



## 2016–2017 NC Final Exam of Science Grade 4

### North Carolina Assessment Specifications

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#### **Purpose of the Assessments**

- The 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. 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.
- The NC Final Exams for Science Grade 4 will measure students' academic progress in the [NC Essential Standards for Science](#), adopted by the North Carolina State Board of Education in [February 2010](#).
- 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. 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.
- For an in-depth explanation of the test development process see State Board Policy [Multiple-Choice Test Development \(TEST-013\)](#) or reference the [Test Development Process: Item, Selection and Form Development](#) (Updated May 2016).

#### **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.
- 2015–16: Third operational administration of the NC Final Exams.
- 2016–17: Fourth 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.

□ *Table 1* describes the range of total items that will appear on the NC Final Exam of Science Grade 4.

*Table 1. Test Specification Weights for the Science **Grade 4** NC Final Exam*

| <u>NC Essential Standards</u> | Range of Total Items |
|-------------------------------|----------------------|
| <b>Physical Science</b>       |                      |
| 4.P.1                         | 8% to 12%            |
| 4.P.2                         | 10% to 14%           |
| 4.P.3                         | 7% to 11%            |
| <b>Earth Science</b>          |                      |
| 4.E.1                         | 8% to 12%            |
| 4.E.2                         | 10% to 14%           |
| <b>Life Science</b>           |                      |
| 4.L.1                         | 22 % to 26%          |
| 4.L.2                         | 14% to 18%           |
| <hr/>                         |                      |
| Total                         | 100%                 |

### Cognitive Rigor

□ NC Final Exams items for grade 4 science were aligned to the [NC Essential Standards for Science](#) using the Revised Bloom’s Taxonomy (RBT).

### Types of Items and Supplementary Materials

□ The NC Final Exam of Science Grade 4 contains four-response-option multiple-choice items. All items are worth one point each.

□ All students must be provided blank paper. A complete list of the supplemental test materials (i.e., *2016–2017 NC Final Exams Materials List*) may be reviewed at the [NCDPI/Accountability Services](#) website.

□ Released items are available on the [NCDPI/Accountability Services](#) website. Released items may be used by school systems to help acquaint students with items. The released items may not reflect the breadth of the standards assessed and/or the range of item difficulty found on the NC Final Exam. These materials must not be used for personal or financial gain. The released items are also available to schools through NCTest, the NCDPI’s online assessment platform.

☐ Schools must ensure every student participating in an online assessment for the North Carolina Testing Program completes the Online Assessment Tutorial for the associated assessment 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](#) (PDF pages 14, 42, 103) for additional information for additional information.

**Testing Structure and Test Administration Time**

- ☐ The NC Final Exam of Science Grade 4 contains a total of 40 multiple-choice items.
  
- ☐ Included in the total item counts are embedded multiple-choice field test items that will not count toward the students score but will be used for purposes of developing items for future test forms.

| NC Final Exam<br>2016–17 | Number of<br>Operational Items | Number of Field<br>Test Items* | Total Number<br>of Items |
|--------------------------|--------------------------------|--------------------------------|--------------------------|
| Science Grade 4          | 35 multiple-choice             | 5 multiple-choice              | 40                       |

\*Field test items will not count toward the students score but will be used for purposes of developing items for future test forms.

- ☐ Students will be given 120 minutes to answer all items. Refer to the [North Carolina Test Coordinators' Policies and Procedures Handbook](#) for additional information (e.g., eligible students, testing accommodations).
  
- ☐ Appendix A shows the number of operational test items for each clarifying objective for the 2016–17 exam. Note that future coverage of objectives could vary within the constraints of the content category weights in *Table 1*.

**Test Cycle and Delivery Mode**

- ☐ The NC Final Exam of Science Grade 4 must be administered during the last ten (10) days of the instructional period ([State Board of Education Policy Use of State-Designated Assessments for the NC Teacher Evaluation Process—TEST-016](#)).
  
- ☐ The NC Final Exams are administered through NCTest, the NCDPI’s online assessment platform. Paper editions are available.
  
- ☐ The NC Final Exams are only provided in English. Native language translation versions are not available. [Chapter 115C-81 Basic Education Program](#) of the North Carolina General Statutes requires all teachers and principals to conduct classes except foreign language classes in English.

**Appendix A**  
**Grade 4 Science NC Final Exam 2016–17**  
**Number of Operational Items by Clarifying Objective**

The following table shows the number of operational (scored) test items for each clarifying objective. Note that future coverage of objectives could vary within the constraints of the test specification weights in *Table 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.

| <u>Grade 4 Science Clarifying Objectives</u>  | Number of Operational Items by Objective |
|---|--|
| <b>Explain how various forces affect the motion of an object.</b>   |  |
| 4.P.1.1   | 2  |
| 4.P.1.2   | 2  |
| <b>Understand the composition and properties of matter before and after they undergo a change or interaction.</b>   |  |
| 4.P.2.1   | –  |
| 4.P.2.2   | 2  |
| 4.P.2.3   | 3  |
| <b>Recognize that energy takes various forms that may be grouped based on their interaction with matter.</b>  |  |
| 4.P.3.1   | 2  |
| 4.P.3.2   | 2  |
| <b>Explain the causes of day and night and phases of the moon.</b>  |  |
| 4.E.1.1   | 2  |
| 4.E.1.2   | 2  |
| <b>Understand the use of fossils and changes in the surface of the earth as evidence of the history of Earth and its changing life forms.</b>             |  |
| 4.E.2.1   | 1  |
| 4.E.2.2   | 2  |
| 4.E.2.3   | 2  |
| <b>Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.</b> |  |
| 4.L.1.1   | 2  |
| 4.L.1.2   | 3  |
| 4.L.1.3   | 1  |
| 4.L.1.4   | 2  |

| <b>Understand food and the benefits of vitamins, minerals and exercise.</b> |   |
|---|---|
| 4.L.2.1   | 2 |
| 4.L.2.2   | 3 |