Handbook

The North Carolina *Competency* Tests

A Handbook for Students in the Ninth Grade for the First Time in 2001–2002 and Beyond

Stock No. 9124

Public Schools of North Carolina
www.NCPublicSchools.org
State Board of Education
Department of Public Instruction
Office of Accountability and Technology Services
Division of Accountability Services/North Carolina Testing Program
Raleigh, North Carolina 27699-6314
Revised August 2004

Foreword

The North Carolina Competency Tests of Reading and Mathematics requirement results from legislation enacted initially by the North Carolina General Assembly in 1977. In response to the legislation, the State Board of Education requires high school students in North Carolina public schools to meet the competency tests requirement in order to receive a North Carolina high school diploma.

Initial legislation in 1977 focused on a minimum competency standard. In February 1995, the State Board of Education set higher standards for graduation and the high school competency tests. Beginning with the graduating class of 1998 or students who entered the ninth grade in 1994–95, students are required to meet the more rigorous competency requirement which focuses on competencies in reading and mathematics as described in the North Carolina *Standard Course of Study*.

The more challenging competency requirement reflects what students should know and be able to do in order to be successful at the next level in reading and mathematics. The standard requires students to demonstrate proficiency at Achievement Level III or IV on the reading and mathematics competencies measured by the tests.

North Carolina students continue to make great strides in improving their academic achievement. With schools, parents, teachers, students, and communities working together, it is expected that this progress will continue. The more rigorous competency standard assures that North Carolina students can compete with other students in the nation and around the world as we progress into the 21st century.

Howard Lee, Chairman
State Board of Education

Michael E. Ward, State Superintendent
North Carolina Department of Public Instruction

First edition May 2002; revised August 2003; revised August 2004.

TABLE OF CONTENTS

I. Questions about the North Carolina Competency Requirement

What is the North Carolina competency requirement?

The North Carolina Competency Requirement states that students must meet a standard in reading comprehension and mathematics in addition to meeting all other state and local requirement to receive a high school diploma. Students with disabilities who are following the Occupational Course of Study (OCS) are not required to pass the competency tests in order to graduate and receive a diploma. The standard in reading comprehension and mathematics may be met by attaining grade level proficiency on the eighth grade end-of-grade test or by passing the competency test in high school.

Students who have not achieved grade-level proficiency in reading and mathematics at the end of the eighth grade will receive focused extended instructional opportunities that are different from and supplemental to regular high school course work and that are specifically designed to improve these students' performance to at least eighth-grade level proficiency.

Why do we have a competency requirement?

The State Board of Education wants each student to have the reading and mathematics skills necessary to be successful in high school and later in the workplace. The requirement guarantees that each student following the Career Preparation, College Technical Preparation, and College/University Preparation courses of study who receives a high school diploma in North Carolina has achieved a certain skill level in reading and mathematics.

Are there other requirements for graduation?

Yes. There are additional state and local requirements that must be met. Talk to your school guidance counselor if you have questions.

Who has to meet the competency requirement?

North Carolina students who are following the Career Preparation, College Technical Preparation, and College/University Preparation courses of study are required to pass the competency tests to graduate to receive a high school diploma.

When will the North Carolina Competency Tests of Reading and Mathematics be administered?

The first opportunity to meet the competency requirement is during the end-of-grade tests in reading comprehension and mathematics at grade 8. If a student is unable to meet the requirement at that time, additional opportunities are made available. Each high school must offer the competency tests at least once a year to students who are in the ninth, tenth, eleventh, or twelfth grade. Seniors will be offered an extra opportunity to retake the tests during the last month of their senior year. Students who do not pass the competency requirement must be offered extra help in learning the reading and mathematics skills that are required.

Questions about the North Carolina Competency Requirement (continued)

How will I know if I have passed the tests?

The competency tests are scanned and scored at the district office. School systems must report scores resulting from the tests to the student and parent(s) or guardian(s) along with available score interpretation information within thirty (30) days from scanning or scoring.

At the time the scores are reported for tests required for graduation, such as high school competency tests, the school system must provide the information to the student and parent(s) or guardian(s) to advise whether or not the student has met the standard for the test. If a student fails to meet the standard for the test, the student and parent(s) or guardian(s) shall be informed of the following at the time of reporting: (1) the date(s) when focused remedial instruction will be available and (2) the date of the next testing opportunity.

If a student passes only one part of the test he/she will only need to retake the part of the test that was not passed.

If I leave high school with a certificate may I come back and take the tests again?

