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The Science Practice Test for the Third Generation CAPT

Introduction

The CAPT Science Practice Test is to be administered prior to the administration of the actual test to all students in Grade 10. The purpose of the practice test is to familiarize students with the directions and the item formats they will see on the Science test.

The practice test must be administered in school according to the directions in this manual. Directions to students may be paraphrased or elaborated on if it would improve students’ understanding. The practice test is designed to be completed in about 15 minutes.

Please note that it is not acceptable to simply hand out the practice test for students to take home. It is important that the practice test be administered in class so students hear the explanations provided in this manual.

The practice test materials, including this manual, are not secure. After completing the practice test in school, students may take the booklet home.

If you have any questions concerning the administration of the practice test, please call the CSDE Student Assessment Office at (860) 713-6890.

If you need additional quantities of the practice test, please see the CAPT Science Test Examiner’s Manual for instructions on how to order additional test materials.
Directions for Administering the Science Practice Test

In preparation for administering the Science Practice Test, you will need the following materials for each student:

- a CAPT Science Practice Test booklet (note that students will mark their answers in the Practice Test booklet); and
- a soft-lead (No. 2) pencil with an eraser.

**NOTE**: Indented bold directions are to be read aloud to students. All other directions are for the examiner only and should *not* be read aloud.

**On the Day of the Practice Test**

Have all desks cleared and be sure that each student has a soft-lead (No. 2) pencil with an eraser. Distribute a Science Practice Test booklet to each student. Then SAY:

**Please open your booklet to page 2.**

After all students have opened their practice test booklets to page 2, SAY:

**Follow along as I read aloud.**

Soon you will be taking the Connecticut Academic Performance Test (CAPT) in Science. The CAPT Science test measures the academic achievement of high school students throughout Connecticut in the area of Science.

Later you will receive a report of your results. Your CAPT Science results will become part of your school record and will be reported on your high school transcript.

There are different types of items you will need to complete for the CAPT Science. The practice test is designed to familiarize you with the test so you know what to expect on the actual test. There is nothing special you need to do to prepare for the CAPT Science except to come to each test session well rested and ready to do your best work.

Pause to see if students have questions about what you have just read. Answer any questions as necessary. Then SAY:

**Turn to page 3 and follow along as I read the description of the Science Practice Test.**

This booklet gives you an overview of CAPT Science, includes sample questions, and explains how you will mark your answers on the test. After completing this practice session, you may keep this booklet.

The Science test is intended to measure your understanding of important skills and knowledge in life, physical, and earth science, as well as your ability to apply those ideas to real-world problems. In addition, your ability to use scientific inquiry and reasoning skills will be tested.
The Science Test

The Science test will consist of two types of questions: multiple-choice and open-ended. For the multiple-choice questions, you will select the choice that best answers the question or completes the sentence. You will respond to the open-ended questions by writing an answer or sketching a graph. Samples of both types of items are included on the following pages.

On the actual Science test you will answer 5 open-ended and 60 multiple-choice questions. The actual Science test will be 100 minutes in length and will be administered in two testing sessions.

Now turn to the Sample CAPT Science Multiple-Choice Questions on page 4. Please read silently while I read aloud.

Pause for a moment while students find the Sample CAPT Science Multiple-Choice Questions. Then SAY:

Sample CAPT Science Multiple-Choice Questions

Recreation Center Pool

A local recreation center has received funding to build a swimming pool. After construction, the center will be responsible for all costs associated with pool operation. As a result, the center must consider a variety of design options, including pool size, location and heating.

1. Prior to pool construction, engineers use computer models to compare which of several pool designs require the least amount of energy to be heated. What is the dependent variable in the computer models?

   a. pool size
   b. pool shape
   c. pool location
   d. pool temperature

Mark your answer to question 1 at the bottom of the page, in the section labeled Multiple-Choice Answers.

Pause for a moment while students mark their answers. Then SAY:

The correct answer to question 1 is “d,” “pool temperature.” The pool temperature is the only variable that will change when any or all the other variables change in the example. Once the engineers decide upon pool size, shape, and location these variables cannot be changed.

If you mark an answer and then wish to change it, erase your first choice completely and then mark your new answer choice.

Are there any questions about how to mark your answers?
Pause to answer any questions. Then SAY:

Now look at question 2. Please read silently while I read the question aloud.

2. What happens to water molecules in a pool as they absorb energy?
   f. The molecules occupy less volume.
   g. The molecules begin to move more slowly.
   h. The kinetic energy of the atoms decreases.
   j. The rate of collision between molecules increases.

Mark your answer to question 2 at the bottom of the page, in the section labeled Multiple-Choice Answers.

Pause for a moment while students mark their answers. Then SAY:

The correct answer to question 2 is “j,” “The rate of collision between molecules increases.” When energy is added to matter, the molecules begin to increase their rate of collisions based upon the increased motion of the molecules.

Does everyone understand why “j” is the correct answer to question 2?

Pause to answer questions. Then SAY:

The other questions on the Science test are open-ended questions. Please turn to page 5 and find the section labeled Sample CAPT Science Open-Ended Item. Silently read the introduction to the sample question while I read it aloud.

Sample CAPT Science Open-Ended Item

A group of students wrote the following procedure for their acid rain investigation.

Acid Rain Investigation

Procedure:
1. Find the mass of each of three different building materials being tested.
2. Pour 200 mL of acidified water, pH 4.5, into each of three clean containers.
3. Place each sample of building material into one of the three containers.
4. After two days, remove the samples, wash them with distilled water, and allow them to dry completely.
5. Mass each sample.

The chart below shows the students’ investigation results.

Now look at the chart below the procedure and note the three different types of material and the results of measuring their mass.

Now read question “a” silently while I read it aloud.

   a) What was the problem the students were investigating?
Pause for a few minutes to allow students to answer the question. You do not need to wait for all students to complete their responses. Then SAY:

Let me read a couple of examples of possible problems the students were investigating.

Possible problems the students were investigating might include:
• How does acid rain affect the mass of different building materials?
• What type of building material holds up best in acid rain conditions?
• What is the best type of building material to use outdoors?
• What type of building material will degrade most quickly in acid rain conditions?

An open-ended question may have many acceptable, good answers. A good answer is one that is *scientifically correct* and *complete*.

Now read question “b” silently while I read it aloud.

b) Describe two things the students could do to increase confidence in their results.

Pause for a few minutes to allow students to answer the question. You do not need to wait for all students to complete their responses. Then SAY:

Let me read you an example of a good response. Remember, the question asks for TWO ways in which the experiment could be improved. I’m giving more than two in this sample response.

To Increase Confidence the students might:
• perform additional trials using the same building materials
• add a control to their investigation
• perform additional trials using water with different acidities
• use samples that have the same surface area/same amount of material
• use samples that have the same starting mass
• let the samples sit in vinegar for a longer amount of time
• make sure the temperature of the solvent is held constant for each sample

As previously stated, an open-ended question may have many acceptable, good answers. A good answer is one that is *scientifically correct* and *complete*. Remember that your ideas should be explained clearly and thoroughly. Do not assume that the scorers will know what you are thinking. They can give credit only for what you have written or sketched. You can always draw a sketch as part of your answer, even if the question does not specifically call for one.

You may be wondering if writing skills such as spelling, punctuation, or grammar will affect your score. Your answers will be scored for science ideas and information—not for writing skills. If the scorer is able to understand your writing, a good answer will receive a good score even if the writing contains spelling or grammatical errors. However, you are encouraged to write as well as you can because that will make it easier for the scorers to read and understand your answers.

Pause. Answer any questions. Then SAY:

This completes the Science practice session. You may keep your booklet.