

Descriptions and Sample Questions
for the
North Carolina End-of-Grade Tests
Grades 4 and 8

North Carolina End-of-Grade Tests Reading Comprehension—Grade 4

What is end-of-grade testing and what is its purpose?

The purpose of the end-of-grade tests is twofold: (1) to provide accurate measurement of individual student skills and knowledge specified in the North Carolina *Standard Course of Study* and (2) to provide accurate measurement of the knowledge and skills attained by groups of students for school, school system, and state accountability. All students in grades 3 through 8 take reading comprehension and mathematics tests at the end of the school year. Beginning in the fall of 1996, students in grade 3 will also take a reading comprehension and mathematics pretest.

For school, school system, and state accountability, the scores from the prior grade (for example, grade 3) will be used as an estimate of a student's entering level of knowledge and skills to determine the amount of growth during the school year (difference between the two sets of test scores).

What is measured by the test?

The end-of-grade reading test for grade 4 assesses the reading strand of the grade 4 English Language Arts curriculum (revised in 1991) of the North Carolina *Standard Course of Study*. The test consists of ten reading passages and from 3 to 8 associated questions. Each student is asked to read four literary passages (for example, narrative fiction, essay, drama, poetry); four content-based passages selected from art, science, health, mathematics, and social studies; and two consumer/human interest passages (for example, recipes, projects, relevant short pieces from popular magazines). The variety of passages on each form allows for the assessment of reading for various purposes: for literary experience, to gain information, and to perform a task.

The associated questions for each passage address goals 2 and 3 of the curriculum. Goal 1, the understanding and knowledge of one's reading, is not assessed at this grade level. It was felt that students in this grade level, while exhibiting reading strategies as they read, would not be able to explain the strategies they used. Goal 4, personal response, is not assessed by the reading multiple-choice test. This goal is better assessed with an open-ended format.

Table 1. Descriptive Information for the North Carolina End-of-Grade Test Reading Comprehension—Grade 4

Goal/ Strand	Description of Goal/Strand	Difficulty of Items In Pool
2	The learner will use language for the acquisition, interpretation, and application of information.	60%
	2.1 The learner will identify, collect, or select information and ideas.	63%
	2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.	56%
	2.3 The learner will apply, extend, and expand on information and concepts.	59%
3	The learner will use language for critical analysis and evaluation.	53%

How is the test administered?

The end-of-grade reading test for grade 4 consists of 65 multiple-choice questions administered during a 100-minute block within the last three weeks of school. Three equivalent forms are administered in each classroom to provide information for curriculum evaluation and planning. The tests are scanned and scored locally.

How was the test developed?

The passages were selected by curriculum specialists to reflect the variety of reading done by students in and out of school and to be accessible to a majority of students (based on readability analyses). The selected passages were ones that would generally be read by students, would be interesting to the students, and were appropriate content for a reading comprehension test. The questions for each passage were written and reviewed by trained North Carolina teachers and educators during the 1990-91 and 1991-92 school years. The questions were field tested in May of 1992. The field test involved approximately 28,000 students from randomly selected schools across the state. The grade 4 reading test was implemented statewide for the first time in the spring of 1993.

What kinds of scores do students receive on the test?

The scores on the end-of-grade reading test are reported on a developmental scale which allows the measurement of growth in reading achievement across the grade levels. On the grade 4 reading test the scale scores range from 119 to 174 with a mean of 147.1 and a standard deviation of 9.6. The standard error of measurement for individual scores on the test is about 2 to 5 points. The use of scale scores helps make interpretations easier and more consistent from test to test.

Percentiles were established based on the first administration of the test statewide in 1993.

Achievement levels (descriptors of performance) were established from teacher judgements during the 1992 field tests and from the student scores on the 1993 administration of the test.

Table 2. Achievement Levels for the North Carolina End-of-Grade Test Reading Comprehension—Grade 4

Level	Description	Percent of Students (92)	Range of Scores (93)
I	Students performing at this level do not have sufficient mastery of knowledge and skills in the subject to be successful at the next grade level.	12%	119-134
II	Students performing at this level demonstrate inconsistent mastery of knowledge and skills in this subject and are minimally prepared to be successful at the next grade level.	28%	135-144
III	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level.	40%	145-155
IV	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient at grade level work.	20%	156-174

To Reach The Promised Land

by Stephen Ray Lilley

Today, public schools in the United States are free and open to everyone. There was a time, however, when going to school was not a simple matter. In the following passage, read about the sacrifices one famous American educator had to make in order to go to school.

