Virginia

Standards of Learning Assessments

Test Blueprint

Grade 5 Reading

2017 English Standards of Learning

This test blueprint will be effective with the administration of the spring 2024 Reading Standards of Learning (SOL) tests.

Grade 5 Reading
Test Blueprint Summary Table

Beginning in spring 2023, the computer adaptive SOL tests include a section of additional passages/items at the end of the test. The computer algorithm may deliver passages/items one grade level above or one grade level below a student's current grade based upon the student's responses to the on-grade-level passages/items. The Test Scaled Score (0 to 600) and corresponding performance level are based upon a student's performance on the on-grade-level Operational Passages/Items only. The student's responses to the on-grade-level Operational Passages/Items *and* the Additional Passages/Items that may be on grade level, one grade level above, or one grade level below the current grade level will be reflected in the student's Vertical Scaled Score.

Grade 5 Reading			
Reporting Category	**Grade 5 SOL**	**Number of Items Computer Adaptive Test (CAT) Format**	**Number of Items Paper Format**
Demonstrate comprehension of fictional texts and use word analysis strategies*	**5.4a-e 5.5a-g, i-l**	**13**	**18**
Demonstrate comprehension of nonfiction texts and use word analysis strategies*	**5.4a-e 5.6a-j**	**15**	**22**
Number of Operational Passages/Items		**28 4 passages**	**40 6 passages**
Number of Field-Test Passages/Items**		**5 1 passage**	**0**
Number of Additional On- or Off-Grade-Level Passages/Items***		**5 1 passage**	**0**
Integrated Reading and Writing Component **(This component of the reading test is administered on a different day.)**		**Grade 5 SOL**	**Number of Items Online and Paper Format**
Number of Operational Items associated with 1 on-grade-level nonfiction passage		**5.4a-e 5.6a-j**	**6**
		5.7a-l 5.8a-k	**1 writing prompt**

A seal code will appear after the third passage and set of items in the computer adaptive test. A stop sign will appear after the third passage and set of items on the paper test.

**Use word analysis strategies and word reference materials* will be tested with both fictional and nonfictional texts.
**Field-test items will be administered to students for potential use on subsequent tests and will not be used to compute the final test score.
*** Legislation passed in the 2021 Virginia General Assembly (HB2027 and SB1357) requires these assessments have the ability to contain additional test items at, below, and above a student's grade level as appropriate for the student. All test items will be delivered online via the computer adaptive algorithm. Students who meet the criteria for a paper test will receive only on-grade-level items.

Grade 5 Reading
Expanded Test Blueprint

Reporting Category: Demonstrate comprehension of fictional texts and use word analysis strategies

Number of Items: 13 (CAT)

Standards of Learning:

5.4 The student will expand vocabulary when reading.

a) Use context to clarify meaning of unfamiliar words and phrases.
b) Use context and sentence structure to determine meanings and differentiate among multiple meanings of words.
c) Use knowledge of roots, affixes, synonyms, antonyms, and homophones to determine the meaning of new words.
d) Identify an author's use of figurative language.
e) Use word-reference materials.

5.5 The student will read and demonstrate comprehension of fictional texts, literary nonfiction, and poetry.

a) Summarize plot events using details from text.
b) Discuss the impact of setting on plot development.
c) Describe character development.
d) Identify theme(s).
e) Explain the resolution of conflict(s).
f) Identify genres.
g) Differentiate between first- and third-person point of view.
i) Explain how an author's choice of vocabulary contributes to the author's style.
j) Draw conclusions and make inferences with support from the text.
k) Identify cause-and-effect relationships.
l) Compare/contrast details in literary and informational nonfiction texts.

Reporting Category: Demonstrate comprehension of nonfiction texts and use word analysis strategies

Number of Items: 15 (CAT)

Standards of Learning:

5.4 The student will expand vocabulary when reading.

a) Use context to clarify meaning of unfamiliar words and phrases.
b) Use context and sentence structure to determine meanings and differentiate among multiple meanings of words.
c) Use knowledge of roots, affixes, synonyms, antonyms, and homophones to determine the meaning of new words.
d) Identify an author's use of figurative language.
e) Use word-reference materials.

