



2014–2015 NC Final Exams of Earth and Environmental Science, Physical Science, Physics, and Chemistry

North Carolina Assessment Specifications

Purpose of the Assessments

NC Final Exams were developed to replace locally developed assessments, providing teachers and principals with a common measure for all students state-wide during a given testing window.

North Carolina Final Exams for High School Science courses will measure students' academic progress in the NC *Essential Standards*, adopted by the North Carolina State Board of Education in June 2010. The NC *Essential Standards* are posted at:

<http://www.ncpublicschools.org/acre/standards/new-standards>.

NC Final Exam scores (along with any other relevant end-of-course or end-of-grade assessment scores) will be used in the Educational Value Added Assessment System (EVAAS) to produce student growth measures to satisfy Standards 6 and 8 of the North Carolina Educator Evaluation System. For more information on the North Carolina Educator Evaluation System, go to: <http://www.ncpublicschools.org/effectiveness-model/>.

NC State Board of Education policy GCS-A-016 directs schools to use the results from all course-specific NC Final Exams as a minimum of 20% of the student's final course grade.

NC Final Exams will not be used for school and district accountability under the READY Accountability Model or for Federal reporting purposes.

Developing Assessments

North Carolina educators were recruited and trained to write new items for the NC Final Exams. The diversity among the 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 develop and review items strengthens the instructional validity of the items.

Curriculum and Assessment Cycle

2010: North Carolina State Board of Education adoption of the NC *Essential Standards*.

2012-13: Operational administration of the Measures of Student Learning: Common Exams.

2013-14: Redesign and subsequent first operational administration of the NC Final Exams.

2014-15: Second operational administration of the NC Final Exams.

Prioritization of Standards

Members of the Test Development section of the North Carolina Department of Public Instruction (NCDPI) invited teachers to collaborate and develop recommendations for a prioritization of the standards indicating the relative importance of each standard, the anticipated

instructional time, and the appropriateness of the standard for multiple-choice and constructed response item formats.

□ Tables 1–4 describe the percentage range of total score points that will appear on the NC Final Exams in High School Science courses (i.e., Earth and Environmental, Physical Science, Physics, and Chemistry). All High School Science NC Final Exams contain multiple-choice items. The table of test specification weights describe the percent of total score points, rather than the percent of total items.

Table 1. Test Specification Weights for the Earth and Environmental Science NC Final Exam

Standards	Percent of Total Score Points
Earth in the Universe	
EEn.1.1	11% to 16%
Earth Systems, Structures, and Processes	
EEn.2.1	11% to 17%
EEn.2.2	11% to 17%
EEn.2.3	4% to 10%
EEn.2.4	7% to 12%
EEn.2.5	4% to 10%
EEn.2.6	7% to 10%
EEn.2.7	14%-19%
EEn.2.8	9%-14%
Total	100%

Table 2. Test Specification Weights for the Physical Science NC Final Exam

Standards	Percent of Total Score Points
Forces and Motion	
PSc.1.1	2% to 7%
PSc.1.2	9% to 14%
Matter: Properties and Change	
PSc.2.1	11% to 17%
PSc.2.2	23% to 31%
PSc.2.3	2% to 7%
Energy: Conservation and Transfer	
PSc.3.1	7% to 10%
PSc.3.2	14%-19%
PSc.3.3	9%-14%
Total	100%

Table 3. Test Specification Weights for the Physics NC Final Exam

Standards	Percent of Total Score Points
Forces and Motion	
Phy.1.1	7% to 12%
Phy.1.2	7% to 12%
Phy.1.3	7% to 12%
Energy: Conservation and Transfer	
Phy.2.1	12% to 17%
Phy.2.2	7% to 12%
Phy.2.3	14% to 19%
Interactions of Energy and Matter	
Phy.3.1	12% to 17%
Phy.3.2	9% to 14%
Total	100%

Table 4. Test Specification Weights for the Chemistry NC Final Exam

Standards	Percent of Total Score Points
Matter: Properties and Change	
Chm.1.1	11% to 17%
Chm.1.2	14% to 19%
Chm.1.3	4% to 10%
Energy: Conservation and Transfer	
Chm.2.1	14% to 19%
Chm.2.2	14% to 19%
Interactions of Energy and Matter	
Chm.3.1	7% to 12%
Chm.3.2	12% to 17%
Total	100%

Cognitive Rigor

NC Final Exams items in High School Science were aligned to the Essential Standards using the Revised Bloom's Taxonomy (RBT). To learn more about RBT, go to:

<http://www.ncpublicschools.org/acre/standards/>.

Types of Items and Supplementary Materials

All NC Final Exams in High School Science will contain four-response-option multiple-choice items.

Students taking the Physical Science, Physics, and Chemistry NC Final Exams should be provided with a reference table and a scientific calculator. Earth and Environmental Science NC Final Exam should only be provided a scientific calculator.

A complete list of the supplemental test materials (i.e., *NC Final Exams Materials List*) may be reviewed at <http://www.ncpublicschools.org/accountability/common-exams/>.

Released items are available at <http://www.ncpublicschools.org/accountability/common-exams/released-items/>. Released items may be used by school systems to help acquaint students with items. These materials must not be used for personal or financial gain.

Testing Structure and Test Administration Time

- NC Final Exams in High School Science contains a total of 45 multiple-choice items.
- Students will be given 120 minutes to answer all items. Students should monitor the clock to ensure they allow themselves adequate time to respond to all items.
- Appendices A-D show the number of operational items for each clarifying objective for the 2014–2015 tests. Note that future coverage of objectives could vary within the constraints of the content category weights in *Tables 1–4*.