Nine-year-old Booker, his sister Amanda, and older brother John stood close to their mother. Excitement filled the air as the Yankee army moved through Virginia in the spring of 1865.

For months Booker had heard his mother praying at night as he drifted off to sleep by the fire: "Lord, let the Yankees win this war, and let them make me and my children free." Now they watched a blue-uniformed soldier standing on the "big house" porch unfold a piece of paper and begin reading.

"All persons held as slaves... henceforward shall be free," he proclaimed.

Life suddenly became very difficult for Booker's family. They had always been owned, like land or livestock. Now free, they had no home, no jobs, no money, only each other. Booker's stepfather worked at a salt furnace near Malden, West Virginia. Putting their belongings in a small cart, the family walked hundreds of miles through the Appalachian Mountains to join him.

In Malden, Booker and John went to work with their stepfather. Work began before daylight and ended after dark. As he shoveled salt into huge wooden barrels, Booker saw children walking to school. "I had the feeling that to get into a schoolhouse and study...would be about the same as getting into paradise," he later said.

But the family needed Booker's income. Booker's stepfather, a tough and practical man, told him attending school was impossible. Knowing how much her son wanted to learn to read, Booker's mother saved every spare penny and bought him a well-used copy of Webster's "Blue-Backed Speller." For weeks he pored over the book, memorizing the alphabet and letter sounds.

Booker convinced his parents he should take lessons at night from a black teacher. Then he told them he wished to attend day school. His stepfather finally accepted the idea, on condition that Booker work at the salt furnace before and after school. Overjoyed, Booker quickly agreed.

Each day Booker faced new obstacles. For a time he worked in a coal mine deep underground in terrifying conditions. Sometimes his candle blew out, and he wandered helplessly in total darkness. Still, he studied at night. Then one day he heard some miners speaking of a school called the Hampton Institute where poor students could work to pay their expenses. "I resolved at once to go to that school, although I had no idea where it was...or how I was going to reach it," he later wrote.

Booker T. Washington became Hampton's most famous graduate and devoted his life to teaching. He taught the first classes at the Tuskegee Institute in Alabama and then built it into one of the most important schools for blacks in the United States. Today, millions of people admire this man who struggled to reach "the promised land."

1. What would be the *best* description of Booker T. Washington's attitude toward attending school?
 - A determined
 - B hopeless
 - C practical
 - D anxious

2. Why did Booker's stepfather *not* allow him to attend school?
 - A African Americans were not allowed to attend school.
 - B There were no schools in the town.
 - C The family needed Booker's income to live.
 - D A coal miner did not need an education in order to get a job.

3. What might be the *best* reason for recommending this passage to a friend?
 - A It quotes Booker T. Washington.
 - B It describes working in a coal mine.
 - C It sets a good example for other people to follow.
 - D It describes the Southern plantations.

4. The information in this passage would be *least* useful in writing a report about what?
 - A famous African Americans
 - B famous American educators
 - C famous American presidents
 - D the life of African Americans after the Civil War

5. To Booker, what is "the promised land"?
 - A a faraway country
 - B a good education
 - C a well-paying job
 - D a guaranteed place

6. The teacher asked the class, "Why do you think education was so important to Booker that he devoted his life to it?"

Ann said, "Booker thought that becoming a good educator would make him a famous person. He could then start the Tuskegee Institute."

Bill said, "Booker thought blacks would never be completely free until they were educated. Education could get them jobs in which they would not have to work so hard with their hands like he did."

Cathie said, "Booker had to work hard when he was a young boy. He thought school was difficult and others should have to work as hard as he did because it is good for them."

Dan said, "Booker thought learning to read was important. Therefore, he wanted to teach others to read also."

Which student gave the *best* answer?

 - A Ann
 - B Bill
 - C Cathie
 - D Dan

7. In the third paragraph, what does "henceforward" mean?
 - A in front of
 - B up until now
 - C from now on
 - D on the porch

North Carolina End-of-Grade Tests

Mathematics—Grade 4

What is end-of-grade testing and what is its purpose?