5.6 The student will read and demonstrate comprehension of nonfiction texts.

a) Use text features, such as type, headings, and graphics, to predict and categorize information.
b) Skim materials to develop a general overview of content and to locate specific information.

c) Identify the main idea.
d) Summarize supporting details.
e) Identify organizational pattern(s).
f) Identify transitional words and phrases that signal an author's organizational pattern.
g) Locate information from the text to support opinions, inferences, and conclusions.
h) Identify cause-and-effect relationships.
i) Differentiate between fact and opinion.
j) Compare and contrast details and ideas within and between texts.

Integrated Reading and Writing Component

Integrated Reading and Writing: Demonstrate comprehension of nonfiction texts and use word analysis strategies

Number of Items: 6 (Online and Paper Format)
Standards of Learning:

5.4 The student will expand vocabulary when reading.

a) Use context to clarify meaning of unfamiliar words and phrases.
b) Use context and sentence structure to determine meanings and differentiate among multiple meanings of words.
c) Use knowledge of roots, affixes, synonyms, antonyms, and homophones to determine the meaning of new words.
d) Identify an author's use of figurative language.
e) Use word-reference materials.

5.6 The student will read and demonstrate comprehension of nonfiction texts.

a) Use text features, such as type, headings, and graphics, to predict and categorize information.
b) Skim materials to develop a general overview of content and to locate specific information.
c) Identify the main idea.
d) Summarize supporting details.
e) Identify organizational pattern(s).
f) Identify transitional words and phrases that signal an author's organizational pattern.
g) Locate information from the text to support opinions, inferences, and conclusions.
h) Identify cause-and-effect relationships.
i) Differentiate between fact and opinion.
j) Compare and contrast details and ideas within and between texts.

Number of Items: 1 Writing Prompt (Online and Paper Format)
Standards of Learning:

5.7 The student will write in a variety of forms to include narrative, descriptive, expository, and persuasive.

a) Engage in writing as a process.
b) Select audience and purpose.
c) Use a variety of prewriting strategies.
d) Introduce and develop a topic, incorporating evidence and supporting details.
e) Organize information to convey a central idea.
f) Recognize different forms of writing have different patterns of organization including story structure for narrative writing.
g) Write a clear topic sentence focusing on the main idea.

h) Clearly state a position including supporting reasons and evidence to persuade the intended audience.
i) Write multiparagraph compositions.
j) Use precise and descriptive vocabulary to create tone and voice.
k) Vary sentence structure by using transition words and prepositional phrases.
l) Revise writing for clarity of content using specific vocabulary and information.

5.8 The student will self- and peer-edit writing for capitalization, spelling, punctuation, sentence structure, paragraphing, and Standard English.

a) Use plural possessives.
b) Use adjective and adverb comparisons.
c) Use interjections.
d) Use prepositional phrases.
e) Use quotation marks with dialogue.
f) Use commas to indicate interrupters, items in a series, and to indicate direct address.
g) Use a hyphen to divide words at the end of a line.
h) Edit for fragments and run-on sentences.
i) Eliminate double negatives.
j) Use correct spelling of commonly used words.
k) Use coordinating conjunctions.

Virginia

Standards of Learning Assessments

Test Blueprint
Grade 5 Mathematics
2016 Mathematics Standards of Learning

This test blueprint will be effective with the administration of the spring 2024 Mathematics Standards of Learning (SOL) tests.

Grade 5 Mathematics
Test Blueprint Summary Table

Beginning in spring 2023, the computer adaptive Standards of Learning tests will include an additional section of items at the end of the test. The computer algorithm may deliver items one grade level above or one grade level below a student's current grade based upon the student's responses to the on-grade-level item**s**. The Overall Scaled Score (0 to 600) and corresponding performance level (i.e., pass/proficient, pass/advanced, fail/basic, fail/below basic) is based upon a student's performance on the on-grade-level Operational Items only. The student's responses to the on-grade-level Operational Items *and* the Additional Items that may be on grade level, one grade level above, or one grade level below the current grade level will be reflected in the student's Vertical Scaled Score.