Test Cycle and Delivery Mode

- The NC Final Exams are administered to students enrolled in fall and spring courses. A list of course codes that align with the 2014–2015 NC Final Exams (i.e., *Course Codes that Align with the NC Final Exams*) is available at <http://www.ncpublicschools.org/accountability/common-exams/>.
- The NC Final Exams are available for paper-and-pencil mode. However, transition to online administrations is proceeding during the 2014–2015 academic year.

NC Final Exam	Fall 2014 Delivery Mode Option(s)	Spring 2015 Delivery Mode Options
Earth and Environmental Science	Paper-and-Pencil and Online via NCTest	Paper-and-Pencil and Online via NCTest
Physical Science	Paper-and-Pencil and Online via NCTest	Paper-and-Pencil and Online via NCTest
Physics	Paper-and-Pencil only	Paper-and-Pencil and Online via NCTest
Chemistry	Paper-and-Pencil only	Paper-and-Pencil and Online via NCTest

Appendix A
Earth and Environmental Science NC Final Exam 2014–15
Number of Items by Clarifying Objectives

The following table shows the number of operational test items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the test specification weights in *Tables 1–4*. Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Earth and Environmental Clarifying Objectives	Number of Items per Objective*
EEn.1.1.1	2
EEn.1.1.2	1
EEn.1.1.3	1
EEn.1.1.4	1
EEn.2.1.2	1
EEn.2.1.1	2
EEn.2.1.3	2
EEn.2.2.1	2
EEn.2.2.2	3
EEn.2.3.1	1
EEn.2.3.2	3
EEn.2.4.1	1
EEn.2.4.2	2
EEn.2.5.1	1
EEn.2.5.2	2
EEn.2.5.3	1
EEn.2.6.1	2
EEn.2.6.3	1
EEn.2.6.4	1
EEn.2.7.1	3
EEn.2.7.2	1
EEn.2.7.3	2
EEn.2.8.2	1
EEn.2.8.3	3

* Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Appendix B
Physical Science NC Final Exam 2014–15
Number of Items by Clarifying Objectives

The following table shows the number of operational test items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the test specification weights in *Tables 1–4*. Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Physical Science Clarifying Objectives	Number of Items per Objective*
PSc.1.1.1	1
PSc.1.1.2	2
PSc.1.2.1	2
PSc.1.2.2	1
PSc.1.2.3	2
PSc.2.1.1	1
PSc.2.1.2	–
PSc.2.1.3	3
PSc.2.1.4	2
PSc.2.2.1	2
PSc.2.2.2	1
PSc.2.2.3	1
PSc.2.2.4	2
PSc.2.2.5	2
PSc.2.2.6	2
PSc.2.3.1	–
PSc.2.3.2	2
PSc.3.1.1	1
PSc.3.1.2	1
PSc.3.1.3	1
PSc.3.1.4	–
PSc.3.2.1	1
PSc.3.2.2	2
PSc.3.2.3	2
PSc.3.2.4	1
PSc.3.3.1	1
PSc.3.3.2	2
PSc.3.3.3	–
PSc.3.3.4	2
PSc.3.3.5	–

* Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Appendix C
Physics NC Final Exam 2014–15
Number of Items by Clarifying Objectives

The following table shows the number of operational test items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the test specification weights in *Tables 1–4*. Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Physics Clarifying Objectives	Number of Items per Objective*
Phy.1.1.1	–
Phy.1.1.2	2
Phy.1.1.3	2
Phy.1.2.1	1
Phy.1.2.2	–
Phy.1.2.3	1
Phy.1.2.4	1
Phy.1.2.5	1
Phy.1.3.1	3
Phy.1.3.2	1
Phy.2.1.1	1
Phy.2.1.2	3
Phy.2.1.3	2
Phy.2.2.1	1
Phy.2.2.2	2
Phy.2.2.3	1
Phy.2.3.1	1
Phy.2.3.2	2
Phy.2.3.3	1
Phy.2.3.4	3
Phy.2.3.5	–
Phy.3.1.1	1
Phy.3.1.2	1
Phy.3.1.3	1
Phy.3.1.4	3
Phy.3.1.5	–
Phy.3.2.1	1
Phy.3.2.2	3
Phy.3.2.3	1

* Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Appendix D
Chemistry NC Final Exam 2014–15
Number of Items by Clarifying Objectives

The following table shows the number of operational test items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the test specification weights in *Tables 1–4*. Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.

Chemistry Clarifying Objectives	Number of Items per Objective*
Chm.1.1.1	3
Chm.1.1.2	3
Chm.1.1.3	–
Chm.1.1.4	–
Chm.1.2.1	1
Chm.1.2.2	3
Chm.1.2.3	1
Chm.1.2.4	1
Chm.1.2.5	1
Chm.1.3.1	1
Chm.1.3.2	3
Chm.1.3.3	–
Chm.2.1.1	3
Chm.2.1.2	1
Chm.2.1.3	–
Chm.2.1.4	–
Chm.2.1.5	3
Chm.2.2.1	–
Chm.2.2.2	2
Chm.2.2.3	3
Chm.2.2.4	1
Chm.2.2.5	1
Chm.3.1.1	3
Chm.3.1.2	1
Chm.3.1.3	–
Chm.3.2.1	3
Chm.3.2.2	–
Chm.3.2.3	–
Chm.3.2.4	–
Chm.3.2.5	1
Chm.3.2.6	1

* Some objectives not designated with tested items (i.e., “–”) may be a prerequisite objective, may be tested within the context of another objective or may be included as an embedded field test item.