Yes, students may return to school to take the tests until the age of 21 or beyond, if the school is willing. Contact your school guidance counselor. Most North Carolina community colleges also offer competency testing. Contact your local community college and ask about their Adult High School Diploma program.

May students with disabilities use accommodations?

Students with disabilities may be eligible for certain types of accommodations while taking the competency tests. The student's IEP Team or Section 504 Committee determines the need for accommodations. The use of accommodations must be documented and should be used routinely with the student by the classroom teacher.

Questions about the North Carolina Competency Requirement (continued)

Are students with disabilities required to pass the competency tests in order to receive a high school diploma?	Students with disabilities who are following the Occupational Course of Study (OCS) are not required to pass the competency tests in order to graduate and receive a diploma.
May students identified as limited English proficient use accommodations?	Students identified as limited English proficient may be eligible for certain types of accommodations while taking the tests. The student's committee for limited English proficiency determines the need and the type of accommodation. The use of accommodations must be documented and should be used routinely with the student by the classroom teacher.
Are students identified as limited English proficient required to pass the competency tests in order to receive a high school diploma?	Yes. In order to graduate and receive a high school diploma, public school students must pass the competency tests as well as meet all state and local graduation requirements. Students following the Career Preparation, College Technical Preparation, and College/University Preparation courses of study are required to pass the competency tests to graduate and receive a high school diploma, including limited English proficient students.
Am I penalized for guessing?	No. The number of correct answers determines your score. The number of incorrect answers is not incorporated in the final score. There is no penalty for guessing.
Will the same test be given every year?	The editions of the reading and mathematics tests will vary each time the tests are administered. However, the objectives measured and the difficulty level of the different editions will be the same.
How can I prepare for the tests?	Read all the information in this handbook and take the sample tests. Check your answers. Contact your guidance counselor or a teacher if you have questions.

II. Contents of the North Carolina Competency Tests of Reading and Mathematics

Reading Test

This test has nine to ten reading selections. After reading each selection, you will answer from three to eight questions about the selection. The questions will require you to use reading strategies to help you to understand and think about what you have read.

- The reading test is multiple-choice.
- It is a test of reading comprehension.
- It requires you to read and understand literary, informational, and practical texts.
- It requires you to read nine to ten selections and to answer questions about the selections.
- There are four to six literary selections (drawn from short stories, novels, dramas, essays, poetry, and non-fiction), two to four content-based selections (topics such as art, science, health, mathematics, social studies), and one or two consumer and/or human interest selections (such as how to perform a task).

Mathematics Test

The competency goals and objectives for mathematics are organized into four areas: (1) number sense, numeration, and numerical operations; (2) spatial sense, measurement, and geometry; (3) patterns, relationships, and functions; and (4) data, probability, and statistics.

- The mathematics test is divided into two parts: Calculator Inactive and Calculator Active.
- Both sections are multiple-choice.
- You may use blank paper, graph paper, a ruler, and a protractor for both sections of the mathematics test.
- The Calculator Inactive section measures your skills in using mathematics procedures.
- You ***cannot*** use a calculator on the mathematics Calculator Inactive part of the test.
- The Calculator Active section of the test measures your ability to use mathematical procedures and to use your problem solving skills.
- For the Calculator Active section you may use: a four-function calculator with a square root function and algebraic logic.
- A list of formulas will be included with the test.

III. Taking the Competency Tests

Before the Tests: Practice Test

The best way to prepare for these tests is to know all that you can about the tests before you take them. Careful reading of this handbook will provide you with much information about the tests. You can become familiar with the types of test questions by trying the sample questions in this handbook. Plan ahead so that you will feel prepared.

- Read the handbook.
- Do the sample items.
- Ask your teacher or guidance counselor questions about parts you do not understand.

Before the Tests: Preparation

Preparation for testing is a mental and physical activity. Along with becoming familiar with the skills measured by the test, you should try to feel your best. Do the things that make you feel confident. For some, it might mean getting a good night's rest and eating a good breakfast. For others, it might be wearing favorite clothes. The idea is to do what makes you feel the best. Make sure that you have all the materials you will need for testing, such as No. 2 pencils or an appropriate calculator if your school does not provide a calculator. Plan ahead so that you will feel comfortable when you take the test. On the day of the test:

- Plan ahead so you do not have to rush.
- Wear comfortable clothing.
- You will need at least two No. 2 pencils.
- Ask your teacher or guidance counselor if you have questions about the materials you need to bring.

