students are able to perform at a high level of difficulty, complexity, or fluency as specified by the grade-level content standards.
Number and Quantity				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• explain why the sum or product of two rational numbers is rational • interpret the scale and the origin in given graphs and data displays	• explain why the sum of a rational number and an irrational number is irrational • choose the scale and the origin in graphs and data displays	• define appropriate quantities for the purpose of descriptive modeling • interpret units consistently in formulas	• explain why the product of a nonzero rational number and an irrational number is irrational • use units to guide the solution of multi-step problems • choose a level of accuracy appropriate to limitations on measurement when reporting quantities	• use the relationship between units to assess the plausibility of solutions

Algebra				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• identify parts of an expression, such as terms, factors, and coefficients • add and subtract polynomials with one variable • create one- or two-step equations in one variable and use them to solve problems • solve multi-step linear equations and inequalities in one variable with integer coefficients	• interpret parts of an expression, such as terms, factors, and coefficients • add and subtract polynomials • multiply two binomials • create multi-step linear equations and inequalities in one variable and use them to solve problems • solve multi-step linear equations and inequalities in one variable with rational coefficients • interpret complicated expressions by viewing one or more of their parts as a single entity • understand the meaning of zeros of polynomials • graph linear functions on coordinate axes with labels and scales • solve quadratic equations without a linear term by inspection (e.g., for $x^2 = 49$), taking square roots • solve systems of linear equations graphically with integer solutions and a scale of one on both axes	• use the structure of an expression to identify ways to rewrite it • create equations in two or more variables that describe numbers or relationships, including quadratic, simple rational, or simple exponential functions • identify parts of exponential and quadratic expressions • use the properties of exponents • make an informal argument on the closure of polynomials under the operations of addition, subtraction, and multiplication • multiply polynomials • identify zeros of polynomials when suitable factorizations are available • write or choose a simple exponential or a simple quadratic equation with no horizontal or vertical translation • explain why taking the square root of both sides when solving a quadratic will yield two solutions • explain whether a system of linear equations has one, infinitely many, or no solutions	• understand solving equations as a process of reasoning and explain the reasoning • solve multi-step linear equations in one variable with variable coefficients • find solutions using technology to find the points where the graphs of the equations of $y = f(x)$ and $y = g(x)$ intersect, including linear, quadratic, absolute value, and/or exponential functions • apply multiple operations (excluding division) when simplifying polynomials with rational coefficients • factor a quadratic expression to reveal the zeros of the function it defines • complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines • solve quadratic equations by completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation • recognize when the quadratic formula gives complex solutions	• rewrite expressions using structure and properties to solve complex word problems • write and solve systems of equations or inequalities to solve real-world problems • rearrange inequalities to highlight a quantity of interest • write a polynomial given its zeros • complete the square to transform any quadratic equation in *x* into an equation of the form $(x - p)^2 = q$ that has the same solutions and derive the quadratic formula from this form • analyze graphs to write the equations and inequalities represented • given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system • explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the

		• solve systems of linear equations graphically with integer solutions and a scale other than one • solve a system of linear equations algebraically when one variable has the same or opposite coefficients or at least one variable has a coefficient of 1 • select a system of linear equations to represent a real-world problem	• use the properties of exponents to transform expressions for exponential functions • understand the relationship between zeros and factors of polynomials • create inequalities in two or more variables that describe numbers or relationships • rearrange formulas to highlight a quantity of interest • represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context • solve systems of linear equations algebraically and graphically • graph the solutions of linear inequalities or systems of linear inequalities in two variables	solutions of the equation $f(x) = g(x)$

Functions				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range; if *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*; the graph of *f*(*x*) is the graph of the equation *y* = *f*(*x*) • evaluate linear functions for inputs in their domains using function notation • identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*, for specific values of *k* (both positive and negative) • recognize linear functions as functions that grow by equal differences over equal intervals	• sketch the graph of a linear function, showing slope and *x*- and *y*-intercepts • estimate the rate of change from a graph • construct linear functions given a graph • interpret statements that use function notation in terms of a context • identify the effect on the graph of replacing *f*(*x*) by *k f(x) or f*(*x* + *k*), for specific values of *k* (both positive and negative) • recognize using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function • interpret the parameters in a linear or exponential function in terms of a context	• relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes • construct linear functions, including arithmetic sequences, given a description of a relationship or two input-output pairs • calculate the average rate of change of a function over a specified interval • evaluate quadratic, polynomials of degree 3, absolute value, square root, and exponential functions for inputs in their domain • interpret key features of a linear function given as a verbal description • compare the properties of two linear functions with different representations • identify the effect on the graph of replacing *f*(*x*) by *f*(*kx*), for specific values of *k* • differentiate between linear and quadratic functions that are represented using different representations (table, graph, or algebraic)	• graph piecewise functions involving only linear functions • graph square root and absolute value functions • complete the square on a quadratic equation to show extreme values • recognize that sequences are functions whose domain is a subset of the integers • identify the effect on the graph of replacing *f*(*x*) by *f*(*kx*), for specific values of *k* (both positive and negative) • find the value of *k* given the graphs of *f*(*x*) and *f*(*x*) + *k*, *kf*(*x*), *f*(*x* + *k*), or *f*(*kx*) • prove that exponential functions grow by equal factors over equal intervals • recognize situations in which one quantity changes at a constant rate per unit interval relative to another • recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another • construct exponential functions, including geometric sequences,	• compare properties of two functions of different types each represented in a different way • identify the effect on the graph by combinations of replacements such as replacing *f*(*x*) by *hf*(*x* + *k*) or replacing *f*(*x*) by *f*(*kx*) + *k* • graph piecewise functions involving linear and non-linear functions • interpret zeros, extreme values, and symmetry of functions in terms of a context • write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function • determine an explicit expression or steps for calculation from a context

		• prove that linear functions grow by equal differences over equal intervals • identify the constant rate, or rate of growth or decay, and choose an explanation as to why a context may be modeled by a linear or exponential function • graph quadratic functions and show intercepts and maxima or minima • use factoring to show zeros of a quadratic function	given a graph, a description of a relationship, or two input-output pairs (include reading these from a table) • compare the properties of two non-linear functions of the same type with different representations	

Statistics and Probability				
Students performing at this level:	**Students performing at this level are accomplished at the previous level and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**	**Students performing at this level are accomplished at the previous levels and:**
• represent data with plots on the real number line (dot plots, histograms, and box plots)	• use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets • interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers) • interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data • distinguish between correlation and causation	• predict the effect of an outlier on the shape and center of a data set • create or complete a two-way frequency table when up to two joint, marginal, or conditional relative frequencies are described within the context • find the values for joint, marginal, or conditional relative frequency • fit a linear function for a scatter plot that suggests a linear association • compute (using technology) and interpret the correlation coefficient of a linear fit • use a linear function fitted to the data to solve problems in the context of the data	• summarize categorical data for two categories in two-way frequency tables • interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies) • recognize possible associations and trends in the data • represent data on two quantitative variables on a scatter plot, and describe how the variables are related • fit a quadratic or exponential function to data	• informally assess the fit of a function by plotting and analyzing residuals • interpret residuals for a function in the context of the data