The purpose of the end-of-grade tests is twofold: (1) to provide accurate measurement of individual student skills and knowledge specified in the North Carolina *Standard Course of Study* and (2) to provide accurate measurement of the knowledge and skills attained by groups of students for school, school system, and state accountability. All students in grades 3 through 8 take reading comprehension and mathematics tests at the end of the school year. Beginning in the fall of 1996, students in grade 3 will also take a reading comprehension and mathematics pretest.

For school, school system, and state accountability, the scores from the prior grade (for example, grade 3 will be used as an estimate of a student's entering level of knowledge and skills to determine the amount of growth during the school year (difference between the two sets of test scores).

What is measured by the test?

The end-of-grade mathematics test for grade 4 assesses the grade 4 mathematics curriculum (revised in 1992) of the North Carolina *Standard Course of Study*. The test consists of two parts—computation and applications. The computation part of the test (15% of the test) assesses symbolic computation skills that students should be able to do without the use of a calculator:

- add and subtract whole numbers
- multiply whole numbers (1-digit times 1- to 3-digits and two 2-digit numbers where one is a multiple of 0)
- divide whole numbers (single-digit divisors and no renaming)

The applications part of the test (85% of the test) assesses the students ability to solve problems and understand and explain concepts across the seven stands of the curriculum.

Table 1. Descriptive Information for the North Carolina End-of-Grade Test
Mathematics—Grade 4

Goal/ Strand	Description of Goal/Strand	Difficulty of Items in Pool	Percentage of Items on Test
1	The learner will identify and use rational numbers.	63%	15%
2	The learner will demonstrate an understanding and use properties and relationships of geometry.	47%	9%
3	The learner will demonstrate an understanding of patterns and relationships.	53%	9%
4	The learner will understand and use standard units of metric and customary measure.	54%	15%
5	The learner will solve problems and reason mathematically.	48%	15%
6	The learner will demonstrate an understanding and use of graphing, probability, and statistics.	54%	9%
7	The learner will compute with rational numbers.	67%	29%

Students are allowed to use calculators and rulers on the applications part of the test. The difference between the two parts of the test is the emphasis on problem solving in the applications part (regardless of method to solve the problem) versus the computation part where the whole purpose is to assess a specific procedure (such as addition).

How is the test administered?

The end-of-grade mathematics test consists of 80 multiple-choice questions (12 computation questions and 68 applications questions) administered during a 97-minute block within the last three weeks of school. Three equivalent forms are administered in each classroom to provide information for curriculum evaluation and planning. The tests are scanned and scored locally.

How was the test developed?

The questions were written and reviewed by trained North Carolina teachers and educators during the 1990-91 and 1991-92 school years. The questions were field tested in May of 1992. The field test involved approximately 12,000 students from randomly selected schools across the state. The grade 4 mathematics test was implemented statewide for the first time in the spring of 1993.

What kinds of scores do students receive on the test?

The scores on the end-of-grade mathematics test are reported on a developmental scale which allows the measurement of growth in mathematics achievement across the grade levels. On the grade 4 mathematics test the scale scores range from 111 to 178 with a mean of 146.1 and a standard deviation of 10.5. The standard error of measurement for individual scores on the test is about 2 to 5 points. The use of scale scores helps make interpretations easier and more consistent from test to test.

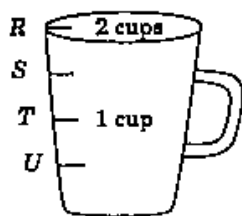
Percentiles were established based on the first administration of the test statewide in 1993.

Achievement levels (descriptors of performance) were established from teacher judgements during the 1992 field tests and from the student scores on the 1993 administration of the test.

Table 2. Achievement Levels for the North Carolina End-of-Grade Test Mathematics—Grade 4

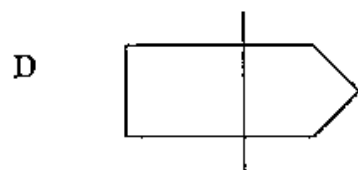
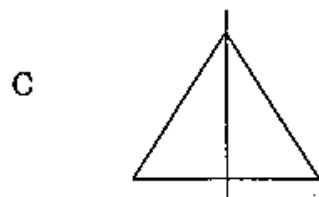
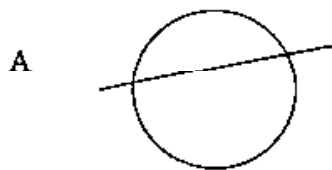
Level	Description	Percent of Students (92)	Range of Scores (93)
I	Students performing at this level do not have sufficient mastery of knowledge and skills in the subject to be successful at the next grade level.	10%	111-131
II	Students performing at this level demonstrate inconsistent mastery of knowledge and skills in this subject and are minimally prepared to be successful at the next grade level.	27%	132-142
III	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level.	43%	143-155
IV	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient at grade level work.	20%	156-178

- 1.5 Which point on the cup marks $1\frac{1}{2}$ cups?