During the Tests: Pay Attention

The person giving the tests (the test administrator) will try to make the testing situation comfortable and free of distraction.

- Concentrate on the tests. Do not allow yourself to be distracted by noises.
- Schedule your time, follow directions, and use good test-taking strategies, such as reading questions carefully and eliminating obviously incorrect answers before choosing an answer.
- Pay close attention to the sample questions. These questions are to help you understand upcoming test questions.
- If you do not understand the directions, raise your hand and ask questions.

During the Tests: Use Your Time Well

- Arrive on time so that you will be able to get organized.
- Make sure that you understand the time restrictions for the tests.
- Keep working until you have finished the test. Some students may finish before you do.
- Avoid unnecessary clock watching. The test administrator can remind you when you are near the end of the testing period.
- If you finish before others, check your work.

During the Tests: Mark Your Answers Carefully

- Mark only within the answer circle and fill it completely.
- Erase all changed answers carefully. If the circle disappears, ***do not*** redraw it.
- Erase all stray answers on your answer sheet. Stray marks will cause answers to be scored incorrectly.

IV. Test-Taking Strategies

General Strategies

- Use the blank paper to help you solve the problems.
- Draw diagrams or charts to help you solve the problems.
- Before marking an answer, check to make sure that you are using the correct section of the answer sheet for the part of the test you are working on. (Answers for the reading test are marked on the reading section of the answer sheet and mathematics on the mathematics section of the answer sheet.)
- When you mark each answer, make sure that the number on the answer sheet matches the number of the question you are working on.
- Read the whole question. Think about what the question asks before choosing your answer.
- Answer the easier questions first.
- Do not spend too much time on any one question.
- Come back to difficult questions. Try to eliminate some of the choices. Choose the best answer from the remaining choices. There is no penalty for guessing.
- Try to answer every question.
- Check your work for mistakes.
- Go back and recheck your answers if you finish before your classmates.
- Follow all directions. Ask questions if you do not understand the directions.

Reading Strategies

- For most selections the best strategy is to read the whole selection before answering the questions.
- Use context clues to try to understand any words you do not know.

Reading Strategies (continued)

- Read each of the choices for a multiple-choice question.
- Read each question carefully and try to eliminate obviously incorrect answers.
- Choose the ***best*** answer from the given choices.
- Look for cue words. Words such as "but," "however," and "therefore" may come before major ideas in the selection.
- Take brief notes of important ideas on your blank paper.
- Try to identify the author's point of view.

Mathematics Strategies

- You may use blank paper, graph paper, formulas, a ruler, and a protractor for both the Calculator Inactive and Calculator Active sections of mathematics test. A calculator may be used only during the Calculator Active section of the test. You may use any four-function calculator with a square root function and algebraic logic for the Calculator Active section of the mathematics test. Be sure that you are comfortable in using these tools in your daily mathematics program.
- Use blank or graph paper to figure mathematics problems. You must remember to transfer your answers to your answer sheet.
- Develop a strategy for solving complex problems. For example:
  - Identify the problem. (What does the question ask?)
  - Choose a procedure to get the answer.
  - Solve the problem.
  - Check to determine if your answer makes sense.
- Although some formulas will be given on the test, you should become familiar with a variety of formulas and when they should be used.

V. Sample Test Questions

North Carolina Competency Tests of Reading and Mathematics

Directions: To answer a question, first decide which is the *best* answer choice for a particular question. Then, find the question number on your answer sheet and make a dark mark in the circle containing the letter of the correct answer. Remember to mark only one answer for each question.

Mathematics Calculator Inactive: Calculators are not allowed on this part of the test because it measures basic mathematical skills and estimation.

Mathematics Calculator Active: The use of a calculator is allowed on this part of the test because it measures problem solving. The use of a calculator tends to ensure that students who apply sound mathematical reasoning will not miss a question because of computational errors. The minimum requirement on the calculator active part of the test is any four-function calculator with a square root function, y^x, π (*pi)*, and algebraic logic. You are also allowed to use a ruler and protractor. Commonly used formulas (shown below) will be provided on the back of your test book.

Reading: This part of the test consists of nine to ten selections each of which is followed by three to eight questions related to the selection. You will be asked to read four to six literary selections (drawn from short stories, novels, dramas, essays, poetry, and non-fiction), two to four content-based selections (topics such as art, science, health, mathematics, social studies), and one or two consumer and/or human interest selections (such as recipes, projects, relevant short pieces from popular magazines). The questions will assess your comprehension of the selection, and whether you can critically analyze the selection.

