

End-of-Grade Science Test at Grades 5 and 8 North Carolina Test Specifications

Purpose of the Tests

The Grades 5 and 8 End-of-Grade (EOG) Science Tests measure students' proficiency on the [North Carolina Essential Standards for Science](#), adopted by the North Carolina State Board of Education (NCSBE) in February 2010.

Test results will be used for school and district accountability under the accountability model and for federal reporting purposes.

Curriculum Cycle

2010:	North Carolina State Board of Education adoption the North Carolina Essential Standards for Science
2010–2011:	Items developed for the EOG Science Tests
2011–2012:	Administration of stand-alone field tests of the EOG Science Tests
2012–2013:	First operational administration of the EOG Science Tests (Edition 4)

Developing Tests

North Carolina educators were recruited and trained to write new items. The diversity among item writers and their knowledge of the current standards was addressed during recruitment. Trained North Carolina educators also review items and suggest improvements, if necessary. The use of North Carolina educators to write and review items strengthens evidence of content validity of EOG assessments.

For an in-depth explanation of the test development process, see [North Carolina State Board Policy TEST-013: Multiple Choice Test Development](#) or reference the [Test Development Process: Item, Selection, and Form Development document](#).

Prioritization of Standards

Members of the North Carolina Department of Public Instruction (NCDPI)'s Test Development Section invited North Carolina educators to collaborate and develop recommendations for a prioritization of standards indicating the relative importance of each standard, the anticipated instructional time, and the appropriateness of the standard for test design.

Subsequently, Academic Standards and Test Development staff from the NCDPI met to review the recommendations from the teacher panels and

adopt final weight distributions across the domains for each grade level.

Some content standards in the [North Carolina Essential Standards for Science](#) will not be directly assessed in the tests because the standard cannot be appropriately assessed during a limited time test using multiple-choice and/or technology-enhanced items.

Tables 1 and 2 describe the range of total items by unifying concept that will appear on the EOG Science Tests.

Table 1. EOG Science grade 5 unifying concept weight distributions.

Unifying Concept	Grade 5
Forces and Motion	13–15%
Matter: Properties and Change	12–14%
Energy: Conservation and Transfer	11–13%
Earth Systems, Structures and Processes	15–17%
Structures and Functions of Living Organisms	14–16%
Ecosystems	14–16%
Evolution and Genetics	13–15%
Total	100%

Table 2. EOG Science grade 8 unifying concept weight distributions.

Unifying Concept	Grade 8
Matter: Properties and Change	14–16%
Energy Conservation and Transfer	10–12%
Earth Systems, Structures and Processes	13–15%
Earth History	11–13%
Structure and Function of Living Organisms	19–23%
Ecosystems	9–11%
Evolution and Genetics	11–13%
Molecular Biology	8–10%
Total	100%

Appendices A and B show the number of operational items by standard. Note that future coverage of standards could vary within the constraints of the content category weights in Tables 1 and 2.

Cognitive Rigor and Item Complexity

Test items for the EOG Science Tests have been designed, developed, and

classified to ensure that the cognitive rigor of the operational test forms align to the cognitive complexity and demands of Revised Bloom’s Taxonomy and the [North Carolina Essential Standards for Science](#). Items on the EOG assessments cover the full breadth and depth of grade-level cognitive expectation that can be assessed using the current test format.

Testing Structure and Test Administration

Table 3 provides the number of operational and field test items for EOG Science Tests. Included in the total item counts are embedded field test items that will not be included as part of students’ final scores but will be used for purposes of developing items for future test forms.

Table 3. EOG Science total number of items.

Grade	Grade 5	Grade 8
Operational Items	60	60
Field Test Items	10	10
Total Items	70	70

The EOG Science Tests will consist of four-response-option multiple-choice and technology-enhanced item types. All items will be worth one point each.

Based on analysis of item-completion timing data, the NCDPI estimates it will take 2 hours (120 minutes) for most students to complete the EOG Science Tests. The NCDPI requires all students be allowed ample opportunity to complete the test. The maximum amount of time allowed is 3 hours (180 minutes) except for students with documented special needs requiring accommodations, such as *Scheduled Extended Time*. Refer to the *North Carolina Test Coordinators’ Policies and Procedures Handbook* on the [Testing Policy and Operations webpage](#) for additional information.

