



2017–2018 North Carolina Final Exam of Science

Grade 4 North Carolina Assessment Specifications

Purpose of the Assessments

- The North Carolina Final Exam (NCFEs) of Science Grade 4 measures students’ academic progress in the [NC Essential Standards for Science](#), adopted by the North Carolina State Board of Education in [February 2010](#).
- NCFEs are considered standardized artifacts reflective of student growth for teachers and school growth for participants in the teacher evaluation process.
- NCFEs are not used for school and district accountability under the READY Accountability Model or for Federal reporting purposes.

Developing Assessments

- North Carolina educators are recruited and trained to write new items for the NCFEs. The diversity among the item writers and their knowledge of the current standards are 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. Teachers interested in training to become an item writer or reviewer for the North Carolina Testing Program can visit <https://center.ncsu.edu/ncpd/course/view.php?id=128>.
- For an in-depth explanation of the test development process see State Board policy 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 NCFEs.
- 2014–15: Second operational administration of the NCFEs.
- 2015–16: Third operational administration of the NC Final Exams NCFEs.
- 2016–17: Fourth operational administration of the NCFEs.
- 2017–18: Fifth operational administration of the NCFEs.

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 NCFE of Science Grade 4.

Table 1. Test Specification Weights for the Science Grade 4 NCFE

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

Cognitive Rigor

- NCFE grade 4 science items were aligned to the [North Carolina Essential Standards for Science](#) using the Revised Bloom’s Taxonomy (RBT).

Types of Items and Supplementary Materials

- The NCFE 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., *2017–2018 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 NCFE. 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 has completed the appropriate Online Assessment Tutorial for the associated assessment at least one time per year 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..

Testing Structure and Test Administration Time

- The NCFE 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 or against a student’s score. These items are indistinguishable from operational items and should not interfere with the student’s test-taking experience. These items are examined for inclusion on future operational assessments.

NC Final Exam 2017-18	Number of Operational Items	Number of Field Test Items*	Total Number of Items
Science Grade 4	35 multiple-choice	5 multiple-choice	40

*Field test items will not count toward or against a student’s score.

- Students will be given 120 minutes to answer all items.
- Appendix A shows the number of operational test items for each clarifying objective for the 2017–18 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 NCFE 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 NCFE of Science Grade 4 is administered through NCTest, the NCDPI’s online assessment platform. Paper editions are also available.
- The NCFE of Science Grade 4 is only provided in English. Native language translation versions are not available

Appendix A
North Carolina Final Exam of Science Grade 4
2017–18 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</u> <u>Clarifying Objectives</u>	Number of Operational Items by Objective
Explain how various forces affect the motion of an object.	
4.P.1.1	2
4.P.1.2	2
Understand the composition and properties of matter before and after they undergo a change or interaction.	
4.P.2.1	–
4.P.2.2	2
4.P.2.3	3
Recognize that energy takes various forms that may be grouped based on their interaction with matter.	
4.P.3.1	2
4.P.3.2	2
Explain the causes of day and night and phases of the moon.	
4.E.1.1	2
4.E.1.2	2
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.	
4.E.2.1	1
4.E.2.2	2
4.E.2.3	2
Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.	
4.L.1.1	2
4.L.1.2	3
4.L.1.3	1
4.L.1.4	2

Understand food and the benefits of vitamins, minerals and exercise.	
4.L.2.1	2
4.L.2.2	3