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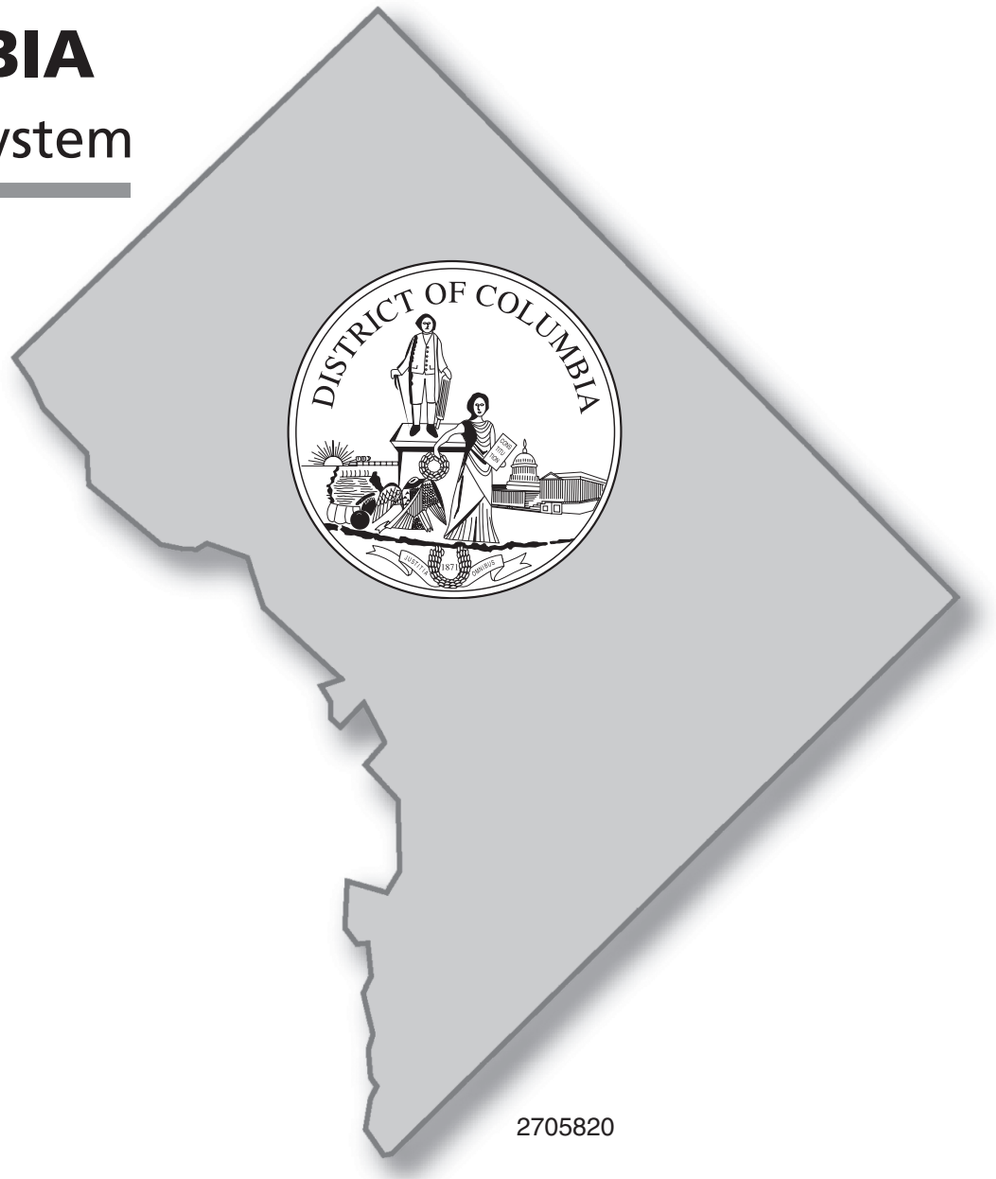
Comprehensive Assessment System



Resource Guide

2014

OSSE

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OFFICE OF THE STATE SUPERINTENDENT OF EDUCATION

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Introduction

Purpose

This resource guide has been developed to provide teachers and other stakeholders with an understanding of the District of Columbia Comprehensive Assessment System (DC CAS). When used in conjunction with other curricular materials and texts, the guide will

- help teachers as they make decisions about targeted classroom instruction and assessment,
- provide a framework and focus of instruction aligned with the skills and processes measured by test items of the DC CAS, and
- enhance and strengthen instructional journeys.

Test Accountability

The tests of the DC CAS have been designed to measure the academic proficiency of students in the District of Columbia relative to their mastery of the DC Content Standards. These tests are aligned to the Science and Health and Physical Education standards of the District of Columbia. In addition to the DC Content Standards, the Common Core State Standards continue to be implemented in the 2013–2014 school year. In Spring 2014, the DC CAS Reading, Mathematics, and Composition tests will be aligned to the content in the Common Core State Standards. More information about the content standards measured by the DC CAS can be viewed online at http://osse.dc.gov/service/dc-educational-standards.

The battery of tests of the DC CAS are administered in the spring of each school year. **DC CAS testing is scheduled to take place March 31–April 11, 2014.**

Reading and mathematics tests are administered to students in grades 2–8 and 10, and reading is administered to students in grade 9. For grades 3–8 and 10, the tests have been operational since 2006. The reading tests for grade 9 have been operational since 2011, and since 2012 for the reading and mathematics tests for grade 2.

The testing of students' writing skills via the composition component of the DC CAS became operational in Spring 2008. Prior to that administration, a series of writing prompts were piloted in 2006 and 2007. New prompts aligned to the Common Core were piloted in Spring 2012. For the first time, the Spring 2013 composition test results were included in the DC Accountability Framework calculations.

In Spring 2007, science tests were administered to students in grades 5 and 8 as well as to students who were enrolled in their school's biology course. The science and biology tests were first operational in 2008, and student scores on these tests have been reported since that administration.

The Spring 2013 science and biology test results were not included in DC's Accountability Framework calculations; details about future inclusion into the Framework will be released by OSSE.

Test Format

In 2014, as in previous years, the tests for reading and mathematics will be combined into one test book for grades 2–8 and 10. For each tested grade, there will be two forms. Teachers should always confirm that each student has a corresponding test book and answer booklet.

Students in grade 9 will also be administered the reading test. There will be two forms.

For grades 2 and 3, the students write their answers in their scannable test books. Students in grades 4–10 record their answers in scannable answer booklets, color-coded by form and grade.

For grades 4, 7, and 10, the composition test will consist of a passage, a writing prompt that requires an analysis of the text, and lined pages for students to write their essay.

The science and biology tests will have two forms each, and both a test book and an answer booklet will be assigned to each student taking the test.

The health test will have one form for each tested grade. Students will be assigned a test book and an answer booklet.

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Both selected-response (multiple-choice) and constructed-response items comprise the tests of the DC CAS. For a selected-response item, students choose the correct answer from among four answer choices. For a constructed-response item or composition writing prompt, students write a response to a test question. Student responses are then scored according to the criteria of rubrics or scoring guides. Rubrics and sample scoring guides can be found in the reading, composition, mathematics, and science/biology sections of this document.

Reporting Categories

The test items of the DC CAS measure the proficiency of students based on the DC Content Standards (science/biology and health) and the Common Core State Standards (reading, mathematics, and composition). These standards are grouped into reporting categories for the DC CAS. Strands from the DC Content Standards are generally used as the reporting categories. Each category is not equally weighted.

A description of the reporting categories and what each measures follows:

Reading

- **Vocabulary Acquisition and Use:** Items in this category measure students' ability to identify meanings of words using prior knowledge, word structure, etymology, a dictionary, and/or context.
- **Informational Text:** Items of this category measure students' ability to read, comprehend, and respond to informational passages. The passages used may be expository texts, literary nonfiction texts, documentary or procedural texts, or persuasive texts. Students may be asked to locate or interpret details, examine structure, identify main idea, or explain/evaluate key ideas of a given text.
- **Literary Text:** Items of this category measure students' ability to read, comprehend, and respond to literary passages. These passages may be short stories, poems, excerpts from larger works, or fables. Students may be asked about the literary elements or the style and language of the text. They may also be asked to explain or analyze the theme or the author's implicit purpose or audience.

Composition

Student writing is evaluated on three rubrics that include the following:

- **Topic Development:** clarity of focus, development of ideas, appropriate organization, and effective use of language.
- **Language Conventions:** sentence structure, grammar, and use of conventions.
- **Understanding Literary or Informational Text:** understanding of the complexities of text to perform a literary analysis; demonstrate mastery of a dually aligned reading standard.

Each prompt will require students to demonstrate an ability to perform a literary analysis. Each prompt will be aligned to a specific text.

Grade 4: informational and literary texts.

Grade 7: informational, literary, and literary non-fiction texts.

Grade 10: informational, literary, and literary non-fiction texts.

Mathematics

- **Number and Operations in Base Ten (grades 2–5):** Items of this category measure students' ability to use the base ten system to write, read, and compute with whole numbers and decimals.
- **Operations and Algebraic Thinking (grades 2–5):** Items of this category measure students' ability to use numbers and perform operations. Students may be asked to show an understanding of properties, describe relationships and patterns, and compute fluently with all four operations.
- **Geometry (grades 2–5):** Items of this category measure students' ability to reason with shapes and their attributes. They may also be asked to classify shapes by properties, draw and identify lines and angles, and graph points on the coordinate plane to solve problems.

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- **Measurement and Data (grades 2–5):** Items of this category measure students' ability to use standard units of measure, represent and interpret data, and measure angles. Students may also be asked to calculate area and volume and relate them to multiplication and addition.
- **Number and Operations—Fractions (grades 3–5):** Items of this category measure students' ability to recognize, read, and use fractions. Students may be asked to recognize fractions and unit fractions, equivalences of fractions, and compute with fractions using all four operations.
- **Statistics and Probability (grade 6 only):** Items of this category measure students' ability to develop an understanding of statistical questions and their resultant data. They may also be asked to display data graphically, to summarize data by giving specific statistics, or to choose statistics representative of a distribution or context.
- **Ratios and Proportional Relationships (grades 6 and 7):** Items of this category measure students' ability to understand and use ratios to solve problems. They may also be asked to calculate a unit rate, find the percent of a whole, and recognize and represent proportional relationships between quantities.
- **The Number System (grades 6–8):** Items of this category measure students' ability to compute with rational numbers, which include negative numbers. They may also be asked to know that there are numbers that are not rational and approximate them by rational numbers.
- **Expressions and Equations (grades 6–8):** Items of this category measure students' ability to write, interpret, and use expressions and equations with rational numbers. They may also be asked to solve linear and pairs of linear equations and work with radical and integer exponents.
- **Geometry (grades 6–8):** Items of this category measure students' ability to solve real-world problems involving two- and three-dimensional shapes and their area, surface area, and volume. They may also be asked to solve problems involving congruence, scale drawings, and similarity, and to apply the Pythagorean Theorem.
- **Statistics and Probability (grade 7 only):** Items of this category measure students' ability to use random sampling to gain information and to draw inferences about a population or a comparative inference about two populations. They may also be asked to investigate chance probabilities of simple or compound events by approximating the probability of an event, developing probability models, or using organized lists, tables, or tree diagrams.
- **Statistics and Probability (grade 8 only):** Items of this category measure students' ability to construct, interpret, and use scatter plots for bivariate data. They may also be asked to model the relationship between quantitative data displayed in a scatter plot or table by a linear equation if a correlation between the data exists and to interpret the slope and intercepts in the context of the data.
- **Functions (grades 8 and 10):** Items of this category measure students' ability to grasp the concept of functions and use functions and function notation to describe quantitative relationships. They may also be asked to build functions between two quantities, compare linear, quadratic, and exponential functions to solve problems, and to work with trigonometric functions, including applying and proving trigonometric identities.
- **Number and Quantity (grade 10 only):** Items of this category measure students' ability to use and extend properties of the real number system, reason quantitatively, use units to solve problems, and to represent, model, or perform operations on vectors and matrices. They may also be asked to perform operations with complex numbers or to represent them graphically.
- **Algebra (grade 10 only):** Items of this category measure students' ability to interpret, write, apply, and solve expressions, equations, and inequalities to solve problems. They may also be asked to understand and prove relationships and characteristics about single and multi-variable polynomials to solve systems of equations and/or inequalities in mathematical and applied contexts.

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- **Geometry (grade 10 only):** Items of this category measure students' ability to prove geometric theorems, explain and use volume formulas to solve problems, and express geometric properties with equations. They may also be asked to use arc lengths, area sectors of circles, as well as circle theorems to solve problems, define and apply trigonometric ratios, and use congruence and similarity in transformations.
- **Statistics and Probability (grade 10 only):** Items of this category measure the students' ability to summarize, represent, interpret, evaluate, reason with, and understand data, models, statistical experiments, and probabilities. They may also be asked to compute, explain, understand, or apply probability rules to independent and conditional events.

Science

Grade 5 Science

- **Science and Technology:** Items of this category measure students' knowledge of scientific inquiry and the impacts of technology on society. Students may be asked to analyze experimental design and data. They may be asked to determine the area and volume of rectangles. Students may be asked to give examples of materials made available because of science and technology.
- **Earth and Space Science:** Items of this category measure students' knowledge of the solar system and the physical characteristics of Earth. Students may be asked to describe the water cycle and explain how global patterns influence local weather and climate.
- **Physical Science:** Items of this category measure students' basic understanding of the periodic table, force and motion, and heat transfer. Students may be asked to investigate how heating and cooling affect substances and describe the effect of balanced and unbalanced forces on an object.
- **Life Science:** Items of this category measure students' basic understanding of cells, inheritance, and adaptation. Students may be asked to identify organisms, describe their characteristics, examine their reactions to changes in the environment, and analyze the effect of environmental changes on their survival.

Grade 8 Science

- **Scientific Thinking and Inquiry:** Items of this category measure students' understanding and application of scientific design. Students may be asked to design or critique investigations and analyze reasoning used in scientific arguments. They may also be asked to apply simple mathematical models to problems.
- **Matter and Reactions:** Items of this category measure students' basic understanding of the properties and structures of elements and chemical reactions. Students may be asked to recognize and describe characteristics of atoms, molecules, compounds, and ions. They may be asked to describe the mass, weight, and density of an object. Students may be asked to demonstrate understanding of conservation of matter, endothermic and exothermic chemical reactions, factors that affect reaction rates, acidic and basic solutions, and evidence that chemical changes have taken place.
- **Forces:** Items of this category measure students' understanding of the concepts of force and motion. Students may be asked to determine and explain the buoyant force on an object. They may also be asked to determine and describe the effect of forces on the motion of objects.
- **Energy and Waves:** Items of this category measure students' basic knowledge of energy and how it is transferred. Students may be asked to recognize and describe various forms of energy including kinetic, potential, electrical, gravitational, sound, heat, and light energy.

Biology

- **Cell Biology and Biochemistry:** Items of this category measure students' basic understanding of the chemistry of living things and knowledge of cell structures and functions. Students may be asked to use simplified Bohr diagrams, describe the structure and properties of water, and describe the molecules found in living things. They may be asked to describe

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cell organelles and compare and contrast prokaryotic and eukaryotic cells. They may also be asked to describe cellular respiration, mitosis, and meiosis.

- **Genetics and Evolution:** Items of this category measure students' knowledge of genes, biodiversity, and the theory of evolution. Students may be asked to describe how genes are passed from parents to offspring, and explain the relationship between DNA and proteins. They may be asked to explain recombination of genes in sexual reproduction and relate DNA similarities to degrees of kinship. Students may be asked to describe how genetic diversity helps organisms survive in a changing environment. They may also be asked to relate the concepts of heredity and natural selection to the modern theory of evolution.
- **Multicellular Organisms: Plants and Animals:** Items of this category measure students' knowledge of plant and animal biology. Students may be asked to describe the structure and function of plant parts and identify the roles of plants in the ecosystem. They may also be asked to identify and analyze the complementary activity of mammalian body systems.
- **Ecosystems:** Items of this category measure students' knowledge of biotic and abiotic factors in ecosystems. Students may be asked to analyze the effect of population changes on the ecological balance of a community. They may also be asked to assess methods for monitoring and safeguarding water quality.

Health and Physical Education

Grade 5 Health and Physical Education

- **Communication and Emotional Health:** Items of this category measure students' understanding of intrapersonal and interpersonal emotional health. Students may be asked to describe mental and emotional illnesses. Students may be asked to identify components of positive or negative interpersonal communication.
- **Safety Skills:** Items of this category measure students' understanding of personal and community safety. Students may be asked to identify ways to prevent or treat common injuries.
- **Human Body and Personal Health:** Items of this category measure students' understanding of human body functions and personal health. Students may be asked to describe the basic structure and function of body parts and body systems. Students may be asked to identify strategies to maintain personal health.
- **Disease Prevention:** Items of this category measure students' understanding of behaviors that lead to disease in individuals and communities. Students may be asked to describe environmental and behavioral factors that influence disease.
- **Nutrition:** Items of this category measure students' understanding of the connection between nutrition and the many aspects of a person's life. Students may be asked to identify foods and food groups and their effects on physical and mental health.
- **Alcohol, Tobacco and Other Drugs:** Items of this category measure students' understanding of substance addiction. Students may be asked to describe factors influencing addiction including prevention and treatment.
- **Health Decision Making:** Items of this category measure students' understanding of health messages, products and behaviors. Students may be asked to identify health-related media influences. Students may be asked to explain how they can make healthy decisions and influence the health-related decision making of others around them.
- **Physical Education:** Items of this category measure students' understanding of the connection between the human body and physical movement. Students may be asked to describe how food and water influence the body's physical abilities. Students may be asked to identify specific muscles. Students may be asked to explain the benefit of specific physical activities, including stretching.

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Grade 8 Health and Physical Education

- **Communication and Emotional Health:** Items of this category measure students' understanding of intrapersonal and interpersonal emotional health. Students may be asked to describe mental and emotional illnesses. Students may be asked to identify components of positive interpersonal communication.
- **Safety Skills and Community Health:** Items of this category measure students' understanding of personal and community safety. Students may be asked to identify ways to prevent or treat common injuries and threats. Students may be asked to classify health-related disparities.
- **Human Development and Sexuality:** Items of this category measure students' understanding of human sexuality and personal health. Students may be asked to describe the structure and function of body parts and body systems as well as behaviors necessary to remain healthy. Students may be asked to define behaviors related to development and sexuality.
- **Disease Prevention:** Items of this category measure students' understanding of behaviors and other contributing factors that lead to disease in individuals and communities. Students may be asked to describe environmental and behavioral factors that influence disease.
- **Nutrition:** Items of this category measure students' understanding of the connection between nutrition and the many aspects of a person's life. Students may be asked to identify the short-term or long-term effects of specific nutritional choices on physical health.
- **Alcohol, Tobacco and Other Drugs:** Items of this category measure students' understanding of substance use and addiction. Students may be asked to describe factors influencing substance use and consequences of substance use. Students may be asked to identify the relationship between substance use and other health outcomes.
- **Health Information and Advocacy:** Items of this category measure students' understanding of health messages and health advocacy. Students may be asked to explain how they can advocate for health. Students may be asked to identify ways in which technology influences personal and population health.
- **Physical Education:** Items of this category measure students' understanding of the connection between the human body and physical movement. Students may be asked to describe how food and water influence the body's physical abilities. Students may be asked to identify the principles of physical conditioning on the heart, other muscles, and other body parts. Students may be asked to explain the effects of physical activity on the body.

High School Health and Physical Education

- **Human Growth and Development:** Items of this category measure students' understanding of the physical and emotional changes represented in different stages of life. Students may be asked to identify physical, social and emotional changes as well as developmental issues in each life stage. Students may be asked to explain specific behaviors to support healthy growth development.
- **Sexuality and Reproduction:** Items of this category measure students' understanding of human sexuality and personal health. Students may be asked to define and describe abstinence. Students may be asked to identify consequences of sexual activity. Students may be asked to identify behaviors, including STI testing, that are important when involved in sexual activity.
- **Disease Prevention and Treatment:** Items of this category measure students' understanding of contributing factors that lead to disease in individuals and communities. Students may be asked to describe environmental and behavioral factors that influence disease. Students may be asked to identify means of delaying or reducing the risk of specific disease.
- **Nutrition:** Items of this category measure students' understanding of the connection between nutrition and the many aspects of a

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person's life. Students may be asked to identify the short-term or long-term effects of specific nutritional choices on physical health.

- **Alcohol, Tobacco and Other Drugs:** Items of this category measure students' understanding of substance use and dependence. Students may be asked to describe factors influencing substance use and dependence. Students may be asked to identify the relationship between regulations and tobacco use.
- **Safety Skills:** Items of this category measure students' understanding of personal and community safety. Students may be asked to identify ways to prevent or treat common injuries and threats. Students may be asked to describe specific means of mitigating injury in the home, at work, and on the road. Students may be asked to identify signs of abuse and resources to help those affected.
- **Locate Health Information and Assistance:** Items of this category measure students' understanding of health care services for individuals, families, and communities. Students may be asked to explain how they can solve personal or community health concerns. Students may be asked to identify ways in which regulations, cost, and accessibility influences personal and population health.
- **Physical Education:** Items of this category measure students' understanding of the connection between the human body and physical movement. Students may be asked to identify the five components of physical fitness.

This Guide and Other Resources

The item stems and resources in this guide have been created and assembled by the Office of the State Superintendent of Education (OSSE) and CTB/McGraw-Hill, the DC CAS test development vendor.

For a sample of released mathematics and science/biology items, go to: http://www.nclb.osse.dc.gov/itembank.asp. For a sample of released reading items, contact your Local Education Agency (LEA) for online access instructions.

For questions or to provide feedback, please email OSSE.assessment@dc.gov.