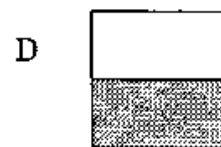
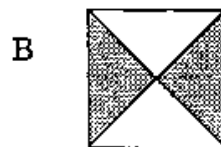
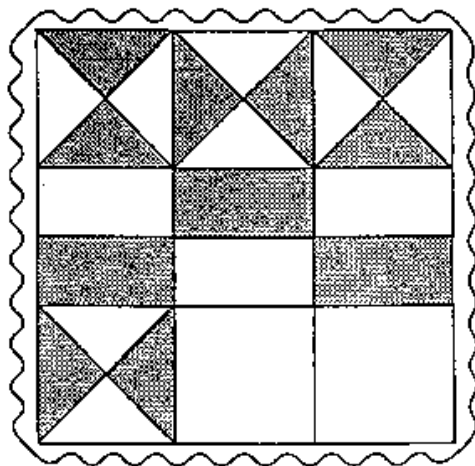


- A U
B T
C S
D R

- 2.1 Which figure shows a line of symmetry?



- 3.1 Grandma made this quilt for Page to take to camp. How will the next square be colored?



- 4.8 Which is more than \$2.00?

- A 7 quarters and 2 nickels
B 4 quarters and 9 dimes
C 6 quarters and 6 dimes
D 4 quarters and 5 dimes

5.6 Sally went to the grocery store. She bought 3 oranges, 4 pineapples, 6 apples, and 5 peaches. The prices of the fruit are given in the square below. How much did Sally spend in all?

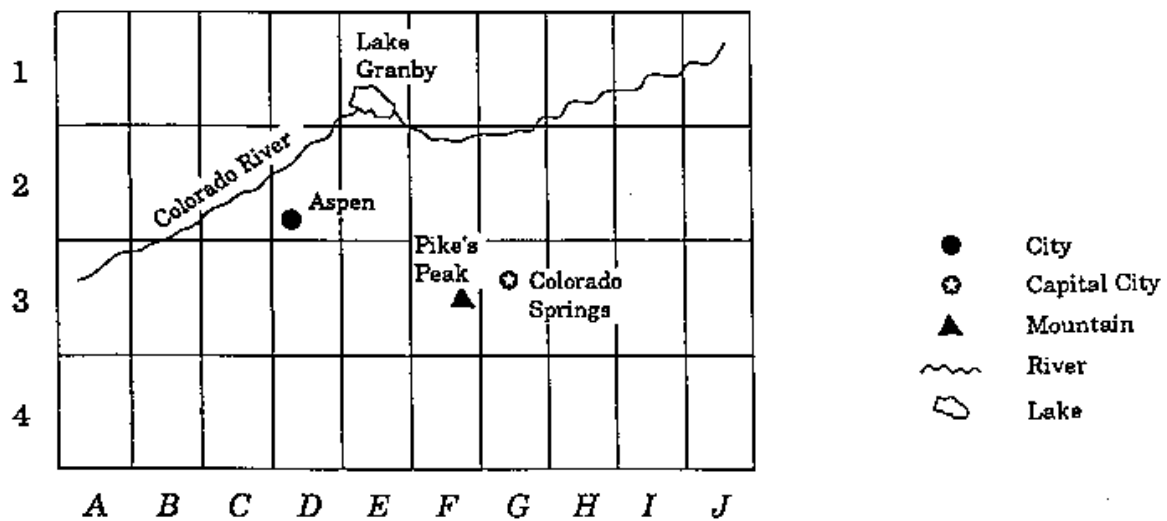
Apples	10¢
Oranges	15¢
Peaches	25¢
Pineapples	45¢

- A \$1.60
- B \$3.95
- C \$4.10
- D \$4.20

7.1 The school library has 8,296 books. The public library has 20,005 books. How many more books does the public library have?