Test Cycle and Delivery Mode

The EOG Science Tests must be administered during the last ten days of the instructional year (traditional yearlong schedule).

The EOG Science Tests are provided only in English. Native language translation versions are not available. North Carolina [G.S.§115C-81.45\(a\)](#) requires all teachers and principals to conduct all classes other than foreign language classes in English.

The EOG Science Tests will be required to be administered in online administrations.

Online tests are provided through NCTest, the NCDPI's online testing platform. Schools must ensure every student participating in an online test for the North Carolina Testing Program completes the Online Assessment Tutorial for the associated test at least once at the school before test day. The tutorial provides students the opportunity to practice the mechanics of navigating through the testing platform, to become familiar with the tools, and to respond to the sample items. Refer to the *North Carolina Test Coordinators' Policies and Procedures Handbook* on the [Testing Policy and Operations webpage](#) for additional information.

Paper versions of all online tests, including required online administrations, are available for students with disabilities who need to test in the paper mode for accessibility.

Supplemental Materials and Additional Resources

All students must be provided scratch paper and a writing utensil.

Students taking the Grade 8 EOG Science Test will receive a periodic table of the elements to reference (a sample is available on the [EOG webpage](#)).

Released forms are available on the [EOG webpage](#) and through NCTest, the NCDPI's online testing platform. The released forms for the EOG Science Tests are built using the same operational test specifications. A single released form may not reflect the full depth and breadth of grade level assessed standards, but it reflects the range of difficulty found on any EOG operational test form.

Released items may be used by public school units to acquaint students with items. These materials must not be used for personal or financial gain, are copyrighted to the NCDPI, and cannot be uploaded into third party applications. Released items may be accessed via [NCTest](#) by clicking on the released items icon.

Achievement Level Descriptors for the Edition 4 EOG Science Tests were adopted by the NC State Board of Education in August 2019 and are available on the [EOG webpage](#).

A sample Individual Student Report for the Edition 4 EOG Science Test is available on the [Individual Student Reports \(ISRs\) webpage](#).

Appendix A

Grade 5 Science Number of Operational Items by Clarifying Objective

The following table shows the approximate number of operational items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the content category weights in Table 1.

Table 1. EOG Science grade 5 number of operational items by clarifying objective.

<u>Grade 5 Science Objective</u>		Number of Operational Items by Objective
Forces and Motion	5.P.1.1	3-4
	5.P.1.2	3-4
	5.P.1.3	1-2
	5.P.1.4	0-1
Matter: Properties and Change	5.P.2.1	4-7
	5.P.2.2	1-2
	5.P.2.3	2-3
Energy: Conservation and Transfer	5.P.3.1	1-4
	5.P.3.2	2-5
Earth Systems, Structures, and Processes	5.E.1.1	2-3
	5.E.1.2	3-5
	5.E.1.3	4-6
Structures and Functions of Living Organisms	5.L.1.1	4-5
	5.L.1.2	5-6
Ecosystems	5.L.2.1	1-2
	5.L.2.2	3-4
	5.L.2.3	4-6
Evolution and Genetics	5.L.3.1	2-4
	5.L.3.2	4-6

Appendix B

Grade 8 Science Number of Operational Items by Clarifying Objective

The following table shows the approximate number of operational items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the content category weights in Table 2.

Table 2. EOG Science grade 8 number of operational items by clarifying objective.

<u>Grade 8 Science Objective</u>		Number of Operational Items by Objective
Matter: Properties and Change	8.P.1.1	2
	8.P.1.2	2-3
	8.P.1.3	2
	8.P.1.4	3
Energy: Conservation and Transfer	8.P.2.1	2-3
	8.P.2.2	3-4
Earth Systems, Structures, and Processes	8.E.1.1	2-4
	8.E.1.2	2-3
	8.E.1.3	1-3
	8.E.1.4	0-1
Earth History	8.E.2.1	2-3
	8.E.2.2	4-5
Structures and Functions of Living Organisms	8.L.1.1	3-4
	8.L.1.2	1-3
	8.L.2.1	4-6
Ecosystems	8.L.3.1	1
	8.L.3.2	2-3
	8.L.3.3	2-4
Evolution and Genetics	8.L.4.1	4
	8.L.4.2	3-4
Molecular Biology	8.L.5.1	2-3
	8.L.5.2	1-3