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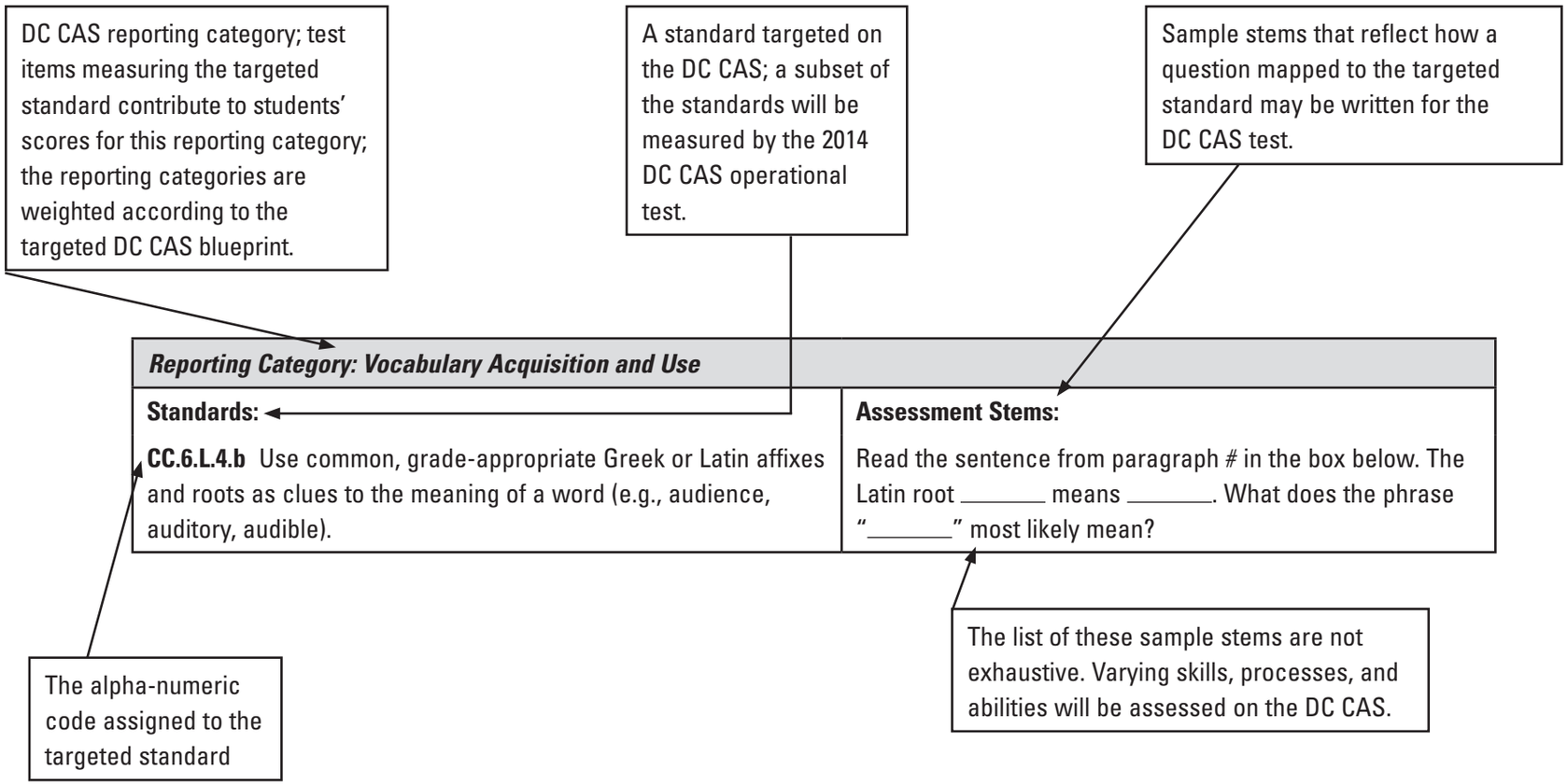
DC CAS Target Blueprints, Tested Standards, and Rubrics/Sample Scoring Guides

The following pages provide target blueprints, tested standards, rubrics, and sample scoring guides to help teachers focus instruction relative to the DC CAS tests. Instruction should not be limited to the skills and processes identified in the standards in the tables. All approved standards represent what students should know and be able to do and will be assessed across administrations.

The 2014 DC CAS will remain aligned to the current DC Standards for science/biology and health, and to the Common Core State Standards for reading, mathematics, and composition.

Prior to using the Tested Standards tables, educators should review the sample below and the explanation of the content of each column.



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READING

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DC CAS Reading Target Blueprints

Reading Common Core Transition Blueprints for 2014

CCSS Grade 2

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	13	1	14	16	41%
Reading Literary Text	13	1	14	16	41%
Vocabulary Acquisition & Use	7	0	7	7	18%
TOTALS	**33**	**2**	**35**	**39**	**100%**

CCSS Grade 3

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	20	1	21	23	43%
Reading Literary Text	18	2	20	24	44%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 4

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	20	1	21	23	43%
Reading Literary Text	18	2	20	24	44%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 5

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	20	1	21	23	43%
Reading Literary Text	18	2	20	24	44%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 6

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	20	1	21	23	43%
Reading Literary Text	18	2	20	24	44%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 7

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	21	2	23	27	50%
Reading Literary Text	17	1	18	20	37%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

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DC CAS Reading Target Blueprints

CCSS Grade 8

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	21	2	23	27	50%
Reading Literary Text	17	1	18	20	37%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 9

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	21	2	23	27	50%
Reading Literary Text	17	1	18	20	37%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

CCSS Grade 10

Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Reading Informational Text	22	2	24	28	52%
Reading Literary Text	16	1	17	19	35%
Vocabulary Acquisition & Use	7	0	7	7	13%
TOTALS	**45**	**3**	**48**	**54**	**100%**

2014 Target Blueprint Notes

- Reporting Category percentages are identical to the 2013 targets.
- Passage order (info and lit) has not changed from past DC CAS.
- The item counts above consider the operational test only.

Anchor Items

- Items will contribute to operational tests.
- Ideally, 23 selected-response (SR) items will be equating items, but some grades may have fewer items in the anchor set due to security breaches.

Embedded Field Test Items

- Embedded field test items consist of 16 SRs + 2 CRs for a total of 18 EFT items per form.
- Constructed-response (CR) items have been moved to precede two vocabulary items **when appropriate** so that a CR is not the last item in a session.
- The field test content will consist of one informational passage set and one literary non-fiction passage set (mapped to informational standards). Vocabulary items may be embedded in either.

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Reading Tested Standards

Grade 2

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.2.L.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	Tell how [character] grows strong at the end of the story. Be sure to use capital letters where needed and the correct end marks. Support your answer with important details from the story.
CC.2.L.2.a Capitalize holidays, product names, and geographic names.	Find and mark the part of the sentence that needs a capital letter. [sentence with proper names and place names]
CC.2.L.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.	Read the paragraph in the box below. [paragraph] What does the word _____ mean as it is used in this paragraph?
CC.2.L.4.a Use sentence-level context as a clue to the meaning of a word or phrase.	Read the sentence. [sentence] What does the word _____ mean in this sentence?
CC.2.L.4.b Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., happy/unhappy, tell/retell).	Read the sentence from the story in the box below. [sentence] The prefix <u>un-</u> added to _____ means the dog was . . .
CC.2.L.4.e Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.	Read the dictionary entry in the box below. [dictionary entry] Read the sentence from the passage in the box below. [sentence]
CC.2.L.5 Demonstrate understanding of word relationships and nuances in word meanings.	Which definition of the word "_____" <u>best</u> defines the word as it is used in this sentence? Read the sentence from the story in the box below. [sentence] Which word means that the weather is calm?
CC.2.L.5.b Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).	Read the sentence from the article in the box below. [sentence] Which word most closely matches the meaning of _____ as it is used in this sentence?

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Reading Tested Standards

Grade 2

Reporting Category: Informational Text	
Standards:	**Assessment Stems:**
CC.2.R.I.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.	Look at the time line. [time line of events] Where on the time line did [event] happen?
CC.2.R.I.2 Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.	What is the message of the passage mostly about?
CC.2.R.I.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.	What happened after the [discovery] was found?
CC.2.R.I.4 Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.	Read the sentence from the passage in the box below. [sentence] What does the phrase _____ mean in the passage?
CC.2.R.I.5 Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.	Read this part of an index. [index] On what page would you find information about _____?
CC.2.R.I.6 Identify the main purpose of a text, including what the author wants to answer, explain, or describe.	Which of these questions is the author answering in the article?
CC.2.R.I.7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.	What does the picture help the author explain?
CC.2.R.I.8 Describe how reasons support specific points the author makes in a text.	How does the list of _____ support the author's message?
Reporting Category: Literary Text	
CC.2.R.L.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.	Where does the story take place?
CC.2.R.L.2 Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.	What is the lesson learned by [the main character] in the story?
CC.2.R.L.3 Describe how characters in a story respond to major events and challenges.	What did [character] do to solve the problem with the [situation]?

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Reading Tested Standards

Grade 2

Reporting Category: Literary Text (continued)	
Standards:	**Assessment Stems:**
CC.2.R.L.4 Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.	Which words in the poem give the reader a sense of speed?
CC.2.R.L.5 Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.	How does the beginning of the story differ from the ending?
CC.2.R.L.6 Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.	Look at the last paragraph of the story. [paragraph] Which character has a different view of the _____ event?
CC.2.R.L.7 Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.	What does the picture tell about the first event that happens in the story?
CC.2.R.L.9 Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.	How does the ending of [story 1] differ from the ending of [story 2]?

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Reading Tested Standards

Grade 3

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.3.L.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening. Choose words and phrases for effect.	Read the sentences from the story in the box below. [passage excerpt] The author most likely uses the words "_____" and "_____" to show that . . .
CC.3.L.4a Use sentence-level context as a clue to the meaning of a word or phrase.	Read the sentence from paragraph _____ in the box below. [passage excerpt] What does the word "_____" mean as it is used in the sentence?
CC.3.L.4b Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat).	Read sentences from paragraph _____ in the box below. [passage excerpt] The prefix _____ added to the word _____ means that the teacher felt . . .
CC.3.L.4c Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion).	Read this sentence from paragraph _____ in the box below. [passage excerpt] Based on the meaning of _____, the word _____ means that Carl was . . .
CC.3.L.4d Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.	Read the thesaurus entry in the box below. [thesaurus entry] Read paragraph _____ in the box below. [passage excerpt] Which word means about the same as _____ in the paragraph?
CC.3.L.5.a Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps).	Read the sentence from paragraph #. The words "_____" mean that [a character] thinks . . .
Reporting Category: Informational Text	
CC.3.R.I.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	The article states that _____ can do all of these things EXCEPT . . .
CC.3.R.I.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.	(a) This article was mostly written to . . . (b) Read the sentence from paragraph _____ in the box below. [passage excerpt] Which idea from the story does the sentence show?

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Reading Tested Standards

Grade 3

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.3.R.I.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	According to the directions in the article, what do you do right after _____?
CC.3.R.I.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.	Read the sentence from paragraph __ in the box below. [Passage Excerpt] Which of these best explains the meaning of the phrase "_____" in the sentence?
CC.3.R.I.5 Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	The title of the column "_____" means the information will most likely (explain, describe, etc.) . . .
CC.3.R.I.6 Distinguish their own point of view from that of the author of a text.	Which statement best explains the author's opinion about _____?
CC.3.R.I.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	Using information from the chart, explain how _____ and _____ are different.
CC.3.R.I.8 Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).	Read paragraph # in the box below. [paragraph #] Why is the underlined sentence in the paragraph important?
Reporting Category: Literary Text	
CC.3.R.L.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	What does [character] do first when he arrives at _____?
CC.3.R.L.2 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	What is the lesson of this story?
CC.3.R.L.3 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	In "_____," [character] is best described as . . .

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Reading Tested Standards

Grade 3

Reporting Category: Literary Text (continued)	
Standards:	**Assessment Stems:**
CC.3.R.L.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	As used in paragraph #, "_____" most likely means . . .
CC.3.R.L.5 Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	Why is "_____" a good title for the story?
CC.3.R.L.6 Distinguish their own point of view from that of the narrator or those of the characters.	Which phrase best shows that the narrator feels _____ about _____?
CC.3.R.L.7 Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	How is the scene in the picture most like the setting in the story?
CC.3.R.L.9 Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).	Explain how [character] in "_____" is different from [character] in "_____." Support your answer with important details from the story.

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Reading Tested Standards

Grade 4

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.4.L.4.a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.	Read the sentence from paragraph # in the box below. [insert paragraph] What does "_____" mean as it is used in the sentence?
CC.4.L.4.b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph, photograph, autograph*).	Read the sentence from paragraph _____ in the box below. [passage excerpt] The suffix "_____" helps the reader understand that "_____" means . . .
CC.4.L.4.c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	Read this dictionary entry for the word _____. [dictionary entry] Read paragraph _____ in the box below. [passage excerpt] Which meaning of the word _____ is used in paragraph _____?
CC.4.L.5.a. Explain the meaning of simple similes and metaphors (e.g., *as pretty as a picture*) in context.	Read the sentences from paragraph _____ in the box below. [passage excerpt]. In these sentences the author means . . .
CC.4.L.5.b. Recognize and explain the meaning of common idioms, adages, and proverbs.	Read the sentence from the story in the box below. [passage excerpt] Which word most closely matches the meaning of "_____" in the sentence?
CC.4.L.5.c. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).	Read the statement from the article in the box below. [passage excerpt] Which word most closely means the same as _____ as it is used in the statement?
Reporting Category: Informational Text	
CC.4.R.I.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	From what you have read, you can conclude that . . .
CC.4.R.I.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text.	This article is mostly about . . .
CC.4.R.I.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	According to the article, why can _____ be _____?
CC.4.R.I.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.	Read the sentence from paragraph # in the box below. [sentence] In the sentence, the word _____ means . . .

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Reading Tested Standards

Grade 4

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.4.R.I.5 Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.	How did the author organize the article?
CC.4.R.I.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	What does the timeline help the reader understand about _____?
CC.4.R.I.8 Explain how an author uses reasons and evidence to support particular points in a text.	How does the author support the idea that _____ ?
Reporting Category: Literary Text	
CC.4.R.L.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	At the end of the story, why does [character] decide to _____?
CC.4.R.L.2 Determine a theme of a story, drama, or poem from details in the text; summarize the text.	Which statement best describes the theme of the story?
CC.4.R.L.3 Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	Describe the setting of "_____." Support your answer with important details from the story.
CC.4.R.L.4 Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).	[Significant character] was said to be "_____." What does "_____" most likely mean?
CC.4.R.L.5 Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.	How can the reader tell that "_____" is most likely a nonfiction story?
CC.4.R.L.6 Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	Which statement best describes the point of view used in the story?

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Reading Tested Standards

Grade 5

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.5.L.4.a Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.	Read the sentence from paragraph # in the box below. [sentence] Which word means the same as the word _____ as it is used in the sentence?
CC.5.L.4.b Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).	Read the sentence from paragraph # in the box below. [sentence] The prefix _____ in the word _____ most likely means . . .
CC.5.L.4.c Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	Read the dictionary entry in the box below. [dictionary entry] Which definition matches the meaning of the word _____ as it is used in paragraph #?
CC.5.L.5.a Interpret figurative language, including similes and metaphors, in context.	Read the sentences below from paragraph _____. [passage excerpt] Which of these best explains the meaning of the sentences?
CC.5.L.5.c Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.	Read the sentence from paragraph # in the box below. [sentence] Which word is closest in meaning to the word _____ as it is used in the sentence?
CC.5.L.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).	Read the sentences from the article in the box below. [sentences] The word *nevertheless* at the beginning of the second sentence tells the reader that . . .
Reporting Category: Informational Text	
CC.5.R.I.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	According to the article, what happens when . . .
CC.5.R.I.2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.	What two important points does the author make about _____?
CC.5.R.I.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	How does [idea] affect [event]?
CC.5.R.I.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.	Read the sentence from paragraph # in the box below. [sentence] The phrase "_____" most likely means . . .

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Reading Tested Standards

Grade 5

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.5.R.I.5 Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.	Which of these best identifies the overall structure of both passages?
CC.5.R.I.6 Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	About which statement would the authors most likely disagree?
CC.5.R.I.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).	In paragraph #, the author most likely includes examples of _____ to . . .
Reporting Category: Literary Text	
CC.5.R.L.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	Which sentence from the passage best supports the idea that [idea represented in text]?
CC.5.R.L.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.	Which of the following statements best expresses the lesson _____ learns in the story?
CC.5.R.L.3 Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).	Describe how [Name] feels about _____. Support your answer with important details from the story.
CC.5.R.L.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	The narrator compares _____ to _____ to show that . . .
CC.5.R.L.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.	Which scene most contributes to the solution to the problem?
CC.5.R.L.6 Describe how a narrator's or speaker's point of view influences how events are described.	Which detail from the story best shows the narrator's opinion of _____?
CC.5.R.L.9 Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.	Which of these sentences best expresses the theme of both [story 1] and [story 2]?

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Reading Tested Standards

Grade 6

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.6.L.4.a Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Read this sentence from paragraph # in the passage. As used in the sentence, the word _____ probably means . . .
CC.6.L.4.b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).	Read the sentence from paragraph # in the box below. The Latin root _____means _____. What does the phrase "_____" most likely mean?
CC.6.L.4.c Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	Read the dictionary entry in the box below. [dictionary entry] Which definition of _____ is used in sentence # / paragraph #?
CC.6.L.5.a Interpret figures of speech (e.g., personification) in context.	In paragraph #, the phrase _____ is used to suggest that . . .
CC.6.L.5.b Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.	Which word most closely means the same as _____?
Reporting Category: Informational Text	
CC.6.R.I.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Which of these details supports the conclusion that _____?
CC.6.R.I.2 Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	This passage is mostly about . . .
CC.6.R.I.3 Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).	How does [individual] affect the [event]?
CC.6.R.I.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	Read this sentence from the article. [sentence] Which statement best explains the meaning of [phrase]?
CC.6.R.I.5 Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.	How is the information in the passage organized?

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Reading Tested Standards

Grade 6

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.6.R.I.6 Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.	Which statement best expresses the author's viewpoint about _____?
CC.6.R.I.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	How do the details in the article about [topic] extend the information on the web page?
CC.6.R.I.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient recognize when irrelevant evidence is introduced.	Evaluate whether the evidence in the article supports the author's claims about _____. Support your answer with important details from the article.
Reporting Category: Literary Text	
CC.6.R.L.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Which detail best supports the idea that _____?
CC.6.R.L.2 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	Which of these sentences/sayings best expresses the theme of the story/poem?
CC.6.R.L.3 Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.	At the beginning of the story, _____ does _____ because . . .
CC.6.R.L.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.	Why does the speaker compare _____ to a _____ in the poem?
CC.6.R.L.5 Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.	Which statement from the story shows why [a character acts in a certain way]?
CC.6.R.L.6 Explain how an author develops the point of view of the narrator or speaker in a text.	Why does the speaker compare _____ to a _____ in the poem?
CC.6.R.L.9 Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.	Which of these words best describes how _____ is portrayed in the poem and the story?

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Reading Tested Standards

Grade 7

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.7.L.4.a Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Based on the context of [passage], the word _____ most likely means . . .
CC.7.L.4.b Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).	Read the sentence from paragraph # in the box below. [sentence] The Latin word _____ means _____. What does [related word] mean?
CC.7.L.4.c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	Read the dictionary entry below. _____ n. 1. First definition. 2. Second definition. 3. Third definition. 4. Fourth definition. Now read this sentence from paragraph #. [passage excerpt] What does _____ mean as it is used in the sentence?
CC.7.L.5.b Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.	Which word most closely means the same as _____?
CC.7.L.5.c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).	Read the sentence from paragraph _____ in the story. [passage excerpt] In this sentence, the author uses the word _____ to communicate a feeling of . . .
Reporting Category: Informational Text	
CC.7.R.I.1 Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	According to the article, which of these sentences is the best reason for _____?
CC.7.R.I.2 Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	What two points does the author make about _____?
CC.7.R.I.3 Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	Which of these statements explains the author's most likely purpose for mentioning _____?
CC.7.R.I.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	Read the sentence from the article in the box below. [sentence] Which statement best explains the meaning of the phrase _____?

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Reading Tested Standards

Grade 7

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.7.R.I.5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.	How are the details organized in paragraph #?
CC.7.R.I.6 Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.	Which statement best expresses the author's viewpoint about _____?
CC.7.R.I.8 Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.	How does the author support his opinion about _____?
Reporting Category: Literary Text	
CC.7.R.L.1 Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Which detail best indicates the conflict the main character faces?
CC.7.R.L.2 Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.	Which detail most clearly supports the theme of _____?
CC.7.R.L.3 Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	Which of these phrases best explains why [character] says _____?
CC.7.R.L.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.	Which phrase best expresses the meaning of [word] as it is used in line #?
CC.7.R.L.5 Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.	Which of these phrases best explains the importance of the final two lines of the poem?
CC.7.R.L.6 Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.	Which statement best describes the contrast in point of view between _____ and _____ in the story?

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Reading Tested Standards

Grade 8

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.8.L.4.a Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Read the sentence from the story in the box below. [sentence] Which words in the sentence help the reader understand the meaning of the word _____?
CC.8.L.4.d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	Read the dictionary entry below. n. 1. First definition. 2. Second definition. 3. Third definition. 4. Fourth definition. Now read this sentence from paragraph #. [insert passage excerpt] What does _____ mean as it is used in the sentence?
CC.8.L.5.a Interpret figures of speech (e.g. verbal irony, puns) in context.	Read the sentences from paragraph _____ in the box below. [sentences] What does the phrase _____ mean as it is used in the paragraph?
CC.8.L.5.b Use the relationship between particular words to better understand each of the words.	Based on your knowledge of the root word _____, what does the narrator mean when he says [quote from passage containing target word]?
Reporting Category: Informational Text	
CC.8.R.I.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	How do the details in paragraph # support the author's purpose?
CC.8.R.I.2 Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.	The author emphasizes _____ in order to convince readers that _____.
CC.8.R.I.3 Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).	Which sentence best explains _____?
CC.8.R.I.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	Read these sentences from the article in the box below. [sentences] As used in the second sentence, what does the word _____ most nearly mean?

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Reading Tested Standards

Grade 8

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.8.R.I.5 Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.	How does the inclusion of paragraph _____ contribute to the meaning of the article?
CC.8.R.I.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	Which statement best expresses the author's attitude toward _____?
CC.8.R.I.7 Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.	How would a video support the claims made in the article?
CC.8.R.I.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	Which statement about _____ would the author most likely support?
Reporting Category: Literary Text	
CC.8.R.L.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	Which idea is best supported by _____?
CC.8.R.L.2 Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.	How does the _____ contribute to the theme in the story?
CC.8.R.L.3 Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.	What is the most likely reason _____ decides to _____?
CC.8.R.L.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	Which phrase best expresses the meaning of "_____" as it is used in line _____?