- A 11,701
- B 11,709
- C 12,801
- D 28,291

6.6 In what section of the grid can you find the city of Aspen?



- A E-1
- B G-3
- C C-3
- D D-2

North Carolina End-of-Grade Tests

Reading Comprehension—Grade 8

What is end-of-grade testing and what is its purpose?

The purpose of the end-of-grade tests is twofold: (1) to provide accurate measurement of individual student skills and knowledge specified in the North Carolina *Standard Course of Study* and (2) to provide accurate measurement of the knowledge and skills attained by groups of students for school, school system, and state accountability. All students in grades 3 through 8 take reading comprehension and mathematics tests at the end of the school year. Beginning in the fall of 1996, students in grade 3 will also take a reading comprehension and mathematics pretest.

For student accountability, the grade 8 end-of-grade tests are used as a way for students to demonstrate that they have the knowledge and skills necessary to meet the competency requirement for high school graduation. For school, school system, and state accountability, the scores from the prior grade (for example, grade 7) will be used as an estimate of a student's entering level of knowledge and skills to determine the amount of growth during the school year (difference between the two sets of test scores).

What is measured by the test?

The end-of-grade reading test for grade 8 assesses the reading strand of the grade 8 English Language Arts curriculum (revised in 1991) of the North Carolina *Standard Course of Study*. The test consists of ten reading passages and from 3 to 8 associated questions. Each student is asked to read four literary passages (for example, narrative fiction, essay, drama, poetry); four content-based passages selected from art, science, health, mathematics, and social studies; and two consumer/human interest passages (for example, recipes, projects, relevant short pieces from popular magazines). The variety of passages on each form allows for the assessment of reading for various purposes: for literary experience, to gain information, and to perform a task.

The associated questions for each passage address goals 1, 2, and 3 of the curriculum. Goal 4, personal response, is not assessed by the reading multiple-choice test. This goal is better assessed with an open-ended format.

Table 1. Descriptive Information for the North Carolina End-of-Grade Test Reading Comprehension—Grade 8

Goal/ Strand	Description of Goal/Strand	Difficulty of Items In Pool
1	The learner will use strategies and processes that enhance control of communication skills development.	52%
2	The learner will use language for the acquisition, interpretation, and application of information.	60%
	2.1 The learner will identify, collect, or select information and ideas.	64%
	2.2 The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.	58%
	2.3 The learner will apply, extend, and expand on information and concepts.	59%
3	The learner will use language for critical analysis and evaluation.	58%

How is the test administered?

The end-of-grade reading test for grade 8 consists of 68 multiple-choice questions administered during a 100-minute block within the last three weeks of school. Three equivalent forms are administered in each classroom to provide information for curriculum evaluation and planning. The tests are scanned and scored locally.

How was the test developed?

The passages were selected by curriculum specialists to reflect the variety of reading done by students in and out of school and to be accessible to a majority of students (based on readability analyses). The selected passages were ones that would generally be read by students, would be interesting to the students, and were appropriate content for a reading comprehension test. The questions for each passage were written and reviewed by trained North Carolina teachers and educators during the 1990-91 and 1991-92 school years. The questions were field tested in May of 1992. The field test involved approximately 23,000 students from randomly selected schools across the state. The grade 8 reading test was implemented statewide for the first time in the spring of 1993.

What kinds of scores do students receive on the test?

The scores on the end-of-grade reading test are reported on a developmental scale which allows the measurement of growth in reading achievement across the grade levels. On the grade 8 reading test the scale scores range from 132 to 187 with a mean of 158.7 and a standard deviation of 8.9. The standard error of measurement for individual scores on the test is about 2 to 5 points. The use of scale scores helps make interpretations easier and more consistent from test to test.

Percentiles were established based on the first administration of the test statewide in 1993.

Achievement levels (descriptors of performance) were established from teacher judgements during the 1992 field tests and from the student scores on the 1993 administration of the test.