Reporting Category	Grade 5 SOL	Number of Items Computer Adaptive Test (CAT) Format	Number of Items Paper Format
Number and Number Sense	**5.1 5.2a*, b* 5.3a-b**	**5**	**7**
Computation and Estimation	**5.4 5.5a*, b 5.6a, b* 5.7***	**9**	**13**
Measurement and Geometry	**5.8a-b 5.9a-b 5.10 5.11 5.12 5.13a-b 5.14a-b**	**9**	**13**
Probability, Statistics, Patterns, Functions, and Algebra	**5.15 5.16a-c 5.17a-d 5.18 5.19a-d**	**12**	**17**
Number of Operational Items		**35**	**50**
Number of Field-Test Items**		**5**	**0**
Number of Additional On- or Off-Grade-Level Items***		**6**	**0**

A seal code will appear approximately halfway through the operational and field-test items on a computer adaptive test. The exact placement of the seal code may vary by 2-3 items on the computer adaptive test. A stop sign will separate the no-calculator-active test questions from the calculator-active test questions on a paper test.

*Items measuring these SOL will be completed without the use of a calculator. Calculator-active items will have the online calculator included with the item. For additional information, please refer to the list of Online Mathematics Tools available on the Grades 3-8 Mathematics Growth Assessments.

**Field-test items will be administered to students for potential use on subsequent tests and will not be used to compute the final test score.

*** Legislation passed in the 2021 Virginia General Assembly (HB2027 and SB1357) requires these assessments have the ability to contain additional test items at, below, and above a student's grade level as appropriate for the student. All test items will be delivered online via the computer adaptive algorithm. Students who meet the criteria for a paper test will receive only on-grade-level items.

Grade 5 Mathematics
Expanded Test Blueprint

Reporting Category: Number and Number Sense
Number of Items: 5 (CAT) 7 (Traditional)
Standards of Learning:

5.1 The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.

5.2 The student will
a) represent and identify equivalencies among fractions and decimals, with and without models; and
b) compare and order fractions, mixed numbers, and/or decimals in a given set, from least to greatest and greatest to least.

5.3 The student will
a) identify and describe the characteristics of prime and composite numbers; and
b) identify and describe the characteristics of even and odd numbers.

Reporting Category: Computation and Estimation
Number of Items: 9 (CAT) 13 (Traditional)
Standards of Learning:

5.4 The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of whole numbers.

5.5 The student will
a) estimate and determine the product and quotient of two numbers involving decimals; and
b) create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication of decimals, and create and solve single-step practical problems involving division of decimals.

5.6 The student will
a) solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers; and
b) solve single-step practical problems involving multiplication of a whole number, limited to 12 or less, and a proper fraction, with models.

5.7 The student will simplify whole number numerical expressions using the order of operations.

Reporting Category: Measurement and Geometry
Number of Items: 9 (CAT) 13 (Traditional)
Standards of Learning:

5.8 The student will
a) solve practical problems that involve perimeter, area, and volume in standard units of measure; and
b) differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation.

5.9 The student will
a) given the equivalent measure of one unit, identify equivalent measurements within the metric system; and
b) solve practical problems involving length, mass, and liquid volume using metric units.

5.10 The student will identify and describe the diameter, radius, chord, and circumference of a circle.

5. 11 The student will solve practical problems related to elapsed time in hours and minutes within a 24-hour period.

5. 12 The student will classify and measure right, acute, obtuse, and straight angles.

5. 13 The student will
a) classify triangles as right, acute, or obtuse and equilateral, scalene, or isosceles; and
b) investigate the sum of the interior angles in a triangle and determine an unknown angle measure.

5.14 The student will
a) recognize and apply transformations, such as translation, reflection, and rotation; and
b) investigate and describe the results of combining and subdividing polygons.

Reporting Category: Probability, Statistics, Patterns, Functions, and Algebra
Number of Items: 12 (CAT) 17 (Traditional)
Standards of Learning:

5.15 The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.

5. 16 The student, given a practical problem, will
a) represent data in line plots and stem-and-leaf plots;

b) interpret data represented in line plots and stem-and-leaf plots; and
c) compare data represented in a line plot with the same data represented in a stem-and-leaf plot.

5.17 The student, given a practical context, will
a) describe mean, median, and mode as measures of center;
b) describe mean as fair share;
c) describe the range of a set of data as a measure of spread; and
d) determine the mean, median, mode, and range of a set of data.

5.18 The student will identify, describe, create, express, and extend number patterns found in objects, pictures, numbers and tables.

5.19 The student will
a) investigate and describe the concept of variable;
b) write an equation to represent a given mathematical relationship, using a variable;
c) use an expression with a variable to represent a given verbal expression involving one operation; and
d) create a problem situation based on a given equation, using a single variable and one operation.