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Reading Tested Standards

Grade 8

Reporting Category: Literary Text (continued)	
Standards:	**Assessment Stems:**
CC.8.R.L.5 Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.	What is the effect of the playwright's stage directions at the beginning of the act?
CC.8.R.L.9 Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.	Which quotation from Shakespeare's *Hamlet* best supports the theme of this story?

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Reading Tested Standards

Grade 9

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.9-10.L.4.a Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Read the sentence from paragraph 3 in the box below. [sentence]
CC.9-10.L.4.b Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).	Which definition best describes the word _____ as it is used in the sentence?
CC.9-10.L.5.a Interpret figures of speech (e.g., satire, sarcasm) in context and analyze their role in the text.	Read the sentence from paragraph 2 in the box below. [sentence] Which of these is the best definition of the word _____ as it is used in the sentence? Read the sentences from paragraph 7 in the box below. [sentences] Which of these is another way of saying _____?
Reporting Category: Informational Text	
CC.9-10.R.I.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	The significance of the newly discovered documents is probably that . . .
CC.9-10.R.I.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Which statement best supports the main idea of [passage title]?
CC.9-10.R.I.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	Explain how the author of [passage title] organizes the argument for using organization strategies and tell whether the argument is effective. Support your answer with relevant and specific details from the article. Write your answer on the lines in the answer booklet.

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Reading Tested Standards

Grade 9

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.9-10.R.I.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	Read the sentences from paragraph 4 in the box below. [sentences] What does the author mean by the phrase _____?
CC.9-10.R.I.5 Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	Which statement best describes the purpose of paragraph 4 of the editorial?
CC.9-10.R.I.6 Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	The main purpose of the article is to inform readers about _____.
CC.9-10.R.I.7 Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.	Which statement best describes the way in which the information presented in the chart differs from the text of the article?
CC.9-10.R.I.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	Which claim does the author make in the editorial?
Reporting Category: Literary Text	
CC.9-10.R.L.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Which line from paragraph 6 best supports that the narrator feels overwhelmed?
CC.9-10.R.L.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Which event from the story is most important in developing the author's central theme?

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Reading Tested Standards

Grade 9

Reporting Category: Literary Text (continued)	
Standards:	**Assessment Stems:**
CC.9-10.R.L.3 Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	Which word best describes the relationship between the narrator and her sister?
CC.9-10.R.L.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	Which phrase from the story does the author use to create a tone of desperation?
CC.9-10.R.L.5 Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	Explain the most likely reason the author chose to end the story with the narrator's central question unanswered. What is its effect on the reader? Support your answer with relevant and specific details from the story. Write your answer on the lines in the answer booklet.
CC.9-10.R.L.6 Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	Which of these best describes how the narrator reacted to his teacher's decision?

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Reading Tested Standards

Grade 10

Reporting Category: Vocabulary Acquisition and Use	
Standards:	**Assessment Stems:**
CC.9-10.L.4.a Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	Read the sentence from the story in the box below. [sentence] What is the meaning of the word _____ as used in the sentence?
CC.9-10.L.4.c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.	Read the dictionary/thesaurus/glossary entry below. adj. 1. First definition. 2. Second definition. 3. Third definition. 4. Fourth definition. Which definition of the word _____ is used in the story?
CC.9-10.L.5.a Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.	Read the sentence from the article in the box below. [sentence] What does the phrase _____ suggest about _____?
CC.9-10.L.5.c Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).	Read the sentence from paragraph # in the box below. [sentence] In the sentence, the word means about the same as . . .
Reporting Category: Informational Text	
CC.9-10.R.I.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	Which conclusion do the details in this article best support?
CC.9-10.R.I.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Which sentence best states the main idea of the essay?
CC.10.R.I.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	What is the effect of the author's use of _____ to organize ideas?
CC.9-10.R.I.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	Read these sentences from the story in the box below. [sentences] As used in the second sentence, what does the word _____ most nearly mean?

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Reading Tested Standards

Grade 10

Reporting Category: Informational Text (continued)	
Standards:	**Assessment Stems:**
CC.9-10.R.I.5 Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	Read these sentences from paragraph _____. [passage excerpt] What is the author's most likely reason for including these sentences?
CC.9-10.R.I.6 Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	The author most likely wrote the article to . . .
CC.9-10.R.I.7 Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.	Which information from the article helps the reader understand the difficulties encountered during _____?
CC.9-10.R.I.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	According to the article, what is the author's position on _____?
CC.9-10.R.I.9 Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.	Read this paragraph from the passage. [paragraph] What do the details about _____ mostly emphasize?
Reporting Category: Literary Text	
CC.9-10.R.L.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	What does the use of free verse accomplish in both the _____ and the _____?
CC.9-10.R.L.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	Which of these sentences best states the main theme of the story?
CC.9-10.R.L.3 Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	Read this paragraph from the passage. [paragraph] What do the details about _____ mostly emphasize?

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Reading Tested Standards

Grade 10

Reporting Category: Literary Text (continued)	
Standards:	**Assessment Stems:**
CC.9-10.R.L.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	Read these sentences from the story in the box below. [sentences] As used in the second sentence, what does the word _____ most nearly mean?
CC.9-10.R.L.5 Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	What is the effect of the author's concluding paragraph?
CC.9-10.R.L.6 Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	According to paragraph #, what lesson does the author learn about _____?
CC.9-10.R.L.7 Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).	Based on the passage, which of these aspects of _____ had the greatest influence on the author?

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Rubric for DC CAS Constructed-Response Items: Reading

Score	*Description*
3	The response demonstrates a complete understanding of the passage as it relates to the question. The response includes support that • is clear and complete • provides relevant and specific details/information from the text
2	The response demonstrates a partial understanding of the passage as it relates to the question. The response includes support that • is partially clear and/or partially complete • provides mostly relevant but somewhat general and/or inaccurate details/information from the text
1	The response demonstrates a minimal understanding of the passage as it relates to the question. The response includes support that • is minimally correct or incomplete • provides inadequate, incorrect, or no relevant details/information from the text
0	The response demonstrates no understanding of the passage as it relates to the question. Any details/information that is included is incorrect or irrelevant.

Student responses that are awarded a score of 3 have

- fully answered all parts of the question posed
- demonstrated the student's understanding of the whole text relative to the question
- offered appropriate, clear, and full textual support for the answer
- explained direct quotations from the text that are used as support
- included inferences, when appropriate, based on the text

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Composition

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Rubrics for DC CAS Composition (Writing Prompts)

The following holistic rubrics are used for scoring the Composition student responses. Further information and training/sample prompts are available on the OSSE website at: http://osse.dc.gov/service/dc-cas-composition-prompts

Topic/Idea Development

Score	*Description*
6	• Rich topic/idea development • Careful and/or subtle organization • Effective/rich use of language
5	• Full topic/idea development • Logical organization • Strong details • Appropriate use of language
4	• Moderate topic/idea development and organization • Adequate, relevant details • Some variety in language
3	• Rudimentary topic/idea development and/or organization • Basic supporting ideas • Simplistic language
2	• Limited or weak topic/idea development, organization, and/or details • Limited awareness of audience and/or task
1	• Limited topic/idea development, organization, and/or details • Little or no awareness of audience and/or task

Standard English Conventions

Score	*Description*
4	• Control of sentence structure, grammar and usage, and mechanics (length and complexity of essay provide opportunity for student to show control of standard English conventions)
3	• Errors do not interfere with communication and/or • Few errors relative to length of essay or complexity of sentence structure, grammar and usage, and mechanics
2	• Errors interfere somewhat with communication and/or • Too many errors relative to length of the essay or complexity of sentence structure, grammar and usage, and mechanics
1	• Errors seriously interfere with communication AND • Little control of sentence structure, grammar and usage, and mechanics

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Rubrics for DC CAS Composition (Writing Prompts)

Understanding Literary or Informational Text

Score	*Description*
4	The response demonstrates an understanding of the complexities of the text. • Fully addresses the demands of the question or prompt • Effectively uses explicitly stated text as well as inferences drawn from the text to support an answer or claim
3	The response demonstrates an understanding of the text. • Addresses the demands of the question or prompt • Uses some explicitly stated text and/or some inferences drawn from the text to support an answer or claim
2	The response is incomplete or oversimplified and demonstrates a partial or literal understanding of the text. • Attempts to answer the question or address the prompt • Uses explicitly stated text that demonstrates some understanding
1	The response shows evidence of a minimal understanding of the text. • Shows evidence that some meaning has been derived from the text to answer the question • Has minimal textual evidence

Note: The Composition prompt will also be aligned to a Common Core Reading standard. Responses will demonstrate degrees of mastery of that reading standard. Reading standards that the composition prompts will align to may include:

- grade 4: CC.4.R.I.1, CC.4.R.L.2, and CC.4.R.L.4 (see Reading tested standards)
- grade 7: CC.7.R.I.1, CC.7.R.I.8, CC.7.R.L.1, and CC.7.R.L.2 (see Reading tested standards)
- grade 10: CC.9-10.R.I.1, CC.9-10.R.I.2, CC.10.R.I.3, CC.9-10.R.L.2, and CC.9-10.R.L.6 (see Reading tested standards)

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MATHEMATICS

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DC CAS Mathematics Target Blueprints

Math Common Core Transition Blueprints for 2014

Grade 2

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
Number and Operations in Base Ten	15	0	15	15	33%
Operations and Algebraic Thinking	6	1	7	8 or 9	18%
Geometry	7	0	7	7	15%
Measurement and Data	12	1	13	15	33%
TOTALS	**40**	**2**	**42**	**45 or 46**	**100%**

Grade 3

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
Number and Operations in Base Ten	7	0	7	7	12%
Number and Operations—Fractions	9 or 12	0 or 1	10 or 12	12	20%
Operations and Algebraic Thinking	10 or 13	0 or 1	11 or 13	13	22%
Geometry	5	1	6	8	13%
Measurement and Data	17	1	18	20	33%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Grade 4

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
Number and Operations in Base Ten	8	0	8	8	13%
Number and Operations—Fractions	16	0	16	16	27%
Operations and Algebraic Thinking	10	1	11	13	22%
Geometry	4	1	5	7	12%
Measurement and Data	13	1	14	16	26%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Grade 5

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
Number and Operations in Base Ten	9	0	9	9	15%
Number and Operations—Fractions	17	0	17	17	28%
Operations and Algebraic Thinking	7	1	8	10	17%
Geometry	5	1	6	8	13%
Measurement and Data	13	1	14	16	27%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Grade 6

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
The Number System	10 or 13	0 or 1	11 or 13	13	22%
Ratios and Proportional Relationships	10 or 13	0 or1	11 or 13	13	22%
Expressions and Equations	10 or 13	0 or 1	11 or 13	13	22%
Geometry	8 or 11	0 or 1	9 or 11	11	18%
Statistics and Probability	7	1	8	10	17%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Grade 7

CCSS Reporting Category	SR	CR	Total # Items (Target)	Total # Points (Target)	% Points (Target)
The Number System	10	0	10	10	17%
Ratios and Proportional Relationships	12 or 15	0 or 1	13 or 15	15	25%
Expressions and Equations	11 or 14	0 or 1	12 or 14	14	23%
Geometry	7	1	8	10	17%
Statistics and Probability	8	1	9	11	18%
TOTALS	**51**	**3**	**54**	**60**	**100%**

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Grade 8

CCSS Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
The Number System	9	0	9	9	15%
Expressions and Equations	10 or 13	0 or 1	11 or 13	13	22%
Functions	10 or 13	0 or 1	11 or 13	13	22%
Geometry	12	1	13	15	24%
Statistics and Probability	7 or 10	0 or 1	8 or 10	10	17%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Grade 10

CCSS Reporting Category	*SR*	*CR*	*Total # Items (Target)*	*Total # Points (Target)*	*% Points (Target)*
Number and Quantity	5 or 8	0 or 1	6 or 8	8	13%
Algebra	14	1	15	17	28%
Functions	5 or 8	0 or 1	6 or 8	8	13%
Geometry	19	1	20	22	37%
Statistics and Probability	5	0	5	5	8%
TOTALS	**51**	**3**	**54**	**60**	**100%**

Blueprint

- For all grades, Reporting Category percentages are aligned to Common Core State Standards.
- The three constructed-response (CR) operational items (two CRs for grade 2) will measure standards in the Reporting Category (RC) as indicated above. Where a range is indicated, a CR may or may not be used.
- If a CR is not used for a RC, its score points will be covered by selected-response (SR) items.
- There are 58 items (42 operational and 16 field test) per form for grade 2 and 70 items (54 operational and 16 field test) per form for grades 3–8 and 10.
- For grades 7, 8, and 10, Session 1 will be designated as the calculator session. Students will put away their calculators when Session 1 ends.
- CR items are each worth three points and are scored according to the criteria of a generic rubric and item-specific scoring guide. Certain grade 2 items will only be worth two points since they were selected from the *TerraNova* item pool.

Anchor Items

- Items will contribute to operational tests. Ideally, 25 SR (only) are equating items but some grades may have fewer items in the anchor set due to security breaches.

Embedded Field Test (EFT) Items

- Embedded field test (EFT) items consist of 14 SRs + 2 CRs for a total of 16 EFT items per form.
- Items are field tested to fill operational slots in future years.
- A CR item will never be the last item of a session.
- Total EFT items are distributed across two forms.
- Item development plans are based upon alignment to the Common Core transitional target blueprints.

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Mathematics Tested Standards

Grade 2

Reporting Category: Operations & Algebraic Thinking	
Standards:	**Assessment Stems:**
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	[Name] has 37 pencils and needs a total of 96 pencils. How many more pencils does [Name] need in all to have a total of 96 pencils?
2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of grade 2, know from memory all sums of two one-digit numbers.	Solve. 15 −8
2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	Which set has an even number of items?
2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to five rows and up to five columns; write an equation to express the total as a sum of equal addends.	(Artwork shows toy cars in an array.) Which of these shows how to find the total number of toy cars?
Reporting Category: Numbers & Operations in Base Ten	
2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.	Which number is equal to 70 tens and 6 ones?
2.NBT.1a 100 can be thought of as a bundle of ten tens—called a "hundred."	(Artwork of 7 place value rods.) What is the total number of cubes in seven rods?
2.OA.1b The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	(Artwork of 3 place value flats.) Which of these is equal to the total number of cubes shown?
2.NBT.2 Count within 1,000; skip-count by 5s, 10s, and 100s.	10, 20, 30, 40, _____ Which of these completes the pattern of skip-counting shown?
2.NBT.3 Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.	Which of these shows 752 in expanded form?

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Mathematics Tested Standards

Grade 2

Reporting Category: Numbers & Operations in Base Ten (continued)	
Standards:	**Assessment Stems:**
2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Look at the number sentence. $235 < ___$ Which of these completes the number sentence?
2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	Solve. 100 -33
2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	[Name] practiced her recorder for 38 minutes on Saturday and for 15 minutes on Sunday. What is the total number of minutes [Name] practiced over the weekend?
2.NBT.7 Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	This model shows $435 + 67$. *(Students are given artwork with 4 hundreds flats, 3 tens rods, 5 ones cubes + 6 tens rods, and 7 ones cubes.)* What is the answer to $435 + 67$?
Reporting Category: Measurement and Data	
2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	Use your ruler to find the length, in inches, of the candy bar. *(Artwork of candy bar that is a number of inches long)*
2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	[Name] measures her toy box, in inches and then feet. Which statement correctly explains the length of her toy box in feet?
2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.	Look at the dog house. *(Artwork of dog house with dog next to it measured in feet.)* About how many feet tall is the dog house?
2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	Look at the two items. *(Artwork of Item A and Item B)* How much longer is [Item A] than [Item B]?

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Mathematics Tested Standards

Grade 2

Reporting Category: Measurement and Data (continued)	
Standards:	**Assessment Stems:**
2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	Look at the bracelets. *(Artwork of one bracelet is 13cm and the other 24cm.)* How long are the bracelets together?
2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, . . ., and represent whole-number sums and differences within 100 on a number line diagram.	Look at the number line below. *(Artwork of number line.)* Which number sentence is modeled by the number line?
2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Look at the clock. *(Artwork of an analog clock showing time of 6:20)* What time is shown on the clock?
2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.	Look at the amount of money shown. *(Artwork of a given number of dollar bills, quarters, dimes, and pennies)* What is the total amount of money shown?
2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Look at the table below. *(Student is given artwork of a table with measurements in centimeters.)* Which line plot correctly shows the data above?
2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.	A group of students voted on their favorite ice cream flavors. This table shows the results. *(Students are given a table showing how many students voted for chocolate, strawberry, and vanilla.)* Complete the bar graph to show the results. Which flavor had the greatest number of votes?

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Mathematics Tested Standards

Grade 2

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Draw a shape that has 6 sides. What is the name of the shape you drew?
2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	[Name] used a ruler to cut a tray of brownies into 3 rows with 6 same-sized pieces in each row. *(Artwork of blank rectangle.)* How many brownies did [Name] make in all?
2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	The rectangle below is divided into three equal parts. *(Artwork shows one piece shaded.)* What part of the rectangle is shaded?

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Mathematics Tested Standards

Grade 3

Reporting Category: Operations & Algebraic Thinking	
Standards:	**Assessment Stems:**
3.OA.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5×7.*	There are 5 groups of marbles with 7 marbles in each group. Which of these shows how to find the total number of marbles?
3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.	There are 56 marbles. [Name] shares the marbles equally among 8 friends. Which of these shows how to find the total number of marbles each friend receives?
3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	[Name] has 8 groups of marbles with 7 marbles in each group. What is the total number of marbles that [Name] has in all?
3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	Look at the number sentence. $8 \times \square = 48$ Which number goes in the box to make the number sentence true?
3.OA.5 Apply properties of operations as strategies to multiply and divide. *Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)*	Which of these is equal to $8 \times (5 + 2)$?
3.OA.6 Understand division as an unknown-factor problem. *For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.*	[Name] has 7 cats. She has 21 cat toys to split equally among 7 cats. In which number sentence does [box] represent the number of toys each cat will get?

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Mathematics Tested Standards

Grade 3

Reporting Category: Operations & Algebraic Thinking (continued)	
Standards:	**Assessment Stems:**
3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of grade 3, know from memory all products of two one-digit numbers.	Which of these could be used to check the answer to $8 \times 5 = 40$?
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	[Name] has 30 black pens and 15 blue pens. He shares all of the pens equally among 9 groups of students. How many pens does [Name] give each group of students?
3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	Look at the table. (*Students are given an input/output table where the rule is multiply by 4; products are in the "output" column.*) What is the rule for finding the output number given an input number? Use the rule for finding output numbers to explain why the output numbers can be decomposed into two equal addends.
Reporting Category: Numbers & Operations in Base Ten	
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	Which of these shows [number] rounded to the nearest 10?
3.NBT.2 Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Solve. $345 + 579 =$
3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.	Solve. $30 \times 8 =$

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Mathematics Tested Standards

Grade 3

Reporting Category: Numbers & Operations—Fractions	
Standards:	**Assessment Stems:**
3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.	Which of these shows $\frac{1}{2}$ of a shape shaded?
3.NF.2a Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line.	Which number line shows a point at $\frac{1}{2}$?
3.NF.2b Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.	Which number line shows point *M* plotted at (fraction)?
3.NF.3a Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	Which number line shows a point at $\frac{2}{3}$?
3.NF.3b Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}, \frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.	Which fraction is equivalent to $\frac{1}{2}$?
3.NF.3c Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form* $3 = \frac{3}{1}$*; recognize that* $\frac{6}{1} = 6$*; locate* $\frac{4}{4}$ *and 1 at the same point of a number line diagram.*	Which of these is equal to $\frac{4}{4}$?

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Mathematics Tested Standards

Grade 3

Reporting Category: Numbers & Operations—Fractions (continued)	
Standards:	**Assessment Stems:**
3.NF.3d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	(*Students are given an inequality that compares two fraction models; a box represents one of the fraction models.*) Which fraction model can be placed in the box to make the comparison true?
Reporting Category: Measurement and Data	
3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	These two clocks show when [Name] started walking to school and when he arrived at school. *(Artwork of two labeled analog clocks, one showing 7:48 and one showing 8:03)* How long did it take [Name] to walk to school?
3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	[Name] is filling 5-liter bottles with water. What is the greatest number of 5-liter bottles that [Name] can fill from a container that holds 3 liters of water?
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	This table shows the number of students who participate in different sports. *(Students are given a table showing different numbers of students who participate in soccer, football, swimming, and basketball.)* Complete the bar graph to show the same information as in the table. How many more students participate in soccer than in football?
3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	Measure the lengths of the crayons shown. Then represent the lengths in a line plot.

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Mathematics Tested Standards

Grade 3

Reporting Category: Measurement and Data (continued)	
Standards:	**Assessment Stems:**
3.MD.5a A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	[Name's] bedroom floor is covered with square tiles. Each tile is 1 foot. What is the area of [Name's] bedroom floor?
3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Look at the figure on the grid. How many square units are in the figure?
3.MD.7a Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.	Look at the rectangle on the grid. (*Artwork of rectangle on a grid.*) Which number sentence can be used to find the area of this rectangle?
3.MD.7b Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	This figure shows the length and width of a room. (*Artwork of a rectangle with length and width labeled as a number of feet*) What is the area, in square feet, of the room?
3.MD.7c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	Look at the figure below. (*Artwork of 10 by 10 grid shaded.*) Which of these shows how to find the area, in square units, of the figure?
3.MD.7d Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	Look at the figure. (*Artwork of a rectilinear figure with sides labeled as a number of units*) What is the area, in square units, of the figure?
3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	The perimeter of a rectangular-shaped kitchen is 60 feet. The width of the kitchen is 10 feet. What is the length of the kitchen?

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Mathematics Tested Standards

Grade 3

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Which statement is true about a quadrilateral?
3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal areas, and describe the area of each part as 114 of the area of the shape.*	[Name] divided a square into 4 equal parts. *(Artwork of a square on a grid shaded.)* What fraction of the square does each part represent?