Table 2. Achievement Levels for the North Carolina End-of-Grade Test Reading Comprehension—Grade 8

Level	Description	Percent of Students (92)	Range of Scores (93)
I	Students performing at this level do not have sufficient mastery of knowledge and skills in the subject to be successful at the next grade level.	9%	132-144
II	Students performing at this level demonstrate inconsistent mastery of knowledge and skills in this subject and are minimally prepared to be successful at the next grade level.	26%	145-155
III	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level.	41%	156-165
IV	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient at grade level work.	24%	166-187

Ooka and the Stolen Smell

You have probably read a story about stolen money or jewelry, but have you ever read of a stolen smell? Read the following passage to learn how a student stole a smell and how he was punished for this crime.

Now it so happened in the days of old Yedo, as Tokyo was once called, that the storytellers told marvelous tales of the wit and wisdom of His Honorable Honor, Ooka Tadasuke.

This famous judge never refused to hear a complaint, even if it seemed strange or unreasonable. People sometimes came to his court with the most unusual cases, but Ooka always agreed to listen. And the strangest case of all was the famous Case of the Stolen Smell.

It all began when a poor student rented a room over a *tempura* shop—a shop where fried food could be bought. The student was a most likeable young man, but the shopkeeper was a miser who suspected everyone of trying to get the better of him. One day he heard the student talking with one of his friends.

"It is sad to be so poor that one can only afford to eat plain rice," the friend complained.

"Oh," said the student, "I have found a very satisfactory answer to the problem. I eat my rice each day while the shopkeeper downstairs fries his fish. The smell comes up, and my humble rice seems to have much more flavor. It is really the smell, you know, that makes things taste so good."

The shopkeeper was furious. To think that someone was enjoying the smell of his fish for nothing! "Thief!" he shouted. "I demand that you pay me for the smells you have stolen."

"A smell is a smell," the young man replied. "Anyone can smell what he wants to. I will pay you nothing!"

Scarlet with rage, the shopkeeper rushed to Ooka's court and charged the student with

theft. Of course, everyone laughed at him, for how could anyone steal a smell? Ooka would surely send the man about his business. But to everyone's astonishment, the judge agreed to hear the case.

"Every man is entitled to his hour in court," he explained. "If this man feels strongly enough about his smells to make a complaint, it is only right that I, as city magistrate, should hear the case." He frowned at the amused spectators.

Gravely, Ooka sat on the dais and heard the evidence. Then he delivered his verdict.

"The student is obviously guilty," he said severely. "Taking another person's property is theft, and I cannot see that a smell is different from any other property."

The shopkeeper was delighted, but the student was horrified. He was very poor, and he owed the shopkeeper for three months' smelling. He would surely be thrown into prison.

"How much money have you?" Ooka asked him.

"Only five *mon*, Honorable Honor," the boy replied. "I need that to pay my rent, or I will be thrown out into the street."

"Let me see the money," said the judge.

"The judge listened to the pleasant clink of the money and said to the shopkeeper, "You have now been paid. If you have any other complaints in the future, please bring them to the court. It is our wish that all injustices be punished and all virtue rewarded."

"But, most Honorable Honor," the shopkeeper protested, "I did not get the money! The thief dropped it from one hand to the other. See! I have nothing." He held up his empty hands to show the judge.

Ooka stared at him gravely. "It is the court's judgment that the punishment should fit the crime. I have decided that the price of the *smell* of food shall be the *sound* of money. Justice has prevailed as usual in my court."

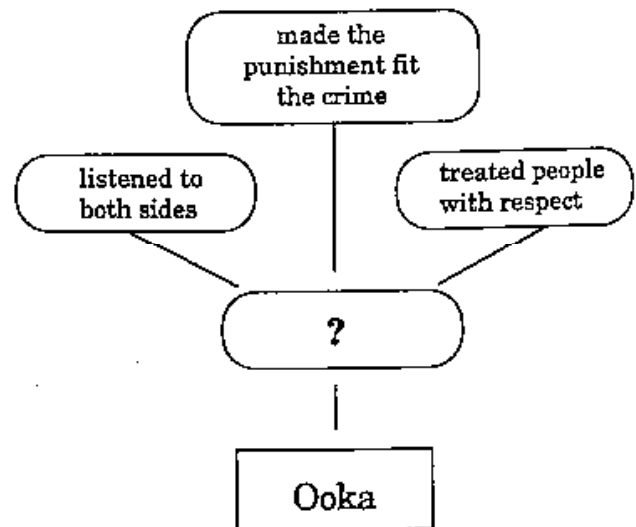
1. Why were people astonished and amused when Ooka decided to hear the shopkeeper's complaint?
 - A They knew the student was too poor to pay.
 - B They thought that the idea of stolen smells was silly.
 - C They didn't like the shopkeeper.
 - D They knew that Ooka always avoided small cases.