Formulas

The following information is for your reference in solving some of the problems on the test.

Rectangular or Triangular Prism
with base area (B) and height (h)
Volume = Bh

Circle with radius (r)
Area = πr^2
Circumference = $2\pi r$

Cylinder with radius (r) and height (h)
Volume = $\pi r^2 h$
Surface Area = $2\pi rh + 2\pi r^2$

Pyramid with base area (B) and height (h)
Volume = $\frac{1}{3} Bh$
Surface Area = Lateral Area + B

Cone with radius (r), height (h), and slant height (l)
Volume = $\frac{1}{3} \pi r^2 h$
Lateral Area = πrl
Total Area = $\pi r^2 + \pi rl$

Use $\pi = 3.14$ or $\frac{22}{7}$

Mathematics—Calculator Inactive

1. Which number is closest to 0?

   A $^{-}1.75$

   B $^{-}1.05$

   C $^{-}0.25$

   D 0.50

2. Mrs. Fletcher wrote the following story problem on the board.

   > Cynthia has 15 dresses and skirts in her closet. She also has 20 blouses. She has 7 more skirts than dresses.

   Based on the given information, which question about the clothes in Cynthia's closet would require additional information?

   A How many black skirts does Cynthia have in her closet?

   B Does Cynthia have more skirts or dresses in her closet?

   C If Cynthia has x skirts, how many dresses does she have in her closet.

   D How many dresses, skirts, and blouses does Cynthia have in her closet?

3. A bag contains 5 blue chips and 8 red chips. If two chips are chosen at random from the bag without replacement, what is the probability that they will both be blue?

   A $\frac{5}{13}$

   B $\frac{20}{64}$

   C $\frac{20}{156}$

   D $\frac{8}{25}$

Go to next page

Mathematics—Calculator Active

4. Which is an example of the property of additive inverse?

A $\frac{3}{4}a + b = b + \frac{3}{4}a$

B $5a + 0 = 5a$

C $3a + (4b + c) = (3a + 4b) + c$

D $\frac{3}{8}a + {}^{-}\frac{3}{8}a = 0$

5. Mike could buy 2 oranges and 1 grapefruit for $1.25. He could buy 4 oranges and 4 grapefruits for $3.60 What does 1 orange cost?

A $0.25

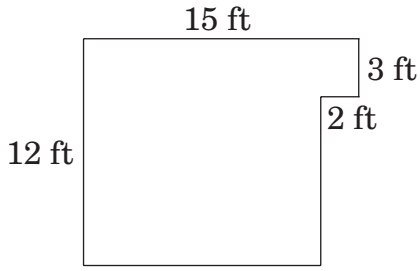
B $0.35

C $0.45

D $0.55

Even if you use a calculator, you can do scratchwork on paper.

6. If the floor space below is to be covered with carpet, how many square yards of carpeting will be needed to cover the floor?



A 180 sq yards

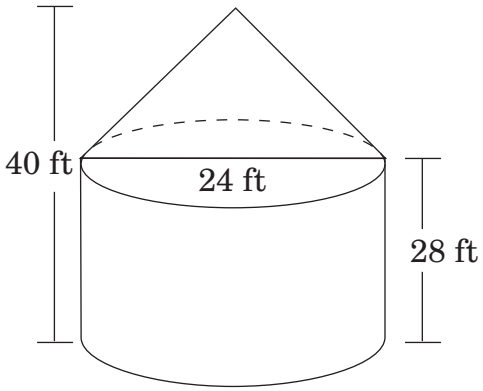
B 162 sq yards

C 54 sq yards

D 18 sq yards

Go to next page

7. To store his grain, Mr. Olsen built the following storage bin.



What is the ***approximate*** volume of grain that Mr. Olsen can store in his bin?

A $14{,}469\ \text{ft}^3$

B $16{,}881\ \text{ft}^3$

C $57{,}876\ \text{ft}^3$

D $67{,}523\ \text{ft}^3$

Commonly used formulas are presented on the back of the test booklet.

8. Terry drew a rectangle on her graph paper that has coordinates $A = (0, 0)$, $B = (4, 0)$, $C = (4, 3)$, and $D = (0, 3)$. She then decides to make a new rectangle by dilating her rectangle using a scale factor of 2.5. If the new rectangle has $A' = (0, 0)$, which of the following are the correct coordinates for C'?