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Mathematics Tested Standards

Grade 4

Reporting Category: Operations & Algebraic Thinking	
Standards:	**Assessment Stems:**
4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	[Name] eats 7 apples. [Name] eats twice as many. Which of these can be used to find the number of apples [Name] eats?
4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	[Name 1] has 6 marbles. [Name 2] has 3 times as many marbles. How many marbles does [Name 2] have?
4.OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	[Name] buys a shirt for $18, a pair of boots for $25, and a pair of socks for $5. He gives the store clerk $50. Write a number sentence that can be used to represent how to find *m*, the amount of money [Name] has left over. Solve for *m*.
4.OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	*(Students are given a whole number.)* Which number is a factor of 84?
4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.	Which of these patterns follows the rule "Add 3"? Extend the pattern. Describe the numbers in the pattern.
Reporting Category: Numbers & Operations in Base Ten	
4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.*	Which of these is true about the value of 3 in the numbers 13,066 and 12,039?

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Mathematics Tested Standards

Grade 4

Reporting Category: Numbers & Operations in Base Ten (continued)	
Standards:	**Assessment Stems:**
4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	*(Students are given a number.)* Which of these shows the number in expanded notation?
4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.	Which of these shows 437,587 rounded to the nearest hundred thousand?
4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Solve. $4{,}325 - 3{,}097 =$
4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Solve. $367 \times 4 =$
4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	There are 1,215 students eating in the lunchroom. Each table in the lunchroom seats 5 students. What is the total number of tables needed to seat all the students?
Reporting Category: Numbers & Operations—Fractions	
4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{(n \times a)}{(n \times b)}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	At a bake sale, [Name] sold $\frac{4}{5}$ of an apple pie. Which fraction is equivalent to how much pie [Name] sold at the bake sale?

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Mathematics Tested Standards

Grade 4

Reporting Category: Numbers & Operations—Fractions (continued)	
Standards:	**Assessment Stems:**
4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	*(Students are given an inequality that compares two fractions; a box represents one of the fractions.)* Which number can be placed in the box to make the inequality true?
4.NF.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	Look at this model. *(Artwork of a circle divided into equal parts and shaded in two different colors.)* Which expression represents the shaded parts of the model?
4.NF.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples:* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}; \frac{3}{8} = \frac{1}{8} + \frac{2}{8}; 2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.	Which of these is equal to $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$?
4.NF.3c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	Which expression is equal to [fraction]?
4.NF.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	[Name 1] eats $\frac{1}{5}$ of a pizza. [Name 2] eats $\frac{2}{5}$ of the same pizza. How much of the pizza is left over?
4.NF.4a Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. *For example, use a visual fraction model to represent* $\frac{5}{4}$ *as the product* $5 \times \left(\frac{1}{4}\right)$, *recording the conclusion by the equation* $\frac{5}{4} = 5 \times \left(\frac{1}{4}\right)$.	Which of these is equal to $\frac{5}{4}$?

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Grade 4

Reporting Category: Numbers & Operations—Fractions (continued)	
Standards:	**Assessment Stems:**
4.NF.4b Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express* $3 \times \left(\frac{2}{5}\right)$ *as* $6 \times \left(\frac{1}{5}\right)$*, recognizing this product as* $\frac{6}{5}$*. (In general,* $n \times \left(\frac{a}{b}\right) = \frac{(n \times a)}{b}$*.)*	Solve. $3 \times \frac{2}{5} =$
4.NF.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	[Name] practices the dance 5 days a week. He practices for [fraction] hour each time. What is the total number of hours [Name] spends practicing the dance?
4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express* $\frac{3}{10}$ *as* $\frac{30}{100}$*, and add* $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.	Which of these correctly models the sum of *(students are shown two decimals with denominators of 10 and 100)*?
4.NF.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as* $\frac{62}{100}$*; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*	Which fraction is equal to 0.62?
4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $>$, and justify the conclusions, e.g., by using a visual model.	Look at the number sentence. _____ > 0.25 Which of these completes the number sentence?

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Mathematics Tested Standards

Grade 4

Reporting Category: Measurement and Data	
Standards:	**Assessment Stems:**
4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Complete the conversion table below. *(Students are given a table showing feet-to-inches conversion for 1, 2, and 4 feet—12, 24, and 48 inches; 3 is blank.)*
4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	[Name] bought 5 muffins for $4. If each muffin cost the same amount, how much did 1 muffin cost?
4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	The area of a rectangular-shaped kitchen is 135 square feet. The length of the kitchen is 9 feet. What is the width of the kitchen?
4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit $\left(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}\right)$. Solve problems involving addition and subtraction of fractions by using information presented in line plots.	Measure the lengths of the insects shown. Then represent the lengths in a line plot. What is the difference in length between the longest and shortest insects?
4.MD.5a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	The image shows two rays intersecting at point *T*, the center of the circle. *(Artwork shows circle with two rays forming an angle that is measured in degrees.)* What fraction of this circle is the angle formed by these two rays?
4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	Look at the angle *QRS* on the protractor. *(Artwork shows protractor with angle labeled QRS.)* Which of these is the closest measure of this angle?
4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	This equation shows the sum of the two angles in the triangle below. $25 + x = 85$ *(Artwork shows triangle with part of the angle labeled as 25 degrees and the rest labeled as x.)* What is the measure of angle *x*?

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Mathematics Tested Standards

Grade 4

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Which shape shows one pair of parallel lines?
4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Which of these shows a right triangle?
4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Which of these shows a correct line of symmetry on the figure?

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Mathematics Tested Standards

Grade 5

Reporting Category: Numbers and Operations in Base Ten	
Standards:	**Assessment Stems:**
5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.	Which statement describes how the values of the two numbers below compare? *(Students are given two decimals with all digits except one being a zero. One decimal is 10 times the value of the other decimal.)*
5.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Look at the table below. *(Students are given examples of decimals being multiplied by 10.)* Describe how to find the answer to any problem where a decimal is being multiplied by a power of 10.
5.NBT.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times \left(\frac{1}{10}\right) + 9 \times \left(\frac{1}{100}\right) + 2 \times \left(\frac{1}{1000}\right)$.	Which of these is another way to write four thousand and two hundredths?
5.NBT.3b Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Which inequality is true? *(Students are given inequalities that compare two decimals.)*
5.NBT.4 Use place value understanding to round decimals to any place.	What is 0.736 rounded to the nearest hundredth?
5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	Solve. $246 \times 52 =$
5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Solve. $1{,}326 \div 51 =$
5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Last month, [Name] spent $94.92 on gasoline for her car. This month, she spent $47.83 on gasoline. What is the total number of dollars that [Name] spent on gasoline during the two months?

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Mathematics Tested Standards

Grade 5

Reporting Category: Numbers and Operations—Fractions	
Standards:	**Assessment Stems:**
5.NF.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	Solve. $5\frac{7}{8} - 3\frac{1}{4} =$
5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	[Name]'s house is located $\frac{3}{4}$ of a mile from the library and $\frac{5}{8}$ of a mile from the store. How much farther is [Name]'s house from the library than it is from the store?
5.NF.3 Interpret a fraction as division of the numerator by the denominator $\left(\frac{a}{b} = a \div b\right)$. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	[Name] had 5 yards of ribbon. She used all of it to wrap 4 equal-sized packages. How much ribbon did [Name] use on each package?
5.NF.4a Interpret the product $\left(\frac{a}{b}\right) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.	Look at the multiplication expression. $\frac{2}{3} \times 4$ Which of the following models also represents this multiplication?
5.NF.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	What is the area of the rectangle below? (*Students are given a rectangle with fractional side lengths on a grid that has a scale of fractional increments.*)
5.NF.5a Interpret multiplication as scaling (resizing), by comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	[Name] multiplied 100 by $\frac{1}{8}$ as shown in the number sentence below. $100 \times \frac{1}{8} = 12\frac{1}{2}$ If [Name] multiplies 100 by a fraction larger than $\frac{1}{8}$, what will happen to the size of the product?

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Mathematics Tested Standards

Grade 5

Reporting Category: Numbers and Operations—Fractions (continued)	
Standards:	**Assessment Stems:**
5.NF.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.	Look at this multiplication problem. *(Student is shown a multiplication equation with fractions that have unlike denominators.)* [Name] says the product will be less than [fraction]. [Name] says the product will be greater than [fraction]. Which statement best explains which student is correct?
5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	[Name]'s cat eats $3\frac{1}{2}$ cans of cat food each week. How much cat food will the cat eat in 4 weeks?
5.NF.7a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.	Solve. $\frac{1}{4} \div 6 =$
5.NF.7b Interpret division of a whole number by a unit fraction, and compute such quotients.	Solve. $12 \div \frac{1}{3} =$
5.NF.7c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	[Name] has $\frac{3}{4}$ of a book left to read. She wants to read an equal fraction of the book each day for 6 days. What fraction of the book will [Name] read each day?
Reporting Category: Operations and Algebraic Thinking	
5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	What is the numerical value of the expression below? $(18 + 6) \div 3$
5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	[Name] bought 4 shirts for $10 each, 1 hat for $15, and 1 jacket for $30. Which expression shows how to find the number of dollars [Name] spent on the clothes?

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Mathematics Tested Standards

Grade 5

Reporting Category: Operations and Algebraic Thinking (continued)	
Standards:	**Assessment Stems:**
5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.	Each day for four days, [Name] read 15 pages in one book and 5 pages in another book. Which table could show the page numbers where [Name] stopped reading the books each day?
Reporting Category: Geometry	
5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	[Name] plotted a pair of coordinates on the grid below. *(Artwork shows a point on a coordinate plane.)* Which statement is true about the point [Name] plotted?
5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	A triangle has vertices at (2, 3), (4, 3), and (3, 1). Draw the triangle on the grid below.
5.G.3 Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category.	Which features do a rectangle and a square have in common?
5.G.4 Classify two-dimensional figures in a hierarchy based on properties.	How many of the shapes below can be described as parallelograms?
Reporting Category: Measurement and Data	
5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	[Name 1] is 63 inches tall. [Name 2] is 1 foot shorter than [Name 1]. What is [Name 2]'s height?
5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit $\left(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}\right)$. Use operations on fractions for this grade to solve problems involving information presented in line plots.	[Name] recorded the amount of rainfall each day for a month in the table below. *(Students are given data in the table in unit fractions.)* Complete the line plot to display [Name]'s data. *(Students are given a number line to use to create a line plot.)*

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Mathematics Tested Standards

Grade 5

Reporting Category: Measurement and Data (continued)	
Standards:	**Assessment Stems:**
5.MD.3a A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.	[Name] wants to find the volume of her toy chest? How can she find the volume of the chest using a single step?
5.MD.3b A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.	[Name] packs a rectangular prism to the top with 40 cubes. The cubes are packed without gaps or overlaps. Each cube has a side length of 1 unit. Which statement must be true?
5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	The rectangular prism below is filled with cubes that are one inch long on each side. *(Students are given a diagram of a rectangular prism filled with cubes.)* What is the volume of the rectangular prism?
5.MD.5a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	Which statement is true about the product of [fraction] $\times$ [mixed number]?
5.MD.5b Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.	A container in the shape of a right rectangular prism has a volume of 24 cubic feet. *(Students are given a diagram of the container: $l = 4$; $w = 3$; $h = ?$)* What is the height of the container?
5.MD.5c Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Look at the rectangular prisms below. *(Students are given a diagram of two adjacent prisms.)* What is the total volume of the two rectangular prisms?

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Mathematics Tested Standards

Grade 6

Reporting Category: The Number System	
Standards:	**Assessment Stems:**
6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	How many $\frac{3}{4}$ cup servings of yogurt are there in a container of $5\frac{1}{4}$ cups of yogurt?
6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.	A school group is going on a field trip to visit a local cave. They have $320.00 to spend on tickets. Each ticket costs $10.00. How many tickets can they purchase?
6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	The table below shows the lengths of two airplanes. *(Students are given a table with decimals to the hundredths place.)* How many meters longer is airplane A than airplane B?
6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*	Find the greatest common factor of 18 and 24.
6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	A mountain climber was at 350 feet above sea level. By nightfall he had made it to 650 feet above sea level. What was his change in altitude?
6.NS.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.	Look at the number line. *(Students are given a number line with point X plotted and labeled.)* Which number line shows the correct position of the opposite of point *X*?
6.NS.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	Graph the point $(-1,-3)$ on the given coordinate plane. *(Artwork shows a 10 × 10 grid with origin and x and y axes labeled.)*

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Mathematics Tested Standards

Grade 6

Reporting Category: The Number System (continued)	
Standards:	**Assessment Stems:**
6.NS.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	*(Students are given a number line with a point representing a fraction on a tick mark. The scale is blank beneath this one tick mark.)* What fraction does the point on the number line represent?
6.NS.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.*	What inequality does this number line show? Write your answer starting with x, for example $x > 3$. *(Artwork shows a number line from $+5$ to -5, with a circle around -2 and a highlighted arrow headed to the right.)*
6.NS.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts.	The average February temperature for four cities is shown in the table below. *(Students are given a table with 2 positive numbers and 2 negative numbers.)* Which of these lists the cities in order from the lowest average temperature to the highest average temperature?
6.NS.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.	Which list contains only numbers that are exactly 3 units away from 0 on a number line?
6.NS.7d Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.*	What is the absolute value of -3.4?
6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	[Name] plotted the following coordinates to show the dimensions of a garden he is going to plant. *(Students are given 4 coordinate pairs including positive and negative numbers.)* Graph each coordinate pair on the grid. Use your graph to determine the perimeter of the garden.

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Mathematics Tested Standards

Grade 6

Reporting Category: Ratios and Proportional Relationships	
Standards:	**Assessment Stems:**
6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	[Name]'s friends voted on whether to play basketball or kickball after school. The ratio of votes was 7:3 in favor of kickball. Which of these could be the number of votes each activity received?
6.RP.2 Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio *a:b* with $b \neq 0$, and use rate language in the context of a ratio relationship.	A group of hikers plans to hike 12 miles in 6 hours. At what hourly rate are they planning to hike?
6.RP.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	The table below shows how the quantities of flour and eggs used to make a recipe is related to the serving size. *(Students are given a table with equivalent ratios.)* How many eggs are needed to make a recipe that serves 12 people?
6.RP.3b Solve unit rate problems including those involving unit pricing and constant speed.	A company bought 50 staplers for $215. If each stapler cost the same amount, how much would it cost the company to buy 80 staplers?
6.RP.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent.	[Name] won the election for class president with 18 votes, which represented 60% of all votes cast. How many votes were cast during the election for class president?
6.RP.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	A factory makes 300 feet of wire in 10 minutes. How many yards of wire does the factory make per hour?
Reporting Category: Expressions and Equations	
6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.	Solve. $5^2 \times 5^6 =$
6.EE.2a Write expressions that record operations with numbers and with letters standing for numbers.	Which expression represents the following phrase? *y* divided by 4 plus 3
6.EE.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.*	In this expression, $3x + 2$, identify the coefficient of *x*.

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Mathematics Tested Standards

Grade 6

Reporting Category: Expressions and Equations (continued)	
Standards:	**Assessment Stems:**
6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. 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).	Look at the expression below. $120 \div m + 7$ What is the value of this expression when $m = 8$?
6.EE.3 Apply the properties of operations to generate equivalent expressions.	Which expression is equivalent to the expression below? $5(4x + 3)$
6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	Which expression is equivalent to the expression below? $6x + 2x - 5$
6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Look at the set of numbers below. *(Students are given a small set of numbers.)* In which inequality can x equal all numbers in the set?
6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	A movie theater charges $8 for a movie ticket. They sell bags of popcorn for $4. Which expression represents the total cost for m number of movie tickets sold and p number of bags of popcorn sold in one day?
6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	The total cost, q, of shipping x boxes is represented by the equation below, where p represents the shipping cost per box. $px = q$ If the total cost to ship 15 boxes is $59.25, what is the shipping cost per box?
6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Complete the graph for the following situation. Juan needs to make a 93 or higher on his test to get an A. *(Artwork shows a number line starting at 85 and going to 100, with tick marks for each number and including arrows on each end of the number line.)*

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Grade 6

Reporting Category: Expressions and Equations (continued)	
Standards:	**Assessment Stems:**
6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.	The table below shows the number of red beads and green beads in Stacy's necklace. Select the best equation to represent the total number of beads in her necklace. *(Artwork shows a two column table; first column header is r and the second is g; below r are 4, 5, 6, 7 and below g are 2, 3, 4, 5.)* How would you write this as an equation?
Reporting Category: Geometry	
6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Look at the figure below. *(Students are given a diagram of a figure composed of a rectangle and a right triangle.)* What is the area of the figure?
6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	A rectangular prism is packed with smaller cubes, as shown in the figure below. *(Students are given a diagram of a right rectangular prism with a fractional edge length, filled with unit fraction cubes.)* What is the volume of the rectangular prism?
6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	In which quadrant is the point $(2, -4)$? *(Artwork shows a coordinate grid 10×10 labeling x and y axes and the origin.)*
6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	The figure below shows a three-dimensional design for a paperweight. *(Students are given a diagram of a square pyramid.)* Which of these two-dimensional nets matches the paperweight?

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Grade 6

Reporting Category: Statistics and Probability	
Standards:	**Assessment Stems:**
6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	A store wishes to gather data about its customers that will give it information on how to provide better service. Which of these questions would provide the most useful information about the people replying to a survey?
6.SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	Which histogram has an overall shape best described as symmetric?
6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	A scientist measured the lengths of fish caught in a lake. The lengths of 14 of the fish are shown below. *(Students are given a table showing the lengths of 14 fish.)* Use the line below to construct a dot plot displaying the data collected by the scientist. *(Students are given a line for drawing a dot plot.)*
6.SP.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	[Name] polled five of the most successful car salesmen in town. Is this a representative sample of all car salesmen? Yes or No and explain why you chose that answer.
6.SP.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	Look at the data set below showing the money [Name] spent on lunch each day last week. *(Students are given a set of 5 values.)* What is the mean of the data set?
6.SP.5d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	A gardener planted ten trees. The data set below lists the height of each tree. 54″, 54″, 57″, 59″, 59″, 61″, 61″, 63″, 65″, 66″ Explain whether mean or median is the best measure of central tendency for the data set.

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Mathematics Tested Standards

Grade 7

Reporting Category: Ratios and Proportional Relationships	
Standards:	**Assessment Stems:**
7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	A person walks $\frac{1}{2}$ mile every $\frac{1}{4}$ hour. At what rate is the person walking?
7.RP.2 Recognize and represent proportional relationships between quantities.	Explain why these ratios are equivalent? 5 buttons on 1 shirt 15 buttons on 3 shirts
7.RP.2a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	The table below shows the cost of different numbers of books. *(Students are given a table showing the number of books and the cost of the books.)* Which of these explains whether the table represents a proportional relationship?
7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	A store charges \$2.08 for a 16-ounce can of juice. What is the unit cost of 1 ounce of juice?
7.RP.2c Represent proportional relationships by equations.	[Name] bought 5 cookies for \$2.40. Which equation represents the total cost to purchase 9 cookies?
7.RP.2d Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	Paula made different-sized squares from pieces of wood. The graph below shows the relationship between the lengths of the sides of the squares (x) and their perimeters (y). *(Students are given a graph containing the lengths of the sides for the squares and the related perimeters.)* What does the point (1, 4) represent on the graph?
7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*	[Name] paid \$28.00 for a video game that was originally priced at \$35.00. What percent did [Name] save on the purchase?

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Mathematics Tested Standards

Grade 7

Reporting Category: The Number System	
Standards:	**Assessment Stems:**
7.NS.1b Understand $p + q$ as the number located a distance absolute value (q) from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	[Name] is playing a board game. The first card he picks has him move backward 5 spaces. The next card he picks has him move forward 7 spaces. Which of these represents the total spaces [Name] has moved?
7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	Add. $-14.7 + 7.6 =$
7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.	Evaluate. $-1 - (-4) + (-7) =$
7.NS.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	Which of these is equivalent to $-2(3x - 5)$?
7.NS.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.	What is the multiplicative inverse of $-\frac{2}{3}$?
7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.	Simplify the expression below. $\left(2 \div \frac{1}{2}\right) \div \left(2 \times \frac{1}{2}\right)$

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Mathematics Tested Standards

Grade 7

Reporting Category: The Number System (continued)	
Standards:	**Assessment Stems:**
7.NS.2d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	Which of these is equivalent to $7\frac{3}{8}$?
7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	[Name] is buying a pair of pants that costs $34.80. [Name] is also buying 3 shirts that each cost ½ the price of the pair of pants. If [Name] pays with $100, how much change will he receive after paying a tax of 6%?
Reporting Category: Expressions and Equations	
7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Simplify: $-3x + 4y - 6x - 9z - 6y$
7.EE.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	The price of a meal is c dollars. [Name] is leaving a 20% tip. Which expression represents the amount of the tip?
7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	[Name] makes $25 an hour at her job. [Name] will receive a 10% raise at the end of the year. How much will [Name] make per hour after her raise?
7.EE.4a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	A class ring costs $260. [Name] has $80 in a savings account and earns $20 a week babysitting. Which equation can be used to represent the number of weeks (W) [Name] needs to work in order to purchase the ring?
7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	[Name] is a salesperson who is paid $50 per week plus an additional $3 per sale. This week, [Name] wants to be paid at least $100. What is the number of sales [Name] needs to make to be paid at least $100?

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Mathematics Tested Standards

Grade 7

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	A rectangle has a perimeter of 10 centimeters. A similar rectangle has a perimeter of 50 centimeters. What is the ratio of the lengths of the two rectangles? What are the possible lengths and widths of the two rectangles?
7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Use the coordinate grid below to answer the question. Draw and label a right isosceles triangle. Draw and label a rectangle with an area of 12 square units. Draw and label an equilateral triangle.
7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	Look at the figure. *(Artwork of a 3-D figure.)* Describe the two-dimensional figure that results from slicing the [3-D figure] by a plane.
7.G.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	The diameter of a circle is 12 inches. What is the area of the circle?
7.G.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	The measure of an angle is represented by $3x + 10$ and the measure of its complement is represented by x. What is the measure of each angle?
7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	[Name] is planting new grass seed on his lawn. *(Artwork of a triangle sitting atop a rectangle)* What is the area of lawn that [Name] will cover with grass seed?
Reporting Category: Statistics and Probability	
7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	A television channel wants to find the most popular television show among children by surveying members of a sample population. Which of these samples is likely to give the most representative sample?