2. The shopkeeper demonstrates that he is a miser by doing what?
 - A cooking only fish every day
 - B refusing to pay the magistrate
 - C trying to charge the student for smelling his fish
 - D getting angry at the magistrate's verdict

3. If the story had ended when Ooka declared the student guilty, the moral of the story would have been which of the following?
 - A Taking anything that belongs to someone else is stealing.
 - B There are big and little crimes.
 - C The punishment should fit the crime.
 - D Treat others the way you want to be treated.

4. What is the mood of this story at the end?
 - A serious
 - B sad
 - C peaceful
 - D lighthearted

5. Which word *best* completes this character map?



- A honest
- B fair
- C friendly
- D helpful

North Carolina End-of-Grade Tests

Mathematics—Grade 8

What is end-of-grade testing and what is its purpose?

The purpose of the end-of-grade tests is twofold: (1) to provide accurate measurement of individual student skills and knowledge specified in the North Carolina *Standard Course of Study* and (2) to provide accurate measurement of the knowledge and skills attained by groups of students for school, school system, and state accountability. All students in grades 3 through 8 take reading comprehension and mathematics tests at the end of the school year. Beginning in the fall of 1996, students in grade 3 will also take a reading comprehension and mathematics pretest.

For student accountability, the grade 8 end-of-grade tests are used as a way for students to demonstrate that they have the knowledge and skills necessary to meet the competency requirement for high school graduation. For school, school system, and state accountability, the scores from the prior grade (for example, grade 7) will be used as an estimate of a student's entering level of knowledge and skills to determine the amount of growth during the school year (difference between the two sets of test scores).

What is measured by the test?

The end-of-grade mathematics test for grade 8 assesses the grade 8 mathematics curriculum (revised in 1992) of the North Carolina *Standard Course of Study*. The test consists of two parts—computation and applications. The computation part of the test (10% of the test) assesses skills that students should be able to do without the use of a calculator:

- computation within a context with decimals and percents
- computation estimation with fractions and decimals
- estimation within a context
- order of operations

Table 1. Descriptive Information for the North Carolina End-of-Grade Test of Mathematics—Grade 8

Goal/ Strand	Description of Goal/Strand	Difficulty of Items in Pool*	Percentage of Items on Test
1	The learner will demonstrate an understanding and use of real numbers.	43%	14%
2	The learner will demonstrate an understanding and use of properties and relationships of geometry.	33%	10%
3	The learner will demonstrate an understanding of pre-algebra.	38%	17.5%
4	The learner will demonstrate an understanding and use of measurement.	34%	10%
5	The learner will solve problems and reason mathematically.	40%	15%
6	The learner will demonstrate an understanding and use of probability and statistics.	39%	12.5%
7	The learner will compute with real numbers.	44%	21%
	Computation	45%	10%
	Applications	39%	90%

* The average percent of students that responded correctly across all items assessing the goal/objective.

The applications part of the test (90% of the test) assesses the students ability to solve problems and understand and explain concepts across the seven stands of the curriculum. Students are allowed to use scientific calculators, rulers, and protractors on the applications part of the test. The difference between the two parts of the test is the emphasis on problem solving in the applications part (regardless of method to solve the problem) versus the computation part where the whole purpose is to assess a specific procedure (such as estimation).

How is the test administered?

The end-of-grade mathematics test consists of 80 multiple-choice questions (8 computation questions and 72 applications questions) administered during a 97-minute block within the last three weeks of school. Three equivalent forms are administered in each classroom to provide information for curriculum evaluation and planning. The tests are scanned and scored locally.

How was the test developed?

The questions were written and reviewed by North Carolina teachers and educators during the 1990-91 and 1991-92 school years. The questions were field tested in May of 1992. The field test involved approximately 14,000 students from randomly selected schools across the state. The grade 8 mathematics test was implemented statewide for the first time in the spring of 1993.

What kinds of scores do students receive on the test?