A $C' = (4, 3)$

B $C' = (6.5, 6.5)$

C $C' = (10, 0)$

D $C' = (10, 7.5)$

9. José is surveying students at his school about their choice for a new mascot. Which of the following would provide the ***best*** random sample?

A surveying the teachers at his school

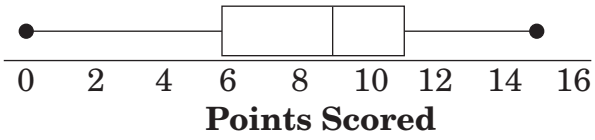
B surveying the student that stay after school for sports practice

C surveying 8th-grade students during lunch

D surveying every twentieth student in the entire school

Go to next page

10. The left whisker on the box-and-whisker plot shown is longer than the right whisker.



Points Scored

What would the difference in the length indicate?

A There was a greater spread of points in the lower quarter of the data than in the upper quarter.

B There was a smaller spread of points in the lower quarter of the data than in the upper quarter.

C There are fewer data values in the upper quarter than in the lower quarter.

D There are two more data values in the lower quarter than in the upper quarter.

Don't try to use your calculator on every question. Using your calculator too much can cost you time.

Go to next page

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 selection 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."

Go to next page

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?

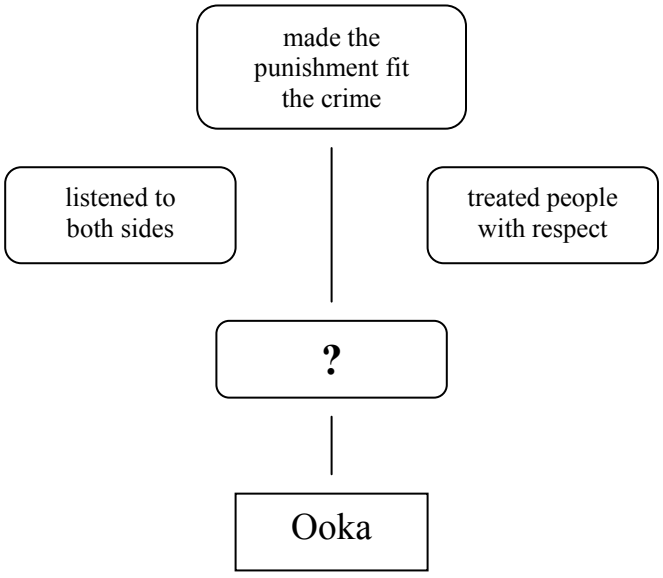
   A serious

   B sad

   C peaceful

   D lighthearted

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



   A honest

   B fair

   C friendly

   D helpful

There is no deduction for guessing. If you can narrow the answer down to 2 choices, then you have a better chance of choosing the right one.

Go to next page

Answers to Sample Tests and Notes

Mathematics—Calculator Inactive

1. The correct answer is C. This item measures how well you can compare, order, and convert among fractions, decimals, and percents.

2. The correct answer is A. This item measures your ability to analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

3. The correct answer is C. This item measures your ability to find the probability of independent and dependent events.

Mathematics—Calculator Active

4. The correct answer is D. This item measures how well you can identify and apply the commutative, associative, and distributive properties and identities and inverses in algebraic expressions.

5. The correct answer is B. This item measures your ability to analyze problems to determine if there is sufficient or extraneous data, and select appropriate strategies to solve those problems.

6. The correct answer is D. This item measures your ability to use geometric concepts and modeling to interpret and solve problems.

7. The correct answer is A. This item measures how well you can find the volume of prisms, cylinders, pyramids, and cones. The formulas for these calculations are provided on the formula sheet at the back of the test.

8. The correct answer is D. This item measures your ability to graph plane figures that are similar to a given figure (dilations).

9. The correct answer is D. This item measures your ability to distinguish between biased and random sampling.

10. The correct answer is A. This item measures your ability to interpret and construct box plots.

Reading

1. The correct answer is B. This item measures your ability to analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.

2. The correct answer is C. This item also measures your ability to analyze, synthesize, and organize information.

3. The correct answer is A. This item measures your ability to apply, extend, and expand on information and concepts.

4. The correct answer is D. Similar to questions 1 and 2, this item measures your ability to analyze, synthesize, and organize information such as literary devices and techniques (mood, setting, simile, etc.).

5. The correct answer is B. This item also measures your ability to analyze, synthesize, and organize information. A character map is used to organize the information so that relationships can be easily understood.