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Mathematics Tested Standards

Grade 7

Reporting Category: Statistics and Probability (continued)	
Standards:	**Assessment Stems:**
7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	The two data sets below depict random samples of entry level salaries in two companies. Company A. [data set] Company B. [data set] Compare the mean and the median salaries for each company.
7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	The probability of choosing a green marble out of a bag of marbles is 0.75. Which of these explains the likelihood of choosing a green marble out of the bag?
7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	If you roll a six-sided number cube, numbered one through six, 24 times, how many times would you expect to roll a five?
7.SP.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*	If you have 5 cards labeled 1, 2, 3, 4, 5 and you randomly select one, what is the probability you pick the card labeled 4?
7.SP.7b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	[Name] spun a penny 27 times. The penny landed on heads 16 times and on tails 11 times. Which statement best explains the potential outcome of spinning the penny 100 more times?
7.SP.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	[Name] is flipping a coin and rolling a six-sided number cube. What is the probability of the coin landing on heads and the cube landing on 4?

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Mathematics Tested Standards

Grade 7

Reporting Category: Statistics and Probability (continued)	
Standards:	**Assessment Stems:**
7.SP.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., rolling double sixes), identify the outcomes in the sample space which compose the event.	Which tree diagram shows all the possible outcomes for flipping a coin 3 times?
7.SP.8c Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	If you flip a coin and pick a card, how many outcomes are possible? *(Artwork shows a coin and four cards labeled W, X, Y, Z.)*

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Mathematics Tested Standards

Grade 8

Reporting Category: The Number System	
Standards:	**Assessment Stems:**
8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	Which of these is an irrational number?
8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	What is the approximate value of $\sqrt{7} + \sqrt{20}$?
Reporting Category: Expressions and Equations	
8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	Solve. $3^2 \times 3^{-5}$
8.EE.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	What are the solutions to the equation $x^3 = 216$?
8.EE.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger.*	About how many times greater is 3×10^7 than 2×10^6 ?
8.EE.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	What is the value of the expression $(5.0 \times 10^3) \div (7.2 \times 10^4)$?

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Mathematics Tested Standards

Grade 8

Reporting Category: Expressions and Equations (continued)	
Standards:	**Assessment Stems:**
8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	The table below shows the distance a train travels at a constant rate over time. *(a table showing the miles traveled by a train at constant rate for 4 hours)* The equation shows the distance a car travels at a constant rate. *(a distance-time equation given)* What is the difference in their speeds?
8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; 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.	Look at the graph below. *(Artwork of the graph of a linear equation)* Which equation represents the line on this graph?
8.EE.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	How many solutions would this equation have? $-4x = 6 - 4x$
8.EE.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	What is the solution to the linear equation $\frac{1}{2}x + 3(1.5x - 7) = 84$?
8.EE.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	Is (3, 6) a solution for this system of equations? $5x - 2y = 3$ $2x - y = 0$
8.EE.8b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.	Look at the system of equations below. $2y = 5$ $3x + 2y = 6$ What is the solution to the system of equations?
8.EE.8c Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*	You and a friend go to a comic book store. You buy 3 classic comic books and 2 modern comic books, and your bill is $11.00. Your friend's bill is $15.00, and he purchased 2 classic comic books and 4 modern comic books. How much does a classic comic book cost? How much does a modern comic book cost?

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Mathematics Tested Standards

Grade 8

Reporting Category: Functions	
Standards:	**Assessment Stems:**
8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	Which graph correctly represents the linear function $2x + 2y = 6$?
8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*	A toy manufacturer is comparing the cost of using Company A or Company B to ship its boxes of toys. The graph below represents the total cost, *y*, Company A charges for shipping *x* boxes. *(Students are given a graph showing a linear equation.)* The table below represents the cost for shipping different numbers of boxes with Company B. *(Students are given a table showing a linear relationship.)* What is the difference in cost to ship a box of toys with Company A than to ship a box of toys with Company B? What is the difference in the *y*-intercept of the two functional relationships? What does the *y*-intercept mean in terms of the amount it will cost to ship a number of boxes of toys?
8.F.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$, given the area of a square as a function of its side length, is not linear because its graph contains the points (1, 1), (2, 4) and (3, 9), which are not on a straight line.*	Graph this function. *(Artwork of a 1st quadrant graph with each axis from 0–10)* $Y = 2x + 1$
8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (*x*, *y*) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Look at the graph. *(Students are given a graph of a linear equation with point coordinates and 2 points plotted.)* What is the slope of the line?
8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Look at the graph below. *(Students are given a graph that is linear with a negative slope.)* Which statement best describes the graph of the function?

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Mathematics Tested Standards

Grade 8

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
8.G.1a Lines are taken to lines, and line segments to line segments of the same length.	In quadrilateral *ABCD*, the length of line segment *CD* is 1.4 units. (*Students are given rectangle ABCD and rectangle A'B'C'D' on a coordinate plane.*) If quadrilateral *ABCD* is reflected across the *x*-axis, what will be the length of the resulting line segment *C'D'*?
8.G.1b Angles are taken to angles of the same measure.	In parallelogram *WXYZ*, the measure of angle *WXY* is 120°. If parallelogram *WXYZ* is translated 3 units to the right, what will be the measure of angle *WXY* after the translation?
8.G.1c Parallel lines are taken to parallel lines.	In trapezoid *EFGH*, line segment *EF* is parallel to line segment *GH*. (*Students are given a coordinate plane with EFGH and resulting figure E'F'G'H'.*) If trapezoid *EFGH* is rotated 90° clockwise about the origin, which two lines segments are parallel?
8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Look at Figure *X* and Figure *Y*. (*Students are given a coordinate plane with Figure X and, after a series of transformations, a congruent Figure Y.*) Which transformations could be used to take Figure *X* onto Figure *Y*?
8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Look at this figure. (*Students are given a polygon on a coordinate plane. One of the vertices is labeled M.*) The figure is translated five units to the right, then rotated 45° clockwise about the origin. What coordinates represent the new location of point *M*?
8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Look at figure *X* and figure *Y*. *(Students are given a coordinate grid with figure X and, after a series of transformations, a congruent figure Y.)* Which set of transformations could be used to generate figure *Y* from figure *X*?

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Mathematics Tested Standards

Grade 8

Reporting Category: Geometry (continued)	
Standards:	**Assessment Stems:**
8.G.5 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, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	In the diagram below, lines *l* and *k* are parallel. *(Students are given art of two parallel lines cut by a transversal.)* What is the sum of the measures of angles *A* and *C*?
8.G.6 Explain a proof of the Pythagorean Theorem and its converse.	A triangle has sides with lengths of 12, 16, and 20. Explain why it is or is not a right triangle?
8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	The lengths of the two shortest sides of a right triangle are 7 inches and 11 inches. What is the length of the hypotenuse of the right triangle?
8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Look at the right triangle on the coordinate plane below. *(Students are given a coordinate plane with a right triangle plotted so that the Pythagorean Theorem is easy to use.)* What is the distance between point *L* and point *M*?
8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	In many space missions, astronauts have traveled to the moon in rockets. They have returned to Earth in the nose of the rocket—called the capsule. A rocket capsule is shown below. *(Students are given art of a cone 12 feet high and a 20-foot-diameter circular base.)* What is the volume of the rocket capsule?
Reporting Category: Statistics and Probability	
8.SP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Look at the scatter plot shown below. (*Students are given a scatter plot showing a linear association with a few outliers.*) Which pattern is displayed in these data?
8.SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Look at this scatter plot. (*Students are given a scatter plot with a line of best fit provided.*) Which of these best explains why the line of best fit shown does not match the data on the scatter plot?

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Mathematics Tested Standards

Grade 8

Reporting Category: Statistics and Probability (continued)	
Standards:	**Assessment Stems:**
8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	[Name] uses the equation $y = 5x + 4$ to calculate the amount of money (y) she will have after selling x necklaces. Which statement best explains what the slope represents?
8.SP.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	[Name] surveyed 20 students from his class to determine if they had a curfew on school nights and if they also had chores. His results are shown in the table below. (*Students are given a two-way table showing the results of the survey.*) Which statement is supported by the table?

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Mathematics Tested Standards

Grade 10

Standards:	Assessment Stems:
Reporting Category: Number and Quantity	
N.Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	A car is traveling at a speed of 55 miles per hour. Which expression can be used to determine the speed of the car in yards per minute?
N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	The side of a square measures 4.0 inches. If the measurement is 0.2 inch too small, what is the approximate error in the computed area?
N.RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	Which of these is equivalent to $\left(5^{\frac{1}{3}}\right)^3$?
N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Which of these is equivalent to $\left(8^{\frac{2}{3}}\right)\left(8^{-4}\right)\left(8^{\frac{1}{2}}\right)\left(8^3\right)$?
N.RN.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Which of these is the best description of the product of $\left(\frac{-15}{7}\right)$ and $\sqrt{2}$?
Reporting Category: Algebra	
A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Simplify. $(2x^2 + 4x - 7) + (3x + 10)$
A.APR.6 Rewrite simple rational expressions in different forms; write $\frac{a(x)}{b(x)}$ in the form $q(x) + \frac{r(x)}{b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	Simplify. $\frac{2x^3y^3 + 4x^2z}{2x^4}$

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Mathematics Tested Standards

Grade 10

Reporting Category: Algebra (continued)	
Standards:	**Assessment Stems:**
A.APR.7 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	Combine and simplify. $\frac{x^3 - x^2 + -2x}{x^2 + 2x} \bullet \frac{x^2 + 5x + 6}{x - 2} - \frac{2x^2 + 3x - 9}{x}$
A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	[Name] has two jobs. She earns $75 per day at Job 1 and $26 per hour at Job 2. Last week, [Name] worked at Job 1 for 3 days and at Job 2 for *x* hours. She earned a total of $927 for the week. Which equation can be used to find how many hours [Name] worked at Job 2 last week?
A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Which of these shows the graph of $y = -\frac{2}{3}x - 2$?
A.CED.3 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. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*	[Names] are planting flower bulbs. [Name A] can plant 3 bulbs in 6 minutes. [Name B] has already planted 14 bulbs and plants 7 bulbs in 12 minutes. [Names A and B] decide to plant at the same time. How long will it take for [Names A and B] to plant the same number of flower bulbs? By the time they are equal how many bulbs would [Names A and B] have planted?
A.CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*	Plane *A* leaves the Norfolk airport traveling west at 450 miles per hour. Plane *B* leaves the same airport traveling east at 360 miles per hour. In how many hours will Plane *A* and Plane *B* be exactly 1,620 miles apart?
A.REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	What property of equality is demonstrated here? $5x = 125$ Then $5x + 17 = 125 + 17$
A.REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Look at these steps in solving a rational equation. (*Students are given multiple steps in solving a rational equation.*) Which statement explains why the final equation may have more solutions than the original equation?

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Mathematics Tested Standards

Grade 10

Reporting Category: Algebra (continued)	
Standards:	**Assessment Stems:**
A.REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Which of these is the solution to the inequality below? $2 + \|2x - 4\| < 8$
A.REI.4a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Complete the square. Fill in the value that makes this a perfect square quadratic. $p^2 + 12p +$ ___
A.REI.4b Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, 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 and write them as $a \pm bi$ for real numbers a and b.	Solve for $x^2 + 1 = 122$ for x. Solve for $x^2 - 8x - 9 = -24$ for x. Solve for $\frac{1}{3}x^2 + x + 1 = 5$ for x.
A.REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Look at the system of equations. $y = 2x - \frac{5}{6}$ $y = -x + 12$ What is the solution to the system?
A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*	Solve the system of equations. $y = x^2$ $y = 8 - x^2$
A.REI.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	Graph this function. *(Artwork shows a two column table with one column labeled x and one column labeled y; below the x list −7, −6, −5, −4; below the y list 0, 1, 2, 3; then includes a coordinate plane for graphing the equation.)*
A.REI.11 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	Graph these equations. How many solutions does this system have? $y = -\frac{3}{5} + 4$ $y = -\frac{3}{5} + 4$ *(Artwork includes a coordinate plane for graphing.)*

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Mathematics Tested Standards

Grade 10

Standards:	Assessment Stems:
Reporting Category: Algebra (continued)	
A.REI.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	Look at the system of linear inequalities. $y \leq 2x + 7$ $y > x - 3$ Which of these graphs shows the solution set of the system?
A.SSE.1b Interpret complicated expressions by viewing one or more of their parts as a single entity.	The expression below predicts the population of a particular animal each year, y. $100{,}000(1.04)^y$ Explain what the term $(1.04)^y$ represents in this context.
A.SSE.2 Use the structure of an expression to identify ways to rewrite it.	Look at the expression. $10^{x^2+2xy+y^2}$ Which of these is equivalent to the expression?
A.SSE.3b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	The equation of a parabola is $y = 2x^2 + 8x - 10$. Write the equation in vertex form.
A.SSE.3c Use the properties of exponents to transform expressions for exponential functions. *For example, the expression 1.15t can be rewritten as* $\left(\frac{1.151}{12}\right)12t \approx 1.01212t$ *to reveal the approximate equivalent monthly interest rate, if the annual rate is 15%.*	Simplify. $c^4\,(c^{-3})$
Reporting Category: Functions	
F.IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Evaluate $y = x^4 - \frac{2}{3}x^2 + 9$ for $x = \sqrt{3}$.
F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	Find the x-intercept of the following equation. Simplify your answer. $6x + 9y = -18$

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Mathematics Tested Standards

Grade 10

Reporting Category: Functions (continued)	
Standards:	**Assessment Stems:**
F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	Find the slope of a line that passes through points (3, 5) and (−3, 2). Simplify your answer.
F.IF.7a Graph linear and quadratic functions and show intercepts, maxima, and minima.	Plot $f(x) = -\frac{x^2}{4} - 4$ on the grid. Be sure to label the maximum, the minimum, and the intercepts if there are any.
F.IF.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	In a certain cell phone plan, the cost of text messaging is given by this function. $c(t) = \left\lvert \frac{t}{10} + 1 \right\rvert$ In the function, t is the number of texts and $c(t)$ is the cost, in dollars. Which graph represents the function?
F.BF.1a Determine an explicit expression, a recursive process, or steps for calculation from a context.	[Name] played a game and recorded the total points each time he played in the list below. *(Artwork is a list, which forms a pattern.)* Find the next number in the pattern. If n represents the nth term, write a relationship to find the nth term.
F.BF.1b Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	What is $(f + g)(x)$? $f(x) = x^2$ $g(x) = -x^2 + 4$
F.LE.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	Look at the graph below. *(Artwork of a coordinate plane containing a graphed line)* Which linear equation represents this line?
F.LE.3 Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	By looking at the following equations, which one will eventually surpass the others? $y = x^{100}$ $y = 100x$ $y = 100^x$ $y = x^{100} + 100x$

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Mathematics Tested Standards

Grade 10

Reporting Category: Geometry	
Standards:	**Assessment Stems:**
G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	Describe the transformation that would carry this shape onto itself. *(Artwork shows a kite or triangle or octagon.)*
G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	Which transformation was applied to figure *ABCD* to arrive at figure *A'B'C'D'*?
G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	Describe a transformation that would allow this shape to carry this regular polygon on to itself. *(Artwork shows any geometric shape [triangle, octagon, pentagon] with a line drawn somewhere through the shape.)*
G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Determine if these two triangles are congruent. *(Artwork shows two congruent triangles, one turned 90 degrees from the other.)*
G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	For each of the following right triangles determine the measure for the missing side. *(Artwork shows a triangle with the shorter sides labeled as 5 and 12 and a question mark for the hypotenuse.)*
G.CO.9 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	Complete the proof that line *AB* is perpendicular to line *BC*. *(Artwork shows two perpendicular lines AB and CD both meeting at point E, with adjacent angles AEC and AED marked.)*
G.CO.10 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	In the diagram below, line *n* passes through points *A* and *B* and is parallel to line *m*, which passes through point *C*. Prove that the sum of the angles in triangle *ABC* is 180°.
G.SRT.1a A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	Line *m* has the equation $y = 4x - 1$. What is the equation of the line after dilation with a scale factor of 3, centered at the origin?

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Mathematics Tested Standards

Grade 10

Reporting Category: Geometry (continued)	
Standards:	**Assessment Stems:**
G.SRT.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	The corresponding sides of triangle *A* and triangle *B*, the image of triangle *A* after dilation, have a scale factor of 3:7. If the length of one side of triangle *A* is 36 inches, what is the length of the corresponding side of triangle *B*?
G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Determine whether the triangles below are similar.
G.SRT.4 Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	Given a figure of a triangle *VWZ* imbedded in triangle *VXY* and a partial proof: *YZ/VZ* = *WX/VW*. Complete the proof that line *WZ* is parallel to line *XY*.
G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	The rhombus below is cut by diagonals. What is the value of angle *EBC*?
G.SRT.6 Understand that, by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Evaluate. Write your answer as an integer or, if a decimal, round to the nearest hundredth. Cos 24 = ____
G.SRT.7 Explain and use the relationship between the sine and cosine of complementary angles.	Given figure of right triangle *ABC*: The sine of angle *C* is $\frac{1}{2}$, and the cosine of angle *C* is $\sqrt{\frac{3}{2}}$. What is the cosine of angle *A*?
G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	Look at the figure below. *(Students are given an image of a tree with a tree house, and a ladder leaning against the tree with its top at the base of the tree house. The length, in feet, of the ladder is labeled, and the angle where the ladder meets the ground is given. A right angle indicator is given at the base of the tree.)* How many feet above the ground is the tree house?

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Mathematics Tested Standards

Grade 10

Reporting Category: Geometry (continued)	
Standards:	**Assessment Stems:**
G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	In circle *Z*, the measure of arc *XY* is 112°. *(Students are given a circle with center Z and angle XMY opening to arc XY.)* What is the measure of inscribed angle *XMY*?
G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	[Name] has two cylinders, A and B, which have the same size circular base. Cylinder A is twice as tall as Cylinder B. If the volume of Cylinder A is *x*, what is the volume of Cylinder B?
G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	A plane intersects a cylinder, resulting in a cross-section, as shown below. *(Art with a cylinder and a cross-section)* Which of these best describes the shape of the cross-section?
G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).	[Name A] builds a rectangular garden that has a perimeter of 24 feet and an area of 32 square feet. What is the length and width of the garden?
G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).	The [Name] planning department is conducting a zoning study. In one zoning area, there are 832 buildings in an area of 1.68 square miles. What is the density of buildings per square mile?
G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	This equation represents line *m* on a coordinate plane. $y = \frac{1}{2}x + 5$ Which of these represents a line parallel to line *m*?
G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	The endpoints of a line segment on a coordinate plane have the coordinates (*x*, *y*) and (*a*, *b*). Which ordered pair represents the midpoint of the line segment?

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Mathematics Tested Standards

Grade 10

Reporting Category: Statistics and Probability	
Standards:	**Assessment Stems:**
S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	Look at the data. 23, 23, 28, 26, 39, 33, 36, 38, 29, 25 Which of these box plots represents these data?
S.ID.2 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.	[Name] surveyed students at her high school to determine how many hours of sleep they get at night. She displays her data with 4 box plots, one for each grade level. (*Students are given box plots for freshman, sophomore, junior, senior.*) Which data set has the largest interquartile range?
S.ID.5 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.	Given a two-way frequency table, determine whether the association is positive or negative.
S.ID.6a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.	Look at the scatter plot. Which of these functions best models the data?
S.ID.9 Distinguish between correlation and causation.	Which of the following is an example of correlation?
S.IS.6c Fit a linear function for a scatter plot that suggests a linear association.	The scatter plot below shows the number of hours of sunlight a plant gets each week and the height of the plant each week. (*Students are given a scatter plot showing the results.*) Which function best models the relationship between the number of hours of sunlight each week and the height of the plant each week?

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Rubric for DC CAS Constructed-Response Items: Mathematics

Score	*Description*
3	The response demonstrates a thorough understanding of the mathematical concepts and processes needed to complete the task. • Response is correct and complete. • Response shows application of a reasonable and relevant strategy. • Mathematical ideas are expressed coherently through clear, complete, logical, and fully developed responses using words, calculations, and/or symbols as appropriate.
2	The response demonstrates a general and/or partial understanding of the mathematical concepts and processes needed to complete the task. • Response is mostly correct, and may be only partially complete. • Response shows application of a reasonable and relevant strategy, even though only partially applied. • Mathematical ideas are expressed generally or partially using words, calculations, and/or symbols as appropriate.
1	The response demonstrates a minimal and/or limited understanding of the mathematical concepts and processes needed to complete the task. • Response is only minimally correct or incomplete. • Application of a strategy is indicated or implied, but the strategy may reflect a misunderstanding of mathematical concepts and/or procedures. • Mathematical ideas are expressed in a limited manner and are flawed. Words, calculations, and/or symbols are attempted to be used appropriately but may be missing.
0	The response demonstrates no understanding of the mathematical concepts and processes needed to complete the task. • Response is incorrect, incomplete, or missing. • Response shows no application of a strategy or application of an irrelevant strategy. • Mathematical ideas cannot be interpreted or lack sufficient evidence to support even a limited understanding.

Student responses that are awarded a score of 3 have

- fully answered all parts of the question
- offered appropriate, clear, and full work to support their answer, as needed

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Science and Biology

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DC CAS Science Target Blueprints

DC CAS Science Target Blueprints for 2014

Grade 5 Science - Operational Core (Target Blueprint)

Reporting Category	MC	CR	Total Items	% Items	Total Points	% Points
Science and Technology	14	0–1	14–15	30%	14–16	30%
Earth and Space Science	12	0–1	12–13	26%	12–14	26%
Physical Science	10	0–1	10–11	21%	10–12	21%
Life Science	11	0–1	11–12	23%	11–13	23%
TOTALS	**47**	**3**	**50**	**100%**	**53**	**100%**

Grade 8 Science - Operational Core (Target Blueprint)

Reporting Category	MC	CR	Total Items	% Items	Total Points	% Points
Scientific Thinking and Inquiry	8	0–1	8–9	18%	8–10	18%
Matter and Reactions	21	0–1	21–22	43%	21–23	43%
Forces	8	0–1	8–9	18%	8–10	18%
Energy and Waves	10	0–1	10–11	22%	10–12	22%
TOTALS	**47**	**3**	**50**	**100%**	**53**	**100%**

HS Biology - Operational Core (Target Blueprint)

Reporting Category	MC	CR	Total Items	% Items	Total Points	% Points
Cell-Biology and Biochemistry	14	0–1	14–15	29%	14–16	29%
Genetics and Evolution	15	0–1	15–16	31%	15–17	31%
Multicellular Organisms: Plants and Animals	9	0–1	9–10	20%	9–11	20%
Ecosystems	9	0–1	9–10	20%	9–11	20%
TOTALS	**47**	**3**	**50**	**100%**	**53**	**100%**

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Blueprint Notes

- Reporting Category percentages are identical to the 2013 targets.
- To satisfy Range of Knowledge alignment criterion, at least one indicator from every standard should ideally be tested each year and every indicator should be tested within a three-year period. For 2014, exceptions may be necessary for grades 5, 8, and Biology due to item pool limitations.
- CR items are each worth two points and are scored with item-specific rubrics/scoring guides.