Virginia

Standards of Learning Assessments

Test Blueprint
Grade 5 Science
2018 Science Standards of Learning

This test blueprint will be effective with the administration of the spring 2023 Science Standards of Learning (SOL) tests.

Grade 5 Science
Test Blueprint Summary Table

Reporting Category	Grade 4 Standards of Learning	Grade 5 Standards of Learning	Number of Items
Force, Motion, Energy, and Matter		**5.2 a-d** **5.3 a-e** **5.7 a-c**	**10**
Electricity, Sound, and Light		**5.4 a-e** **5.5 a-d** **5.6 a-d**	**10**
Living Systems and Ecosystem Interactions	**4.2 a-c** **4.3 a-d** **4.4 b** **4.7 c**		**10**
Earth/Space Systems and Earth Resources	**4.4 a, c** **4.5 a-c** **4.6 a-d** **4.7 a, b** **4.8 a-d**	**5.8 a-e** **5.9 a-c**	**10**
Number of Operational Items			**40**
Number of Field-Test Items*			**10**
Total Number of Items on Test			**50**

- The Scientific and Engineering Practices are embedded into test items to varying degrees.

*Field-test items are being tried out with students for potential use on subsequent tests and will not be used to compute students' scores on the test.

Grade 5 Science
Expanded Test Blueprint

Scientific and Engineering Practices

4.1 The student will demonstrate an understanding of scientific and engineering practices by

a) asking questions and defining problems
- identify scientific and non-scientific questions
- develop hypotheses as cause-and-effect relations
- define a simple design problem that can be solved through the development of an object, tool, process, or system

b) planning and carrying out investigations
- identify variables when planning an investigation
- collaboratively plan and conduct investigations
- use tools and/or materials to design and/or build a device that solves a specific problem
- take metric measurements using appropriate tools
- measure elapsed time

c) interpreting, analyzing, and evaluating data
- organize and represent data in bar graphs and line graphs
- interpret and analyze data represented in bar graphs and line graphs
- compare two different representations of the same data (e.g., a set of data displayed on a chart and a graph)
- analyze data from tests of an object or tool to determine whether it works as intended

d) constructing and critiquing conclusions and explanations
- use evidence (i.e., measurements, observations, patterns) to construct or support explanations and to make inferences

e) developing and using models
- develop and/or use models to explain natural phenomena
- identify limitations of models

f) obtaining, evaluating, and communicating information
- read and comprehend reading-level-appropriate texts and/or other reliable media
- communicate scientific information, design ideas, and/or solutions with others

5.1 The student will demonstrate an understanding of scientific and engineering practices by

a) asking questions and defining problems
- ask testable questions based on observations and predict reasonable outcomes based on patterns
- develop hypotheses as cause-and-effect relationship
- define design problems that can be solved through the development of an object, tool, process, or system

b) planning and carrying out investigations

- collaboratively plan and conduct investigations to produce data
- identify independent variables, dependent variables, and constants
- determine data that should be collected to answer a testable question
- take metric measurements using appropriate tools
- use tools and/or materials to design and/or build a device that solves a specific problem

c) interpreting, analyzing, and evaluating data
- represent and analyze data using tables and graphs
- organize simple data sets to reveal patterns that suggest relationships
- compare and contrast data collected by different groups and discuss similarities and differences in their findings
- use data to evaluate and refine design solutions

d) constructing and critiquing conclusions and explanations
- construct and/or support arguments with evidence, data, and/or a model
- describe how scientific ideas apply to design solutions
- generate and compare multiple solutions to problems based on how well they meet the criteria and constraints

e) developing and using models
- develop models using an analogy, example, or abstract representation to describe a scientific principle or design solution
- identify limitations of models

f) obtaining, evaluating, and communicating information
- read and comprehend reading-level-appropriate texts and/or other reliable media
- communicate scientific information, design ideas, and/or solutions with others

Reporting Category: Force, Motion, Energy, and Matter
Number of Items: 10
Standards of Learning:

5.2 The student will investigate and understand that energy can take many forms. Key ideas include
a) energy is the ability to do work or to cause change;
b) there are many different forms of energy;
c) energy can be transformed; and
d) energy is conserved.

