

North Carolina End-of-Grade Test—Grade 5 Mathematics

What are the purposes of the NC Testing Program? The North Carolina End-of-Grade Tests are required by General Statute 115C-174.10 as a component of the North Carolina Annual Testing Program. As stated, the purposes of North Carolina state-mandated tests are “(i) to assure that all high school graduates possess those minimum skills and that knowledge thought necessary to function as a member of society, (ii) to provide a means of identifying strengths and weaknesses in the education process in order to improve instructional delivery, and (iii) to establish additional means for making the education system at the State, local, and school levels accountable to the public for results.” This test is one component of the end-of-grade tests, which include reading comprehension and mathematics tests in grades three through eight. Students in grade three began taking a reading comprehension and mathematics pretest in the fall of 1996.

For school, school system, and state accountability, the scores from the end-of-grade tests at the prior grade are used to estimate a student’s level of knowledge and skills at the beginning of the new grade to determine the amount of growth during the school year (calculated from the difference between the two sets of test scores).

What is measured by the test? The North Carolina End-of-Grade (EOG)—Grade 5 test in mathematics assesses the fifth grade goals and objectives in the North Carolina Mathematics Standard Course of Study (adopted in May 1998). On the test, students are expected to demonstrate knowledge of important principles and concepts, and relate mathematical information to everyday situations. In order to align with the mathematics curriculum’s focus on inquiry instruction and higher-order thinking, the EOG—Grade 5 test in mathematics has an increased focus on processing information and higher-order thinking.

Each item on the EOG—Grade 5 test in mathematics is related to one of the fifth grade competency goals in the North Carolina Mathematics Standard Course of Study. The four competency goals for the grade 5 mathematics curriculum describe the knowledge and skills that are to be taught in all fifth grade classes in North Carolina and provide the basis for the content of the items on the test. Many of the items on the EOG—Grade 5 test in mathematics assess whether a student can move beyond memorization and apply process skills to the investigation of mathematics.

Table 1. Descriptive Information for the North Carolina End-of-Grade Test—Grade 5 Mathematics

Goal	Description of Goal	Percentage of Items on Test
1	The learner will understand and compute with rational numbers.	40%
2	The learner will demonstrate an understanding and use of the properties and relationships in geometry, and standard units of metric and customary measurement.	25%
3	The learner will demonstrate an understanding of patterns, relationships, and elementary algebraic representation.	16%
4	The learner will demonstrate an understanding and use of graphing, probability, and data analysis.	19%

How is the test administered? The EOG—Grade 5 test in mathematics consists of 80 multiple-choice questions and is administered in two parts: Calculator-Inactive (24 questions) and Calculator-Active (56 questions). Students may not use calculators during the Calculator-Inactive part (30%) of the test. Students may use calculators during the Calculator-Active part (70%) of the test. The test is administered during a fixed block of time within the last week (block schedule or summer school) or the last two weeks (traditional schedule) of the school year. Three equivalent forms are administered in each classroom to provide a breadth of information for curriculum evaluation and planning.

How was the test developed? The questions on the EOG—Grade 5 test in mathematics were written and reviewed by trained North Carolina teachers and educators during the 1999–2000 and 2000–2001 school years. Mathematics EOG—Grade 5 tests aligned to the *North Carolina Mathematics Standard Course of Study* (adopted in May 1998) were implemented statewide for the first time in the spring of the 2000–2001 school year.

What kinds of scores do students receive on the test?

The scores on the End-of-Grade Tests in mathematics are reported on a developmental scale, which allows the measurement of growth in achievement across the grade levels. The scale scores range from 210 to 310. The use of scale scores provides for easier and more consistent interpretations of the results from test to test. The use of achievement levels provides an interpretation of student performance relative to a pre-determined standard. The four achievement levels are typically established by linking teacher judgments to the performance distribution of student scores from the field test or the first operational administration of the test.

Table 2. Achievement Levels for North Carolina End of Grade Test—Grade 5 Mathematics

Level	Description	Scale Score Range
1	Students performing at this level do not have sufficient mastery of knowledge and skills in this subject area to be successful at the next grade level.	221-242
2	Students performing at this level demonstrate inconsistent mastery of knowledge and skills in this subject area and are minimally prepared to be successful at the next grade level.	243-249
3	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level.	250-259
4	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient at grade level work	260-295

Sample Items The following pages contain samples of the types of items that appear on the North Carolina End-of-Grade Test—Grade 5 in mathematics. The objective indicates the curriculum objective the item is designed to assess. The thinking skill corresponds to the level of thinking the item requires as defined by a thinking skills framework adapted from *Dimensions of Thinking* by Robert J. Marzano and others.

For additional information: **Assessment Briefs:**
<http://www.ncpublicschools.org/accountability/testing/briefs/MathematicsScs/>
<http://www.ncpublicschools.org/accountability/testing/briefs/CalculatorRequirements/>

Mathematics Curriculum:
<http://www.ncpublicschools.org/curriculum>

Thinking Skills:
<http://www.ncpublicschools.org/accountability/testing/>

Additional Mathematics Sample Items:
<http://www.ncpublicschools.org/accountability/testing/eog/>

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