Anchor Items

- Items will contribute to operational tests.
- Items are distributed across all three sessions.
- **NOTE:** Anchor set for science should consist of 23 SR items. Items in the anchor set will be distributed across strands in proportion to the overall blueprint. Wherever possible, an item will not serve as an anchor more than two years in sequence.

Embedded Field Test Items

- For 2014, 12 selected-response (SR) and two constructed-response (CR) items are embedded field test (EFT) items in each of two forms (24 SR items and four CR items total).
- Items are field tested to fill operational slots in future years.
- A CR item will never be the last item of a session.
- Total EFT items are distributed across strands based upon the current or projected future gaps in the item pool.
- Item development plans are based upon the need to fill gaps in the RC percentages from OSSE's proposed blueprint for the rearticulated science standards (February 2010 version).

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Science Tested Standards

Grade 5

Reporting Category: Science and Technology	
Standards:	**Assessment Stems:**
5.1.1 Evaluate the validity of claims based on the amount and quality of the evidence cited.	Students came to the conclusion that [conclusion] after reviewing [data provided]. Explain why their conclusion may be incorrect.
5.1.2 Explain that predictions can be based on what is known about the past, assuming that conditions are similar.	For the past [number of years] scientists have recorded that when [certain weather conditions] happen most of the [type of crop] that is grown by farmers [description of effect of these weather conditions on the crop]. Which of these is the most likely prediction of what will happen to the [crop] if [weather condition] occurs [certain time of year in current year]?
5.1.3 Realize and explain why predictions may be more accurate if they are based on large collections of similar events for statistical accuracy.	Which of these statements describes the kind of data that are needed to make a good prediction about an event?
5.1.4 Determine area and volume of rectangular shapes from linear dimensions, using the expressions $A = l \times w$ and $V = l \times w \times h$.	The equation for the area (A) of a rectangle is shown below. [equation] An [object] is [value] long and [value] wide. What is the area of the [object]?
5.1.5 Understand how plotting data on a number line helps in seeing where the data lie, including the outliers.	Students in a science class measured the height of each person in class and plotted the data on a number line, as shown. Describe the range of height for the students in this class.
5.2.1 Recognize and describe how results of similar scientific investigations may turn out differently because of inconsistencies in methods, materials, and observations, or because of limitations of the precision of the instruments used.	Two researchers want to know [fact]. After one month, one researcher finds [different result] than the other researcher. Which of these best explains why the two researchers had different results?
5.2.2 Be able to distinguish inferences from actual observations.	Read about the [type of experiment]. Which of these statements is an inference about the experiment? Which is an observation?
5.2.3 Write instructions that others can follow to carry out an investigation.	Which of these statements best describes a good set of instructions for an investigation?
5.2.4 Read and follow step-by-step instructions when learning new investigations.	Below are the steps [Name] followed during an investigation. Why might her results not be very accurate?
5.2.5 Identify the controlled variable and at least one independent variable in a scientific investigation, when appropriate.	Which of these statements best describes a controlled variable in an investigation?

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Science Tested Standards

Grade 5

Reporting Category: Science and Technology (continued)	
Standards:	**Assessment Stems:**
5.2.6 Explain the distortion inherent in using only a portion of the data collected to describe the whole. Understand that it is sometimes acceptable to discard data.	[A teacher's] science class is collecting data on [subject of study]. The students decide to use only the average [data] to make it easier to report their results. Which of the following is the most likely problem with this procedure?
5.3.1 Give examples of technology, such as telescopes, microscopes, and cameras, that enable scientists and others to observe things that are too small or too far away to be seen without them and to study the motion of objects that are moving very rapidly or are hardly moving.	Which of these tools helped scientists to study [a planet]?
5.3.2 Give examples of advances in technology that have positively and/or negatively affected society.	[Brief history about a technological device]. Which of the following statements explains how [technological device] has positively affected society?
5.3.3 Give examples of materials not present in nature that have become available because of science and technology, such as cloth, metal alloys, plastic, ceramics, and concrete.	Which of these materials/objects is/is not present in nature?
Reporting Category: Earth and Space Science	
5.4.1 Describe that, like all planets and stars, the Earth is approximately spherical in shape.	What is the best way to describe the shape of planets and stars?
5.4.2 Observe how telescopes are used both to magnify images of distant objects in the sky, including the moon and the planets, and to gather enough light from very dim objects to make them visible.	Which of these describes an advantage to using a telescope to see [objects a telescope would be used to observe]?
5.4.3 Observe and describe that stars vary in size, but they are so far away that they look like points of light.	[Name] is looking at some stars in the night sky. She thinks they look like little points of light. Which of these causes the stars to look like points of light?
5.5.1 Describe the Earth as part of a system called the solar system, which includes the sun (a star), planets, comets, asteroids, and many moons.	Which of these best describes a solar system?

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Science Tested Standards

Grade 5

Reporting Category: Earth and Space Science (continued)	
Standards:	**Assessment Stems:**
5.5.2 Recognize that the Earth is the third planet from the sun in our solar system.	Which of these [choices] describes where Earth is found in the solar system?
5.5.3 Demonstrate how the Earth orbits the sun in a year's time, and Earth rotates on its axis about once every 24 hours.	Here is a model of an event that occurs in our solar system. What does this model represent?
5.5.4 Explain that the alternation between day and night and the apparent movement of the sun, moon, and stars across the sky depend on the rotation of the Earth on its axis.	In these pictures why does the moon appear to move across the sky?
5.5.5 Explain that the air around us is matter and has weight (a force) and exerts pressure; explain that air pressure varies a little from place to place and from time to time.	Which of these describes how air pressure changes as a hiker climbs a mountain?
5.5.6 Describe that winds blow from areas of higher pressure to areas of lower pressure.	A weather map is shown. *(Picture of weather map w/compass.)* The meteorologist is predicting strong winds. In which direction will the wind most likely be blowing?
5.5.7 Explain how global patterns, such as the jet stream and ocean currents, influence local weather and climate in ways that can be measured in terms of temperature, pressure, wind direction and speed, and amounts of precipitation.	Describe how ocean currents and the wind work together to affect weather patterns.
5.6.1 Describe that when liquid water evaporates, it turns into a gas (vapor) mixed into the air, and can condense and reappear as a liquid when cooled or as a solid (ice) if cooled below the freezing point of water.	Which picture/of these [choices] shows/is an example of a substance as both a liquid and a gas [or solid] OR a liquid changing to a solid?
5.6.2 Explain how water moves in air masses from one place to another in the form of clouds, fog, or as invisible water vapor, and falls to the Earth as rain, hail, sleet, or snow.	Which of these best describes how water moves from place to place?
5.6.3 Describe that clouds are made of tiny droplets of water or ice crystals.	What are clouds made up of?

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Science Tested Standards

Grade 5

Reporting Category: Earth and Space Science (continued)	
Standards:	**Assessment Stems:**
5.6.4 Explain that water on Earth cycles through different forms and in different locations (e.g., underground water and vapor in the atmosphere).	A diagram of the water cycle is shown. *(Diagram of water cycle.)* Which form of water is shown [at place indicated on diagram]?
5.6.5 Using maps and globes, recognize that the Earth's oceans are all connected as one body of water that covers about three-quarters of the Earth's surface.	Which statement best describes Earth's oceans?
Reporting Category: Physical Science	
5.7.1 Recognize that all matter is made of small particles called atoms, which are too small to see with our eyes; describe how atoms may combine to form molecules or crystalline solids (compounds).	Which statement best describes matter?
5.7.2 Recognize that there are more than 100 different kinds of atoms (each called an element), which are displayed on the periodic table of the elements.	Which of these best describes the difference/a similarity between all of the elements in the periodic table?
5.7.3 Explain that all matter is made up of an element, a compound, or mixtures of elements and compounds.	Which of these is all matter made up of?
5.8.1 Describe that heating and cooling cause changes in the properties of substances. For example, liquid water can turn into steam by boiling, and liquid water can turn into ice by freezing.	Which of these will help change a [phase] to a [different phase]?
5.8.2 Explain that many kinds of chemical changes occur faster at higher temperatures.	Which of these causes a chemical change to occur faster?
5.8.3 Explain that when a warm object and a cool one are placed in contact, heat flows from the warmer object to the cooler one until they are both at the same temperature. Know that heat transfer can also occur at a distance by radiation.	A student places an ice pack on her injured ankle. Which of these best describes the the flow of energy between the student's ankle and ice pack over the next 15 minutes?
5.8.4 Describe how some materials conduct heat much better than others, and poor conductors (insulators) can be used to reduce heat loss or gain.	A student needs to choose which container to place his lunch in to keep it cold until lunchtime. *(Art and descriptions of four containers.)* Into which container should the student place his lunch?

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Science Tested Standards

Grade 5

Reporting Category: Physical Science (continued)	
Standards:	**Assessment Stems:**
5.9.1 Explain that objects can move with a very wide range of speeds, with some moving very slowly and some moving too quickly for people to see them.	Which of these moves too quickly to see?
5.9.2 Demonstrate that if the forces acting on an object are balanced so that the net force is zero, the object will remain at rest if it is initially at rest or will maintain a constant speed and direction if it is initially moving.	*(Diagram of two objects leaning against each other.)* Which of these statements is true?
5.9.3 Describe that unbalanced forces cause changes in the speed and/or direction of motion of an object (acceleration).	[Names] are [moving] forward at the same speed. At one point, [Name 1] accidentally bumps into [Name 2] from the side. Which of these statements best describes what happens to [Name 2]'s movement?
5.9.4 Describe that, for an object moving in a straight line, acceleration, a, is the change in velocity, v, divided by the time, t, that change takes ($a = v \div t$).	[Name] wants to calculate the acceleration of a falling [object]. Which of these pairs of measurements does [Name] need to calculate acceleration?
5.9.5 Describe that the greater the net force, F, applied to a body, the greater its acceleration, a. Describe that the greater the mass, m, of an object, the smaller the acceleration produced by a given force.	[Name 1] has an [object] and [Name 2] has an [object]. They each pushed their [objects] across the playground with the same force. Explain why [Name 1]'s [object] went much slower than [Name 2]'s.
5.9.6 Demonstrate and explain that things on or near Earth are pulled toward Earth's center by the gravitational force that Earth exerts on them.	Which force causes an [object] to fall toward the ground when it is dropped?
Reporting Category: Life Science	
5.10.1 Describe that some organisms consist of a single cell that needs an environment that can supply food, water, sometimes oxygen, and a way to dispose of waste. (Some single-celled organisms are anaerobes.)	Which statement best describes what a single cell needs to survive?
5.10.2 Explain that some organisms are made of a collection of similar cells that benefit from cooperating.	Which type of organism has a collection of cells that work together to [biological function]?

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Reporting Category: Life Science (continued)	
Standards:	**Assessment Stems:**
5.10.3 Explain that in complex organisms such as humans, cells can have a very wide variety of forms and perform very different roles (e.g., nerve cells, muscle cells, and fat cells).	Which type of cell is responsible for [function]?
5.11.1 Explain why there must be a reliable way to transfer information from one generation to the next in order for offspring to resemble their parents.	Explain why the offspring of a/an [organism] resembles its parent.
5.11.2 List some characteristics of plants and animals that are fully inherited (e.g., form of flower, shape of leaves) and others that are affected by the climate or environmental conditions (e.g., browning of leaves from too much sun, language spoken).	Which of these characteristics is least likely to be passed on to an [organism] from its parents?
5.12.1 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.	Which set of organisms is adapted to survive in [environment]?
5.12.2 Identify organisms that are not native to the Washington, DC, area and how they undergo changes to increase their chance of survival in the area.	[Animal] can change color. Describe when this animal will most likely change color and why this is an advantage to the animal.
5.12.3 Explain how organisms can cause changes in their environment to ensure survival, and these changes may affect the ecosystem (the living and nonliving components of the environment).	A population of [animal] is growing so quickly that it eats most of the [food] in an area. Which of these statements explains how this may affect other organisms in the area?
5.12.4 Explain that organisms fit enough to survive in a particular environment will typically produce offspring fit enough to survive and reproduce in that particular environment. Over time, these inherited characteristics are carried as the predominant forms (e.g., adaptations such as shape of beak, length of neck, shape of teeth).	Which of these statements describes how traits are passed on to the offspring in a population that successfully survives in a changing environment?
5.12.5 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful, and how changes in the environment (drought, cold) have caused some plants and animals to die, migrate, or become extinct.	Which of these would probably have the greatest impact on the survival of an [animal] population living in an [area]?

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Science Tested Standards

Grade 5

Reporting Category: Life Science (continued)	
Standards:	**Assessment Stems:**
5.12.6 Explain that many plants and animals can survive harsh environments because of seasonal behaviors (e.g., in winter, some trees shed leaves, some animals hibernate).	[Animal w/fur] lives in [description of that animal's environment]. Which of these behaviors allows [the animal] to survive in [the harsh conditions of the animal's environment]?
5.12.7 Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs, human infants crying when hungry) and others learned (e.g., a wolf's hunting skills, humans' ability to build fires for warmth).	Describe one instinctive behavior and one learned behavior for a/an [animal].
5.12.8 Describe well-defined plant behaviors, such as the way seedlings' stems grow toward light and their roots grow downward in response to gravity.	Look at the [plant with specific behavior exhibited]. Which statement best describes the behavior of the plant?
5.12.9 Examine the information that fossils provide us about living things that inhabited the Earth in the distant past, and describe how they can be compared both to one another and to living organisms according to their similarities and differences.	Look at the [fossil]. Which information can be learned about the organism by observing this fossil?
5.12.10 Recognize and describe how artifacts and preserved remains provide some evidence of the physical characteristics and possible behaviors of human beings and their ancestors who lived long ago.	What can scientists learn from remains/fossils of humans and animals that lived long ago?

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Science Tested Standards

Grade 8

Reporting Category: Scientific Thinking and Inquiry	
Standards:	**Assessment Stems:**
8.1.1 Describe how scientific knowledge is subject to modification and refinement as new information challenges prevailing theories.	Which of these best describes what will happen to the [certain scientific theory] if new information is found that proves that [the current theory is somehow flawed]?
8.1.2 Test hypotheses that pertain to the content under study.	Which hypothesis is [Name] most likely testing in this investigation?
8.1.3 Restate or summarize accurately what others have said, asking for clarification or elaboration, and expressing alternative positions.	A group of students conducted an investigation about [subject]. The students concluded that [conclusion]. Which of these accurately restates the students' conclusion?
8.1.4 Identify and criticize the reasoning in arguments in which fact and opinion are intermingled or the conclusions do not follow logically from the evidence given, an analogy is not apt, no mention is made of whether the control group is very much like the experimental group, or all members of a group are implied to have nearly identical characteristics that differ from those of other groups.	A group of scientists published data from an investigation and claimed [statement of opinion]. *(Insert data that appear to support the opinion.)* Which of these identifies the most important reason fellow scientists may question the scientist's claim?
8.2.1 Describe how if more than one variable changes at the same time in an experiment, the outcome of the experiment may not be attributable to a change in any single variable.	Which of these best explains why there should only be one variable changed in an experiment?
8.2.2 Write clear step-by-step instructions (procedural summaries) for conducting investigations.	A student plans to investigate [hypothesis]. Describe two different steps the student must include in her investigation.
8.2.3 Use tables, charts, and graphs in making arguments and claims in presentations about lab work.	This graph shows [data]. According to the graph, [question asking student to analyze data in the graph]?
8.2.4 Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.	A student measured the temperature of three beakers of water left in different locations around the classroom. Which of these lists the correct temperature and units shown on each thermometer?
8.2.5 Explain why arguments may be invalid if based on very small samples of data, biased samples, or experiments in which there was no control sample.	Which of these best explains why the results of an investigation may be invalid when there is no control sample?

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Science Tested Standards

Grade 8

Reporting Category: Matter and Reactions	
Standards:	**Assessment Stems:**
8.3.1 Explain that all matter is made up of atoms that are far too small to see directly through an optical microscope.	Which of these is the basic building block for all matter?
8.3.2 Construct a model of an atom and know the atom is composed of protons, neutrons, and electrons.	An atom of [element] has [protons] and a charge of [charge]. How many electrons does an atom of [element] have?
8.3.3 Explain that an object can be electrically charged either positively or negatively; objects with like charges repel each other, or objects with unlike charges attract each other.	Which of these best explains why [object] repels [object]?
8.3.4 Know that density is mass per unit volume.	Which of these measurements represents an object with the highest density?
8.3.5 Explain that equal volumes of different substances usually have different masses and, therefore, different densities.	A student has equal volumes of [substance 1] and [substance 2]. Which statement about the mass and density of the two substances is true?
8.3.6 Determine the density of substances (regular and irregular solids, and liquids) from direct measurements of mass and volume, or of volume by water displacement.	An [irregular solid, regular solid] has a mass of [mass] and volume of [volume]. What is the density of the [substance]?
8.4.1 Using a periodic chart, explain that the atoms of any element are similar to each other, but they are different from atoms of other elements. Know that the atoms of a given isotope are identical to each other.	Which of these describes a way that atoms of one element are different from atoms of another element?
8.4.2 Describe how elements can be classified, based on similar properties, into categories, including highly reactive metals, less reactive metals, highly reactive nonmetals, less reactive nonmetals, and some almost completely non-reactive (noble) gases.	Which element is classified as a noble gas/highly reactive metal/ nonmetal?
8.5.1 Diagram and describe how atoms may combine (bond) into molecules or into large crystalline arrays.	Which diagram shows how the atoms of [molecule] bond?
8.5.2 Know that there are more than 100 elements that combine in a multitude of ways to produce compounds that make up all the living and nonliving things in the universe.	About how many elements have been discovered?

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Grade 8

Reporting Category: Matter and Reactions (continued)	
Standards:	**Assessment Stems:**
8.5.3 Understand how an ion is an atom or group of atoms (molecule) that has acquired an electric charge by losing or gaining one or more electrons.	An ion of [element] has a charge of [charge] and takes one electron from a neutral atom of [element]. Which of these shows the final charge on the [element] ion?
8.6.1 Describe how the atoms, molecules, or ions comprising an object are in constant individual motion, and explain how their average motional (kinetic) energy determines the temperature of the object, and how the strength of the forces between them determines the state of matter at that temperature.	In which of these substances are molecules most free to move around?
8.6.2 Explain that the melting and boiling temperatures of a substance (element or compound) depend on pressure and are independent of the amount of the sample. (Some materials do not melt and others do not boil because they decompose as the temperature is raised; other materials do not have a sharp melting point because they are not homogeneous.)	Which of these explains why the boiling temperature of [substance] is different at high and low altitudes?
8.7.1 Describe Law of Conservation of Matter, using the idea that when materials react with each other, many changes can take place, but that in every case the total amount of matter afterward is the same as before.	Which of these accurately describes how the conservation of matter affects [chemical reaction]?
8.7.2 Explain how the idea of atoms explains the conservation of matter: In chemical reactions, the number of atoms stays the same no matter how they are arranged, and the mass of atoms does not change significantly in chemical reactions, so their total mass stays the same.	Which of these best describes how the idea of atoms explains the conservation of matter?
8.8.1 Explain how elements and compounds (reactants) react with each other to form products with different properties.	[Element/compound 1] is [property]. [Element/compound 2] is [property]. Describe the properties of [product of the reaction between element/compound 1 and element/compound 2] and explain why they are different from those of [element/compound 1] and [element/compound 2].
8.8.2 Explain how during endothermic chemical reactions heat energy is absorbed from the surroundings, and in exothermic reactions heat energy is released to the surroundings.	Which of these types of reactions absorbs heat from/gives off heat to the surroundings?

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Science Tested Standards

Grade 8

Reporting Category: Matter and Reactions (continued)	
Standards:	**Assessment Stems:**
8.8.3 Explain that reactions occur at different rates, slow to fast, and that reaction rates can be changed by changing the concentration of reactants, the temperature, the surface areas of solids, and by using catalyst.	[Details about a chemical reaction] as shown in the equation below *(Equation.)* Which of these best describes what will happen if the temperature at which this reaction takes place is increased?
8.8.4 Recognize that solutions can be acidic, basic, or neutral, depending on the concentration of hydrogen ions in the solution. Understand that because this concentration can vary over a very large range, the logarithmic pH scale is used to describe how acidic or basic a solution is (each increase of one in the pH scale is an increase of 10 times in concentration).	*(Chart of pH values for various substances.)* [Substance] has a pH of about [value]. What acid in the chart would neutralize [substance] when both are used in equal volumes?
8.8.5 Recognize that indicators of chemical changes include temperature change, the production of gas, the production of a precipitate, or a color change.	Which of these proves that a chemical change has taken place?
8.9.1 Explain that when an electric current flows there is always a magnetic field associated with it.	Which of these is always associated with a flowing electric current?
8.9.2 Describe the role that electromagnets play in electric motors, electric generators, and simple devices such as doorbells and earphones.	Which of these best explains the reason electromagnets are used in doorbells?
8.9.3 Explain how electrical circuits provide a means of transferring electrical energy from sources such as generators to devices in which heat, light, sound, and chemical changes are produced.	A circuit is shown in the diagram. *(Art of a circuit.)* Which part of the circuit provides the energy to the circuit?
Reporting Category: Forces	
8.10.1 Explain that every object exerts an attractive gravitational force on every other object.	Which statement explains why two objects in a vacuum are attracted to each other?
8.10.2 Demonstrate that the mass of an object is a measure of the quantity of matter it contains (measured in kg or g), and that its weight (measured in N) is the magnitude of the gravitational force exerted between Earth and that much mass.	How are the mass and the weight of an object different from each other?