5.3 The student will investigate and understand that there is a relationship between force and energy of moving objects. Key ideas include
a) moving objects have kinetic energy;
b) motion is described by an object's direction and speed;
c) changes in motion are related to net force and mass;
d) when objects collide, the contact forces transfer energy and can change objects' motion; and
e) friction is a force that opposes motion.

5.7 The student will investigate and understand that matter has properties and interactions. Key ideas include
a) matter is composed of atoms;
b) substances can be mixed together without changes in their physical properties; and
c) energy has an effect on the phases of matter.

Reporting Category: Electricity, Sound, and Light
Number of Items: 10
Standards of Learning:

5.4 The student will investigate and understand that electricity is transmitted and used in daily life. Key ideas include
a) electricity flows easily through conductors but not insulators;
b) electricity flows through closed circuits;
c) static electricity can be generated by rubbing certain materials together;
d) electrical energy can be transformed into radiant, mechanical, and thermal energy; and
e) a current flowing through a wire creates a magnetic field.

5.5 The student will investigate and understand that sound can be produced and transmitted. Key ideas include
a) sound is produced when an object or substance vibrates;
b) sound is the transfer of energy;
c) different media transmit sound differently; and
d) sound waves have many uses and applications.

5.6 The student will investigate and understand that visible light has certain characteristics and behaves in predictable ways. Key ideas include
a) visible light is radiant energy that moves in transverse waves;
b) the visible spectrum includes light with different wavelengths;
c) matter influences the path of light; and
d) radiant energy can be transformed into thermal, mechanical, and electrical energy.

Reporting Category: Living Systems and Ecosystem Interactions
Number of Items: 10
Standards of Learning:

4.2 The student will investigate and understand that plants and animals have structures that distinguish them from one another and play vital roles in their ability to survive. Key ideas include
a) the survival of plants and animals depends on photosynthesis;
b) plants and animals have different structures and processes for obtaining energy; and
c) plants and animals have different structures and processes for creating offspring.

4.3 The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. Key ideas include

a) interrelationships exist in populations, communities, and ecosystems;
b) food webs show the flow of energy within an ecosystem;
c) changes in an organism's niche and habitat may occur at various stages in its life cycle; and
d) classification can be used to identify organisms.

4.4 The student will investigate and understand that weather conditions and phenomena affect ecosystems and can be predicted. Key ideas include
b) common and extreme weather events affect ecosystems.

4.7 The student will investigate and understand that the ocean environment has characteristics. Key characteristics include
c) interaction of organisms in the ocean.

Reporting Category: Earth/Space Systems and Earth Resources
Number of Items: 10
Standards of Learning:

4.4 The student will investigate and understand that weather conditions and phenomena affect ecosystems and can be predicted. Key ideas include
a) weather measurements create a record that can be used to make weather predictions; and
c) long term seasonal weather trends determine the climate of a region.

4.5 The student will investigate and understand that the planets have characteristics and a specific place in the solar system. Key ideas include
a) planets rotate on their axes and revolve around the sun;
b) planets have characteristics and a specific order in the solar system; and
c) the sizes of the sun and planets can be compared to one another.

4.6 The student will investigate and understand that there are relationships among Earth, the moon, and the sun. Key relationships include
a) the motions of Earth, the moon, and the sun;
b) the causes for Earth's seasons;
c) the causes for the four major phases of the moon and the relationship to the tide cycles; and
d) the relative size, position, age and makeup of Earth, the moon, and the sun.

4.7 The student will investigate and understand that the ocean environment has characteristics. Key characteristics include
a) geology of the ocean floor; and
b) physical properties and movement of ocean water.

4.8 The student will investigate and understand that Virginia has important natural resources. Key resources include
a) watersheds and water;

b) plants and animals;
c) minerals, rocks, and ores; and
d) forests, soil, and land.

5.8 The student will investigate and understand that Earth constantly changes. Key ideas include
a) Earth's internal energy causes movement of material within the Earth;
b) plate tectonics describe movement of the crust;
c) the rock cycle models the transformation of rocks;
d) processes such as weathering, erosion, and deposition change the surface of the Earth; and
e) fossils and geologic patterns provide evidence of Earth's change.

5.9 The student will investigate and understand that the conservation of energy resources is important. Key ideas include
a) some sources of energy are considered renewable and others are not;
b) individuals and communities have means of conserving both energy and matter; and
c) advances in technology improve the ability to transfer and transform energy.