The scores on the end-of-grade mathematics test are reported on a developmental scale which allows the measurement of growth in mathematics achievement across the grade levels. On the grade 8 mathematics test the scale scores range from 137 to 208 with a mean of 168.3 (in 1993) and a standard deviation of 10.6. The standard error of measurement for individual scores on the test is about 2 to 5 points. The use of scale scores helps make interpretations easier and more consistent from test to test.

Percentiles were established based on the first administration of the test statewide in 1993. Achievement levels (descriptors of performance) were established from teacher judgements during the 1992 field tests and from the student scores on the 1993 administration of the test.

Table 2. Achievement Levels for the North Carolina End-of-Grade Test of Mathematics—Grade 8

Level	Description	Percent of Students (92)	Range of Scores (93)
I	Students performing at this level do not have sufficient mastery of knowledge and skills in the subject to be successful at the next grade level.	11%	137-154
II	Students performing at this level demonstrate inconsistent mastery of knowledge and skills in this subject and are minimally prepared to be successful at the next grade level.	29%	155-164
III	Students performing at this level consistently demonstrate mastery of grade level subject matter and skills and are well prepared for the next grade level.	40%	165-177
IV	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient at grade level work.	20%	178-208

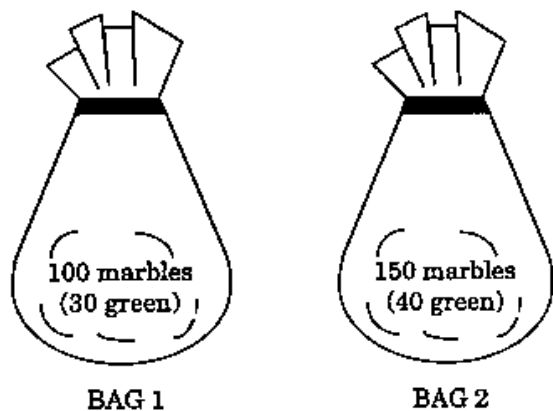
Mathematics Computation

1. Solve: $(2 + 1)^3 + (6 - 4)^2$
A 13
B 31
C 39
D 55
2. Bert bought a T-shirt that was reduced 25%. If the original price of the T-shirt was \$15, how much should Bert pay for the T-shirt including 6% sales tax?
A \$3.98
B \$11.85
C \$11.93
D \$13.10
3. Carrie bought a computer for \$789.99, a disc drive for \$219.95 and a printer for \$312.95. What is the *best* estimate of the amount she paid altogether?
A \$1,200
B \$1,300
C \$1,450
D \$1,600

Mathematics Applications

4. Sue's bedroom is 14 ft \times 12 ft. The ceiling is 8 ft high. If a can of paint will cover 200 square feet, how many cans will be needed to paint the walls and the ceiling?
A 2
B 3
C 6
D 7
5. A photograph measures 1.3 cm wide and 2 cm long. An enlargement similar to the original photograph has a length of 5.4 cm. What is the width of the enlargement?
A 8.31 cm
B 3.51 cm
C 2.08 cm
D 0.48 cm

6. What is the probability of reaching into a bag without looking and pulling out a green marble?



- A greater for Bag 1 than Bag 2
- B greater for Bag 2 than Bag 1
- C the same for both bags
- D cannot be determined from the information given
7. Pentagonal numbers follow this pattern:

Term	Number
1	5
2	12
3	22
4	35

What is the seventh pentagonal number?

- A 57
- B 62
- C 74
- D 92

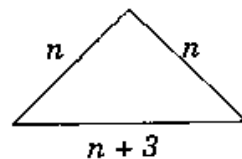
8. One dose of Tasty Cough Syrup is 2.5 cm^3 . What is the largest number of doses which can be given from a 65.2 cm^3 bottle of Tasty Cough Syrup?

- A 24 doses
- B 25 doses
- C 26 doses
- D 27 doses

9. One way to earn money during the summer is to grow and sell vegetables. One person can easily take care of a vegetable bed that measures six feet by eight feet. If the bed needs to be six inches deep, how much topsoil will be needed to fill the bed?

- A 24.0 cubic feet
- B 28.8 cubic feet
- C 48.0 cubic feet
- D 288 cubic feet

10. If the perimeter is 39, what are the lengths of the sides of the following isosceles triangle?



- A 12, 12, 15
- B 13, 13, 13
- C 11, 14, 14
- D 9, 15, 15