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Science Tested Standards

Grade 8

Reporting Category: Forces (continued)	
Standards:	**Assessment Stems:**
8.10.3 Determine and explain that the buoyant force on an object in a fluid is an upward force equal to the weight of the fluid the object has displaced; this principle can be used to predict whether an object will float or sink in a given fluid.	[Names] are investigating [material]. They measured the mass and volume of [two or more types of the material] and recorded their data in the table below. *(Table.)* The density of water is 1.0 gram per milliliter. If both [materials] are placed in water, which of these results will the students observe?
8.11.1 Recognize that a force has both magnitude and direction.	What information is necessary to calculate the force acting on an object?
8.11.2 Observe and explain that when the forces on an object are balanced (equal and opposite forces that add up to zero), the motion of the object does not change.	An [object] is moving through space at a constant speed. If no outside force interacts with the [object], which of these is true about its motion?
8.11.3 Explain why an unbalanced force acting on an object changes the object's speed or direction of motion or both.	If two people are pushing in opposite directions on an object with an unequal force, how will the motion of the object change?
8.11.4 Know that the greater the mass of an object, the more force is needed to change its motion.	A force is applied to an [object] that causes the [object] to move across the floor with a constant acceleration. Which of these describes the motion of an [object] with twice the mass of the first [object] if the same force is applied?
8.11.5 Apply simple mathematical models to problems (e.g., formulas such as $F = ma$, $d = st$).	The formula used to convert [change in units] is shown below. [equation] If the [physical property] is [value], what is the [physical property] in [different type of units]?
8.11.6 Explain that if the net force acting on an object always acts toward the same center as the object moves, the object's path is a curve about the force center. (Motion in a circular orbit is the simplest example of this concept.)	Which of these correctly explains why a satellite's orbit is always around the center of Earth?
8.11.7 Plot and interpret distance versus time graphs for constant speed.	Look at the table showing the motion of an [object]. *(Table.)* Which of these graphs correctly represents the motion of the object?

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Science Tested Standards

Grade 8

Reporting Category: Energy and Waves	
Standards:	**Assessment Stems:**
8.12.1 Explain how energy is the ability to do work and is measured in joules (J).	Which of these statements correctly describes the relationship between energy and work?
8.12.2 Describe kinetic energy as the energy of motion (e.g., a rolling ball), and potential energy as the energy of position or configuration (e.g., a raised object or a compressed spring).	Which of these best describes an example of kinetic energy/ potential energy?
8.12.3 Recognize and describe that energy is a property of many systems and can take the forms of mechanical motion, gravitational energy, the energy of electrostatic and magnetostatic fields, sound, heat, and light (electromagnetic field energy).	A [device] converts electrical energy into which kinds of energy?
8.12.4 Describe that energy may be stored as potential energy in many ways, including chemical bonds and in the nucleus of atoms.	Which of these does not describe potential energy?
8.12.5 Explain that the sun emits energy in the form of light and other radiation, and only a tiny fraction of that energy is intercepted by the Earth.	Which statement correctly compares the amount of the Sun's energy that reaches Earth with the amount of the energy that the Sun actually emits?
8.12.6 Know that the sun's radiation consists of a wide range of wavelengths, mainly visible light, infrared, and ultraviolet radiation.	[Name] is looking at the colors of light produced by sunlight passing through a glass prism. Which of these colors that [Name] sees has the longest wavelength?
8.13.1 Explain how a mechanical wave is a disturbance that propagates through a medium.	Which of these best describes a wave?
8.13.2 Explain how electromagnetic waves differ from mechanical waves in that they do not need a medium for propagation; nevertheless, they can be described by many of the same quantities: amplitude, wavelength, frequency (or period), and wave speed.	Which of these do mechanical waves need in order to propagate?
8.13.3 Recognize that human eyes respond to a narrow range of wavelengths of the electromagnetic spectrum (red through violet) called visible light.	Which of these best describes the range of electromagnetic wavelengths that human eyes are able to see?
8.13.4 Summarize how something can be "seen" when light waves emitted or reflected by an object enter the eye, just as something can be "heard" when sound waves from an object enter the ear.	Which of these best describes the process that occurs when sounds are heard by the ear?

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Science Tested Standards

Grade 8

Reporting Category: Energy and Waves (continued)	
Standards:	**Assessment Stems:**
8.14.1 Observe and explain how waves carry energy from one place to another.	Which of these best describes the movement of energy when a pebble is dropped into a puddle of water?
8.14.2 Explain how sound in a fluid (e.g., air) is a longitudinal wave whose speed depends on the properties of the fluid in which it propagates.	Which type of wave is a sound wave?
8.14.3 Explain how light waves, sound waves, and other waves move at different speeds in different materials.	The table shows the difference in the speed of sound waves in [fluid substance] and [different fluid substance]. *(Table.)* Which of these best explains why sound moves at different speeds in these materials?
8.14.4 Demonstrate that vibrations in materials set up wave disturbances, such as sound and earthquake waves, which spread away from the source.	A sound wave begins propagating from Point Y as shown in the diagram. *(Diagram showing Point Y and 3 other labeled points at different distances from Point Y)* Which point will the sound wave pass through last?
8.14.5 Explain that waves obey the superposition principle: Many waves can pass through the same point at once, and the wave amplitude at that point is the sum of the amplitudes of the individual waves.	If Wave 1 and Wave 2 both pass through point C at the same time, what will the amplitude of the combined wave be?
8.15.1 Explain how kinetic energy can be transformed into potential energy and vice versa (e.g., in a bouncing ball).	Which of these correctly lists all of the energy transformations that occur when a spring is compressed and then released?
8.15.2 Explain that heat energy is a common product of an energy transformation, such as in biological growth, the operation of machines, the operation of a light bulb, and the motion of people.	Several students walk into a cold classroom. After several minutes, they feel as though the temperature in the room has increased. Which of these statements best describes why the room feels warmer to the students?
8.15.3 Explain how electrical energy can be generated using a variety of energy sources and can be transformed into almost any other form of energy, such as mechanical motion, light, sound, or heat.	Which of these is not used to generate electrical energy?
8.15.4 Compare and contrast how heat energy can be transferred through radiation, convection, or conduction.	Which of these best describes how energy is transferred when a pot of water is heated on a stove?

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Reporting Category: Energy and Waves (continued)	
Standards:	**Assessment Stems:**
8.15.5 Know that power is energy per unit of time, expressed in watts, W, and 1 W = 1 J/s. Explain that devices are rated according to their power capacity or consumption.	Use the formula to determine how much energy a [electric device] uses in 20 minutes.
8.16.1 Explain that in processes at the scale of atomic size or greater, energy cannot be created or destroyed but only changed from one form into another.	Which of these best describes what happens to the energy of an [object] as it falls out of a tree?
Reporting Category: Cell Biology and Biochemistry	
B.1.1 Describe basic atomic structure using simplified Bohr diagrams to understand the basis of chemical bonding in covalent and ionic bonds.	Which of these statements best describes why an ionic bond occurs between two elements?
B.1.2 Describe the structure and unique properties of water and its importance to living things.	Which of these statements about the properties of water is not correct?
B.1.3 Describe the central role of carbon in the chemistry of living things because of its ability to combine in many ways with itself and other elements.	Which of these elements is essential to the makeup of all living things because of its ability to [quality of carbon]?
B.1.4 Know that living things are made of molecules largely consisting of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.	Which of these elements is least likely to be found in molecules that make up living things?
B.1.5 Know that living things have many different kinds of molecules, including small ones such as water; midsize ones such as sugars, amino acids, and nucleotides; and large ones such as starches, proteins, and DNA.	Which of these groups lists the molecules found in living things correctly from smallest to largest?
B.2.1 Describe that all organisms begin their life cycles as a single cell, and in multicellular organisms the products of mitosis of the original zygote form the embryonic body.	How does this single cell grow to be a multicellular organism?
B.2.2 Compare and contrast the general anatomy and constituents of prokaryotic and eukaryotic cells and their distinguishing features: Prokaryotic cells do not have a nucleus, and eukaryotic cells do. Know that prokaryotic organisms are classified in the Eubacteria and Archaebacteria Kingdoms and that organisms in the other four kingdoms have eukaryotic cells.	*(Diagram or description of different types of cells)* • Which cell could be a normal body cell from an [organism]? • Which of the cells contains [organelle]?

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Reporting Category: Cell Biology and Biochemistry (continued)	
Standards:	**Assessment Stems:**
B.2.3 Demonstrate and explain that cell membranes act as highly selective permeable barriers to penetration of substances by diffusion or active transport.	The diagram shows the movement of molecules across a cell membrane. *(Diagram.)* Which conclusion can be drawn from the diagram?
B.2.4 Explain that some structures in the eukaryotic cell, such as mitochondria, and in plants, such as chloroplasts, have apparently evolved by endosymbiosis (one organism living inside another, to the advantage of both) with early prokaryotes.	Which of these describes one step in the evolution of eukaryotes from prokaryotes?
B.2.5 Describe that all growth and development of organisms is a consequence of an increase in cell number, size, and/or products.	Which of these two processes leads to the growth of a multicellular organism?
B.2.6 Explain why communication and/or interaction are required between cells to coordinate their diverse activities.	*(Scenario in which a substance important to cell communication is inhibited in a multicellular organism.)* Which of these explains the most likely impact on the organism?
B.3.1 Observe and explain the role of enzymatic catalysis in biochemical processes.	Which of these substances will most likely increase the rate of [a biochemical reaction]?
B.3.2 Understand the function of cellular organelles and how the organelles work together in cellular activities (e.g., enzyme secretion from the pancreas).	Which of these best describes the function of [organelle] in a cell?
B.3.3 Demonstrate that most cells function best within a narrow range of temperature and pH; extreme changes usually harm cells by modifying the structure of their macromolecules and, therefore, some of their functions.	Most cells function best if which two factors remain within certain levels?
B.3.4 Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division.	Which of these diagrams represents the correct order of stages in the cell cycle?
B.3.5 Explain how cell activity in a multicellular plant or animal can be affected by molecules from other parts of the organism.	Which of these explains why [organisms] would undergo cellular respiration instead of fermentation?

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Reporting Category: Cell Biology and Biochemistry (continued)	
Standards:	**Assessment Stems:**
B.3.6 Explain the photosynthesis process: Plants make simple sugars and other molecules in their leaves, and chlorophyll found in the leaves can make the food and nutrients that the plant can use from carbon dioxide, water, nutrients, and energy from sunlight.	Which of these is the original source of energy for photosynthesis?
B.3.7 Recognize and describe that cellular respiration is important for the production of adenosine triphosphate (ATP), which is the basic energy source for cell metabolism.	Which of these is the basic source of energy for cell metabolism?
B.4.1 Explain the hierarchical organization of living things from least complex to most complex (subatomic, atomic, molecular, cellular, tissue, organs, organ system, organism, population, community, ecosystem, and biosphere).	Which of these shows the organization of a living thing from least complex to most complex?
B.4.2 Observe and describe that within the cell are specialized parts for the transport of materials, energy capture and release, waste disposal, and motion of the whole cell or of its parts.	*(Diagram of typical cell with arrow pointing to one specific organelle)* Identify this specialized structure found within [organism] cells and describe its function.
B.4.3 Describe the organelles that plant and animal cells have in common (e.g., ribosomes, golgi bodies, endoplasmic reticulum) and some that differ (e.g., only plant cells have chloroplasts and cell walls).	Which of these best describes one way that animal cells are different from plant cells?
B.4.4 Describe that the work of the cell is carried out by structures made up of many different types of large (macro) molecules that it assembles, such as proteins, carbohydrates, lipids, and nucleic acids.	Some antibiotics work by blocking the bacterial cell's protein synthesis. Identify one protein that bacterial cells synthesize and explain why the protein is necessary for the cell's survival.
B.4.5 Explain that a complex network of proteins provides organization and shape to cells.	Which type of molecule creates complex networks within cells and is largely responsible for a cell's shape and organization?
B.5.1 Explain how layers of energy-rich organic material, mostly of plant origin, have been gradually turned into great coal beds and oil pools by the pressure of the overlying Earth and its internal heat.	Which pair of factors is most responsible for the formation of coal beds beneath Earth's surface?

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Science Tested Standards

BIOLOGY

Reporting Category: Genetics and Evolution	
Standards:	**Assessment Stems:**
B.6.1 Research and explain the genetic basis for Gregor Mendel's laws of segregation and independent assortment.	Which of these best describes the genetic basis for Gregor Mendel's law of segregation?
B.6.2 Investigate and describe how a biological classification system that implies degrees of kinship between organisms or species can be deduced from the similarity of their nucleotide (DNA) or amino acids (protein) sequences. Know that such systems often match the completely independent classification systems based on anatomical similarities.	The classification chart below shows how closely related four species are to each other. *(Chart.)* According to the chart, which of these is the best conclusion about the species?
B.6.4 Investigate and explain how molecular evidence reinforces and confirms the fossil, anatomical, behavioral, and embryological evidence for evolution, and provides additional detail about the sequence in which various lines of descent branched off from one another.	Which of these describes molecular evidence that best supports the Theory of Evolution?
B.6.5 Explain Gregor Mendel's identification of what we now call genes, how they are sorted in reproduction, and how this led to an understanding of the mechanism of heredity. Understand how the integration of his concept of heredity and the concept of natural selection has led to the modern model of speciation and evolution.	The modern model of speciation and evolution arose from the integration of which of these two concepts?
B.7.1 Describe how the discovery of the structure of DNA by James D. Watson and Francis Crick made it possible to interpret the genetic code on the basis of a nucleotide sequence. Know the important contribution of Rosalind Franklin's data to this discovery (i.e., the careful *X*-ray crystallography on DNA that provided Watson and Crick the clue they needed to build the correct structure).	Which of these discoveries made it possible for scientists to interpret the genetic code on the basis of a nucleotide sequence?
B.7.2 Explain how hereditary information is passed from parents to offspring in the form of genes, which are long stretches of DNA consisting of sequences of nucleotides. Explain that in eukaryotes, the genes are contained in chromosomes, which are bodies made up of DNA and various proteins.	A biological molecule is shown below. *(Illustration of part of a double helix.)* Which of these is true about this molecule in eukaryotes?

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Science Tested Standards

BIOLOGY

Reporting Category: Genetics and Evolution (continued)	
Standards:	**Assessment Stems:**
B.7.3 Know every species has its own characteristic DNA sequence.	*(Scenario summarizing information about particular organisms.)* Which of these correctly describes the DNA characteristics of these organisms?
B.7.5 Differentiate between the functions of mitosis and meiosis. Mitosis is a process by which a cell divides into each of two daughter cells, each of which has the same number of chromosomes as the original cell. Meiosis is a process of cell division in organisms that reproduce sexually, during which the nucleus divides eventually into four nuclei, each of which contains half the usual number of chromosomes.	The diagram below shows a type of cell division that happens in humans. *(Diagram.)* Identify the process shown in the diagram. Describe the purpose of this type of cell division in humans.
B.7.6 Explain how zygotes are produced in the fertilization process.	Describe the human fertilization process beginning with the movements of the egg and sperm cells within the body of the female. Be sure to name and describe the first cell that is produced by this process.
B.8.1 Explain the flow of information is usually from DNA to RNA, and then to protein.	Describe in the correct order the flow of genetic information that results in the formation of a protein.
B.8.2 Explain how the genetic information in DNA molecules provides the basic form of instructions for assembling protein molecules and that this mechanism is the same for all life forms.	Amino acids linked together in a chain create a polypeptide. One or more polypeptides makes a functional protein. Which of these provides the instructions for the assembly of a protein?
B.8.3 Understand and explain that specialization of cells is almost always due to different patterns of gene expression, rather than differences in the genes themselves.	Which of these best describes how the cells of an organism become specialized for their unique functions?
B.9.1 Understand and describe how inserting, deleting, or substituting short stretches of DNA alters a gene. Recognize that changes (mutations) in the DNA sequence in or near a specific gene may (or may not) affect the sequence of amino acids in the encoded protein or the expression of the gene.	Describe three different ways a scientist could alter a strand of DNA and discuss how each change could affect the organism in which this change takes place.
B.9.2 Explain the mechanisms of genetic mutations and chromosomal recombinations, and when and how they are passed on to offspring.	Which diagram shows an example of a genetic mutation?

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Reporting Category: Genetics and Evolution (continued)	
Standards:	**Assessment Stems:**
B.9.3 Explain how the sorting and recombination of genes in sexual reproduction result in a vast variety of potential allele combinations in the offspring of any two parents.	In [an organism], there are two alleles for [trait]. There are also two alleles for [other trait]. Two plants that are heterozygous/homozygous for both of these traits are crossed. Which of these Punnett squares correctly shows the genotypes that could result from this cross?
B.9.4 Explain that genetic variation can occur from such processes as crossing over, jumping genes, and deletion and duplication of genes.	Which of these involves the exchange of chromatid segments between chromosomes?
B.10.1 Describe how life on Earth is thought to have begun as one or a few simple one-celled organisms about 3.5 billion years ago, and that during the first 2 billion years, only single-cell microorganisms existed. Know that, once cells with nuclei developed about a billion years ago, increasingly complex multicellular organisms could evolve.	Which of these developments was necessary so that multi-cellular organisms could evolve?
B.10.2 Explain that prior to the theory first offered by Charles Darwin and Alfred Wallace, the universal belief was that all known species had been created *de novo* at about the same time and had remained unchanged.	Which of these best explains what most people thought before Darwin and Wallace proposed their theory of evolution?
B.10.3 Research and explain that Darwin argued that only biologically inherited characteristics could be passed on to offspring, and that some of these characteristics would be different from the average and advantageous in surviving and reproducing; over generations, accumulation of these inherited advantages would lead to a new species.	Which of these best describes Darwin's theory on how a new species comes to be?
B.10.4 Explain that evolution builds on what already exists, so the more variety there is, the more there can be in the future.	Which of these statements best describes why some populations have greater variation among individuals than other populations?
B.11.1 Explain how a large diversity of species increases the chance that at least some living things will survive in the face of large or even catastrophic changes in the environment.	How does the amount of diversity observed within a species affect its chance for survival in the event of a sudden change in the environment?
B.11.2 Research and explain how natural selection provides a mechanism for evolution and leads to organisms that are optimally suited for survival in particular environments.	Identify one trait of the [organism] that is most likely to have evolved through the process of natural selection. Explain how this trait makes [organism] optimally suited for survival in [organism's native environment].

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Science Tested Standards

BIOLOGY

Reporting Category: Genetics and Evolution (continued)	
Standards:	**Assessment Stems:**
B.11.3 Explain that biological diversity, episodic specification, and mass extinction are depicted in the fossil record, comparative anatomy, and other evidence.	How does comparative anatomy support the idea that new species have evolved from older ones?
Reporting Category: Multicellular Organisms: Plants and Animals	
B.12.1 Describe the structure and function of roots, leaves, flowers, and stems of plants.	Which of these statements best describes why [part of plant] is important?
B.12.2 Know that about 250,000 species of flowering plants have been identified.	Of the known plant species, approximately how many are flowering?
B.12.3 Explain that during the process of photosynthesis, plants release oxygen into the air.	During which of these processes is oxygen released into the air?
B.12.4 Recognize that plants have a greater problem with unpredictable environments because they cannot seek shelter as many animals can.	Which of these organisms would have the hardest time dealing with sudden harsh environmental changes?
B.13.1 Identify the roles of plants in the ecosystem: Plants make food and oxygen, provide habitats for animals, make and preserve soil, and provide thousands of useful products for people (e.g., energy, medicines, paper, resins).	Which of these statements describes a role of plants in an ecosystem?
B.13.2 Describe that plants have broad patterns of behavior that have evolved to ensure reproductive success, including co-evolution with animals that distribute a plant's pollen and seeds.	Describe how [animals] help [plants] reproduce, and explain one benefit that the [plants] provide to the [animals].
B.14.1 Explain the major systems of the mammalian body (digestive, respiratory, reproductive, circulatory, excretory, nervous, endocrine, integumentary, immune, skeletal, and muscular) and how they interact with each other.	Which of these best explains why [organ or organ system] is such an important part of the body?
B.15.1 Analyze the complementary activity of major body systems, such as how the respiratory and circulatory systems provide cells with oxygen and nutrients, and remove toxic waste products such as carbon dioxide.	Which of these describes how two body systems are involved in [major function]?

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Reporting Category: Multicellular Organisms: Plants and Animals (continued)	
Standards:	**Assessment Stems:**
B.15.2 Explain how the nervous system mediates communication between different parts of the body and the environment.	Identify and explain how the body system responsible for alerting the [organism] to [environmental change] functions.
B.15.3 Describe that the nervous and endocrine systems maintain overall regulation of optimal conditions within the body by chemical communication.	The secretion of [hormone] by [gland] causes [function]. Which two body systems must communicate in order for [hormone] to cause [function]?
B.15.4 Investigate and cite specific examples of how the mammalian immune system is designed to protect against microscopic organisms and foreign (or nonself) substances from outside the body and against some aberrant (e.g., cancer) cells that arise within.	Which of these body systems is responsible for creating a fever in response to an infection?
Reporting Category: Ecosystems	
B.16.1 Using ecological studies, explain distinct relationships and differences between urban environments and other environmental systems.	The growth and development of cities can have many effects on the areas that surround them. Which of these is least likely to occur?
B.17.1 Illustrate and describe the cycles of biotic and abiotic factors (matter, nutrients, energy) in an ecosystem.	Which of these is an abiotic/biotic factor in the [type of cycle]?
B.17.2 Describe how factors in an ecosystem, such as the availability of energy, water, oxygen, and minerals, and the ability to recycle the residue of dead organic materials, cause fluctuations in population sizes.	Which of these environmental factors is most likely to cause an increase in the population size of [species]?
B.17.3 Explore and explain how changes in population size have an impact on the ecological balance of a community and how to analyze the effects.	[Information about an organism's relationship with other organisms in its environment] Which of these would most likely result due to the decline of the [organism]?
B.17.4 Describe how the physical or chemical environment may influence the rate, extent, and nature of the way organisms develop within ecosystems.	[Species] has developed [physical adaptation or behavioral pattern based on physical environment]. This is most likely due to which of these environmental factors?
B.18.1 Describe how ecosystems can be reasonably stable over hundreds or thousands of years.	Explain two factors that might threaten an ecosystem's stability.

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Reporting Category: Ecosystems (continued)	
Standards:	**Assessment Stems:**
B.18.2 Explain that ecosystems tend to have cyclic fluctuations around a state of rough equilibrium, and change results from shifts in climate, natural causes, human activity, or when a new species or non-native species appears.	Certain laws in the United States prohibit the release of non-native species of [organism] because . . .
B.19.1 Investigate and describe how point and nonpoint source pollution can affect the health of a bay's watershed and wetlands.	Describe the difference between nonpoint source pollution and source pollution, and explain why one of these is more difficult to regulate.
B.19.2 Assess the method for monitoring and safeguarding water quality, including local waterways such as the Anacostia and Potomac rivers, and know that macroinvertebrates can be early warning signs of decreasing water quality.	Which qualities of water can be monitored to assess water quality?

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Grade 5 Science: Sample Constructed-Response Item with Scoring Guide

A student placed several ice cubes into a plastic container. After sitting at room temperature for an hour, the ice melted into water.

A Describe the physical change that the ice went through. Write your answer on the lines in the answer booklet.

B What would need to happen to change the water back into ice? Write your answer on the lines in the answer booklet.

Item-Specific Rubric	**Score Points**	2

Key Elements:

The ice changed from solid to liquid.

Any reasonable description of cooling the water until it freezes.

Score Points:

2 points Two key elements
1 point One key element
0 points Other

Sample Student Responses & Score Points Awarded

A The solid ice changed into a liquid.

B You could put it in the freezer until it turned back into ice.

Score: 2 points

A The ice changed into water.

B You would need to refreeze it.

Score: 1 point
Note: For Part A, no point awarded for a response of the ice changing into *water*, which is already stated in the item.

A The ice changed.

B You would need to undo it.

Score: 0 points
Note: No points awarded as the response to both parts are too vague.

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Grade 8 Science: Sample Constructed-Response Item with Scoring Guide

A student has several objects made of different materials. The student wants to find the density of each object in order to predict which objects will float when placed into water.

A Which two properties should the student measure in order to find the density of each object? Write your answer on the line in the answer booklet.

B Explain how the student could use the density of each object to predict which objects will float when placed into water. Write your answer on the line in the answer booklet.

Item-Specific Rubric	**Score Points**	2

Key Elements:

Mass **AND** volume

Any reasonable explanation of comparing the density of each object to the density of water to see which objects have a lower density than water (1.0 g/mL).

Score Points:

2 points	Two key elements
1 point	One key element
0 points	Other

Sample Student Responses & Score Points Awarded

A Mass and volume

B You could see if an object's density was less than the density of water, then it would float.

Score: 2 points
Note: For Part B, students may state the 'density of water' or give the value of 1.0 g/mL.

A Mass

B If the object's density was less than water's, then it would float.

Score: 1 point
Note: No point awarded for just one property named in Part A.

A Weight and space

B A large density means the object won't float.

Score: 0 points
Note: No point awarded for Part A as the properties are incorrect, and no point awarded for Part B as there is no comparison to the density of water and/or the reasoning is incorrect.

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Biology: Sample Constructed-Response Item with Scoring Guide

Many different substances can enter and exit a cell by passing through the cell membrane.

A Name the process by which oxygen molecules would enter through the cell membrane, and identify whether this process would require energy to occur. Write your answers in the chart provided in the answer booklet.

B Name the process by which sodium ions would exit through the cell membrane, and identify whether this process would require energy to occur. Write your answers in the chart provided in the answer booklet.

Item-Specific Rubric	**Score Points**	2

Key Elements:

Diffusion **AND** No (no energy required)

Active transport **AND** Yes (energy required)

Score Points:

2 points Two key elements
1 point One key element
0 points Other

Sample Student Responses & Score Points Awarded

	Process	Energy Required?
A	Diffusion	no
B	Active Transport	yes

Score: 2 points

	Process	Energy Required?
A	Diffusion	yes
B	Active Transport	yes

Score: 1 point
Note: Both parts must be correct for a student to earn a point for the specific process.

	Process	Energy Required?
A	Easy	no
B	Pumping	yes

Score: 0 points
Note: Neither process was named correctly, so the student did not earn a point for either process.

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Health and Physical Education

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Health and Physical Education Tested Standards

Grade 5

Reporting Category: Communication and Emotional Health
Standards:
5.1.1 Describe the relationship between physical health and emotional health.
5.1.2 Describe the causes and symptoms of, and myths about, common mental and emotional illnesses.
5.1.3 Understand that unkind words and gossip are a form of verbal violence, and work to stop unkind words and bullying.
5.4.1 Describe how families and cultures have different norms for, and attach different meanings to, verbal and nonverbal communication (e.g., in their sense of personal space, use of touch, eye contact).
5.4.3 Analyze how the media send mixed messages about alcohol, tobacco use, and violence.
5.5.1 Apply attentive listening, feedback, and assertiveness skills (rather than passive or aggressive forms of communication) to enhance positive interpersonal communication.
5.5.2 Demonstrate how to initiate and sustain conversation with another person by identifying oneself and discussing experiences, interests, and shared values.
Reporting Category: Safety Skills
5.1.4 Describe ways to prevent injuries in school and in the community.
5.3.2 Describe and demonstrate simple first-aid procedures.
5.3.3 Explain how to stay safe around weapons, including telling a trusted adult about the existence of a weapon at school.
Reporting Category: Human Body and Personal Health
5.1.5 Describe the basic structure and functions of the following human body systems: – the excretory system – the reproductive system – endocrine system.
5.1.6 Describe how muscles and bones are interrelated.
5.3.1 Describe and demonstrate strategies to improve or maintain personal health, including strategies for protecting eyes (e.g., sunglasses), ears (e.g., volume reduction), and skin (e.g., sun protection).
Reporting Category: Disease Prevention
5.1.10 Describe how sanitation and waste disposal, and environmental controls help to prevent diseases and health conditions.
5.1.7 Define STIs and HIV/AIDS; describe behaviors that put one at risk for HIV/AIDS, STIs, or unintended pregnancy; explain why abstinence is the most effective way to prevent disease or pregnancy.
5.1.9 Explain that bacteria and viruses cause infectious diseases that lead to common illnesses, including sexually transmitted diseases.

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Health and Physical Education Tested Standards

Grade 5

Reporting Category: Nutrition
Standards:
5.1.11 Explain how nutrition affects personal health, academic achievement, fitness and performance, including the effects of malnutrition on brain functioning.
Reporting Category: Alcohol, Tobacco and Other Drugs
5.1.12 Define addiction to alcohol, tobacco, and other drugs; and explain that those who are addicted require assistance to stop addiction.
5.1.13 Describe various methods for addiction prevention, intervention, treatment and recovery.
Reporting Category: Health Decision Making
5.1.8 Discuss strategies to remain abstinent and resist pressures to become sexually active.
5.2.1 Identify characteristics of valid health products that are approved by trusted sources, such as the Food and Drug Administration, the Consumer Product Safety Commission, and Internet sites that often end in .gov or .org.
5.2.2 Compare generic and brand name products for cost and validity.
5.4.2 Identify ways children can model healthful behaviors for family members.
5.6.1 Use health data to set achievable and purposeful short-term and long-term health goals that address strengths, needs, and health risks; and track progress toward achieving their achievement.
Reporting Category: Physical Education
PE 5.4.1 Explain why some people have more body fat than others.
PE 5.4.2 Name and locate major muscles of the body.
PE 5.4.3 Describe the principles of training and the application to each of the components of health-related physical fitness.
PE 5.4.4 Explain why dehydration impairs temperature regulation and physical and mental performance.
PE 5.4.5 Explain why body weight is maintained when calorie intake is equal to the calories expended.
PE 5.4.7 Describe and demonstrate how to relieve a muscle cramp.
PE 5.4.8 Explain the benefits of stretching after warm-up activities, and why it is safer to stretch a warm muscle than a cold muscle.

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Health and Physical Education Tested Standards

Grade 8

Reporting Category: Communication and Emotional Health
Standards:
8.1.1 Identify warning signs of depression.
8.1.2 Recommend ways for a friend or family member to deal with emotional conflicts or problems.
8.5.1 Demonstrate how to provide constructive criticism, including selecting the right time/place; focusing on things that can be changed; and providing advice that is positive, specific, and helpful.
8.5.2 Compare the use of cooperative and competitive strategies to achieve a group goal, and recommend strategies to keep a group on target and free from conflict.
Reporting Category: Safety Skills and Community Health
8.1.3 Define healthcare disparities that exist in the community and analyze how poverty, race, class and gender have contributed to those disparities.
8.3.1 Describe and demonstrate basic first-aid procedures.
8.3.2 Demonstrate safety strategies for the care of babies and young children.
8.3.3 Define common risk factors associated with teen dating violence (e.g., alcohol, drugs, lack of parental supervision).
Reporting Category: Human Development and Sexuality
8.1.4 Explain how heredity, physiological changes, environmental influences, and varying social experiences contribute to one's growth and development.
8.1.5 Define sexual orientation, using correct terminology; and explain that as people grow and develop they may begin to feel romantically and/or sexually attracted to people of a different gender and/or to people of the same gender.
8.1.6 Explain the importance of testing both partners for HIV and STIs before sexual behavior and the risks and precautions of birth delivery when HIV and STIs are present.
8.1.7 Compare and contrast the theories about what determines sexual orientation, including genetics; prenatal, social, and cultural influences; psychological factors; and a combination of these.
8.1.8 Describe why abstinence and contraception are important.
8.1.9 Describe fertilization, embryonic development, and fetal development; and discuss prenatal practices that support a healthy pregnancy.
8.1.10 Describe the physical and emotional changes that occur during each stage of pregnancy and the importance of regular prenatal care.

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Health and Physical Education Tested Standards

Grade 8

Reporting Category: Human Development and Sexuality (continued)
Standards:
8.4.1 Explain the family life cycle and what it means to be a parent in various cultures.
8.4.2 Recognize that raising a child is one of the most important functions of a family; and describe the consequences of teen parenting from the perspectives of the teen mother, teen father, and parents of the teens.
Reporting Category: Disease Prevention
8.1.11 Illustrate how pathogens, family history, and other risk factors are related to the cause or prevention of disease and other health problems, such as high blood pressure.
8.1.12 Describe how exposure to allergens and other environmental triggers can cause allergic reactions and asthma attacks.
8.1.13 Recognize that proper diet, exercise, rest, and avoidance of risk behaviors, such as smoking, drinking, and other substance use, contribute to the health of a pregnant woman and positively impact the development of the fetus.
Reporting Category: Nutrition
8.1.14 Discuss the short-term and long-term benefits and risks associated with nutritional choices, such as heart disease, high cholesterol, cancer and osteoporosis.
8.1.15 Differentiate between being overweight and being obese; and research and recommend healthy ways to lose, gain, or maintain weight.
Reporting Category: Alcohol, Tobacco and Other Drugs
8.1.16 Explain the relationship between injected drug use and diseases such as HIV/AIDS and hepatitis.
8.1.17 Explain the consequences of driving under the influence of alcohol and other drugs; and develop strategies to prevent drinking and driving in order to maintain personal, family and community health.
8.1.18 Discuss how the use of alcohol and other drugs impairs decision-making, increases the risk of violence, and places one at risk for sexual assault, pregnancy, and STIs.
Reporting Category: Health Information and Advocacy
8.2.1 Develop guidelines for the use of professional health services based on the type of care needed, the nature of the problem, and the kind of questions that need answering.
8.4.3 Specify ways adolescents can advocate for personal, family, and community health.
8.4.4 Describe the ways technology can affect personal health and health behaviors for better and for worse, such as through new, effective medicines, improved exercise equipment, and the availability and nutrient quality of food.

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Health and Physical Education Tested Standards

Grade 8

Reporting Category: Health Information and Advocacy (continued)
Standards:
8.6.1 Demonstrate the ability to identify choices on a range of health issues that are consistent with one's own values, and do not involve risking one's own health or safety, other people's health or safety, or breaking the law.
Reporting Category: Physical Education
PE 8.4.1 Compile and analyze a log noting the food intake/calories consumed and energy expended through physical activity.
PE 8.4.4 Explain why a strong heart is able to return quickly to its resting rate after exertion.
PE 8.4.6 Explain progression, overload, and specificity as they relate to principles of conditioning.
PE 8.4.9 Explain the effects of nutrition and participation in physical activity on weight control, self-concept, and physical performance.
PE 8.4.10 Identify muscles being strengthened during the performance of particular physical activities.
PE 8.4.3 Describe the relationship between the heart, lungs, muscles, blood and oxygen during physical activity.
PE 8.4.5 Identify the body's normal reactions to moderate to vigorous physical activity; recognize that the body will adapt to increased workloads.
PE 8.4.8 Identify basic principles in weight/resistance training and safety practices and explain the role that weight bearing activities play in bone strength.

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Health and Physical Education Tested Standards

High School

Reporting Category: Human Growth and Development
Standards:
L1.1.1 Compare the rate of physical, social, and emotional change during various life stages, and discuss ways to foster healthy growth.
L1.1.3 Identify and recommend behaviors that enhance and support the optimal functioning of bodily systems, including the functions of the body's immune system.
L1.1.4 Describe each human life stage and the significant developmental issues or concerns that affect each.
L1.4.1 Identify the traits of a healthy family, including responsibility, communication, trust, loyalty, respect, commitment, love, affirmation, and self-reliance; and explain the ways family members depend on one another and can positively influence each other's health decisions.
Reporting Category: Sexuality and Reproduction
L1.1.5 Describe the benefits of abstinence as the most effective means of contraception; then describe short-term and long-term consequences of adolescent sexual activity.
L1.1.7 Explain the importance of testing both partners for HIV and STIs before sexual behavior and the risks and precautions of birth delivery when HIV and STIs are present.
L1.5.2 Explain the importance of mutual respect and communication as key elements to successful dating and setting limits in sexual relationships.
Reporting Category: Disease Prevention and Treatment
L1.1.8 Compare and contrast disease and health conditions occurring in adolescence and young adulthood with those occurring later in life, such as cancer, cardiovascular diseases, respiratory diseases, arthritis, osteoporosis, and Alzheimer's diseases; and explain how health decisions today might increase or reduce the risk of developing such ailments.
L1.1.9 Describe the pathogenic, genetic, age, cultural, environmental, and behavioral factors that influence the degree of risk for contracting specific diseases.
L1.1.10 Describe how to delay the onset of and reduce risks related to potential health problems throughout the life span (e.g., osteoporosis).
Reporting Category: Nutrition
L1.1.11 Analyze and evaluate current dietary recommendations, resources, and trends from a variety of sources.
L1.1.12 Analyze how healthy and unhealthy eating patterns impact the functioning of the human body, including bone development and the healthy functioning of the immune system.

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Health and Physical Education Tested Standards

High School

Reporting Category: Alcohol, Tobacco and Other Drugs
Standards:
L1.1.13 Explain theories about dependency, such as genetic predisposition, gender-related predisposition, and multiple risk factors.
L1.1.14 Research and analyze how public health policies and government regulations related to the sale, distribution and use of tobacco influence health promotion and disease prevention.
L1.1.15 Research and analyze how public health policies and government regulations related to the sale, distribution and use of alcohol influence health promotion and disease prevention.
Reporting Category: Safety Skills
L1.3.1 Evaluate home-safety conditions (e.g., proper use of smoke detectors and fire extinguishers) and workplace conditions (e.g., eye protection, gloves, and hard hats) for perceived and actual risk of intentional and unintentional injuries; and apply injury prevention and management strategies.
L1.3.2 Demonstrate the ability to understand and follow the rules of the road, obey traffic laws, and select a safe route of travel, by bike or walking.
L1.3.3 Identify the signs of emotional and physical abuse and the available resources for help and support in the schools, the local community, law enforcement agencies, and faith-based groups.
Reporting Category: Locate Health Information and Assistance
L1.2.1 Identify trends in the health care delivery system (e.g., health insurance coverage among Americans).
L1.2.2 Analyze the cost and accessibility of health care services, including those provided by the public health department, community health clinics, private health clinics, urgent care facilities, and hospital emergency rooms.
L1.2.3 Describe the basic criteria for eligibility in public health programs including School Lunch, Food Stamps, WIC (Women, Infants and Children), the Children's Health Insurance Program (CHIP), Medicaid, and Medicare.
L1.4.2 Describe the role of government agencies in regulating advertising claims related to health that appears in the media and on the Internet.
L1.6.2 Explain the importance of establishing a long-term relationship with a primary care provider as a critical component in maintaining one's health.

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Health and Physical Education Tested Standards

High School

Reporting Category: Physical Education
Standards:
PE.L1.2.1 Participate in moderate to vigorous physical activity at least four days each week that develops and maintains the five components of physical fitness.
PE.L1.2.2 Engage a variety of sustained, moderate to vigorous physical activities that enhance each component of health related fitness.
PE L1.2.3 Use physical fitness test results to set and adjust goals to improve fitness.
PE L1.2.4 Explain the role of physical activity in the prevention of disease and the reduction of health care costs.
PE.L1.2.5 Develop a four-week personal fitness plan specifying the proper warm-up and cool-down activities and the principles of exercise for each of the five components of health related physical fitness.
PE L1.2.6 Create a strength training program that includes the basic principles in weight/resistance training and safety practices.
PE.L1.2.7 Explain the inherent risks associated with physical activity in extreme environments.
PE L1.2.8 Explain the benefits that proper nutrition has on physical performance.
PE L1.2.9 Research and evaluate sport-specific conditioning programs.

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Additional Resource Information and Glossary

In this section of the *DC CAS Resource Guide* is a list of additional resources identified by educators of the District of Columbia. These resources have been used in classrooms because of their curricular and assessment alignment to DC standards and Common Core State Standards.

Also included in this section is a glossary of assessment terms.

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Additional Resources

The following resources may be used by teachers in their instructional planning. The resources have been selected for their alignment to the state standards, the Common Core State Standards, and the DC CAS.

Resource	*Description of Content*	*Content Alignment*
www.brainpop.com	• Cartoon video with quizzes • Requires login	All content areas
McDougal-Littell CD-ROM, website, and textbooks www.classzone.com	• Test generator and videos • General questions aligned to standards	All content areas
www.ctb.com	• Published by CTB/McGraw-Hill • Understanding Assessment • CTB Research	All content areas
www.ctb.com/dc-cas	• Performance Level Descriptors • Skills and concepts needed to achieve proficiency levels of the DC CAS • Based on student performance on the DC CAS	All content areas
http://eduplace.com	• Houghton Mifflin Harcourt Education Place	All content areas
http://osse.dc.gov http://nclb.osse.dc.gov	• All standards documents • Released DC items	All content areas
http://www.bam.gov	• Videos, articles, quizzes, interactive games by topic • Educator resources • Aligned with National Health Education Standards	Health
http://www.choosemyplate.gov	• Nutrition-related articles and other teaching materials	Health
http://kidshealth.org	• Videos, articles, quizzes, interactive games by topic • Educator resources • Aligned with National Health Education Standards	Health

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Resource	*Description of Content*	*Content Alignment*
Everyday Mathematics Center http://everydaymath.uchicago.edu	• Variety of resources for users and non-users of Everyday Mathematics Program • Links to professional journals, organizations, web resources, EM learning goals	Mathematics
NCTM's Illuminations http://illuminations.nctm.org	• Standards-based resources • Online activities, lessons, and web links	Mathematics
Utah State University http://nlvm.usu.edu/en/nav/vlibrary.html	• Virtual manipulatives by content strands • PreK–12	Mathematics
http://www.readingrockets.org/article/102	• Metacognitive reading strategies • Features Dr. Roger Farr's Think Aloud process • Dr. Farr is past president of International Reading Association • Appropriate for all grades • Applicable to other content areas	Reading
www.corestandards.org	• Common Core State Standards for English Language Arts and Mathematics	Reading, Writing/ Composition, and Mathematics
www.LearnDC.org	• A new District of Columbia website dedicated to all things Common Core • Local and national resources about the Common Core and its implementation	Reading, Writing/ Composition, and Mathematics
http://www.parcconline.org	• Partnership for Assessment of Readiness for College and Careers • K–12 assessment consortium • DC is a governing state	Reading, Writing/ Composition, and Mathematics
NIH www.science.education.nih.gov	• Curriculum guides correlated to Scientific Investigation and Inquiry	Science
www.biologycorner.com	• Variety of biology-related lessons • Online assignments • Practice tests	Science: Biology

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Resource	*Description of Content*	*Content Alignment*
Smithsonian Museum www.smithsonian.org	• Botanic garden • Bodies exhibit (mammalian bodies)	Science: Biology
www.exploratorium.org	• Exploratorium Science Snacks and online exhibits • Series of hands-on activities about light • Online exhibits to learn about perception and light	Science: Conservation of Energy
DC Environmental Education Consortium www.dcnaturally.org	• Local nonprofit environmental education groups	Science: Ecosystems
Science and Technology in Middle School: Series from Smithsonian www.smithsonianeducation.org	• Hands-on curriculum • Labs and text	Science: Forces/Density and Buoyancy

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Glossary

constructed response (CR)
a test item for which a student must write a response, usually to provide and then support an answer to a question OR to provide an answer and then show or explain a process for determining the answer

content standard
the skill and knowledge expected of students at a specific grade level

Performance-Level Descriptors (PLDs)
PLDs provide descriptions of students' performance at each achievement level. The PLDs for the DC CAS are included in the *Guide to Test Interpretation* distributed to schools.

rubric
a framework of criteria that defines how a student response, usually to a constructed-response item, will be evaluated and scored; a holistic, or generic, rubric gives criteria that are general in nature and can be used to score items of similar construct and content (e.g., reading comprehension items).

scoring guide
a guide that may include notes or sample responses that are specific to a constructed-response item; scoring guides are developed to help scorers as they apply scoring criteria to student responses.

selected response (SR)
a test item, also known as a multiple-choice item, in which a student is presented answer choices from which to select the correct response to a posed question or problem

strand
a cluster of standards within a content area that are often used as a reporting category, such as Informational Text or Number Sense and Operations

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