

Student Name: \_\_\_\_\_

# Ohio Achievement Tests



## Science Student Test Booklet May 2008

*This test was originally administered to students in May 2008.*

*Not all items from the May 2008 administration will be released in this document. According to Ohio Revised Code (ORC) 3301.07.11:4(b) . . . not less than forty percent of the questions on the test that are used to compute a student's score shall be a public record. The department (of education) shall determine which questions will be needed for reuse on a future test and those questions shall not be public records and shall be redacted from the test prior to its release as public record.*

*This publicly released material is appropriate for use by Ohio teachers in instructional settings. This test is aligned with Ohio's Academic Content Standards for Science.*

The Ohio Department of Education does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in employment or the provision of services.

**Directions:**

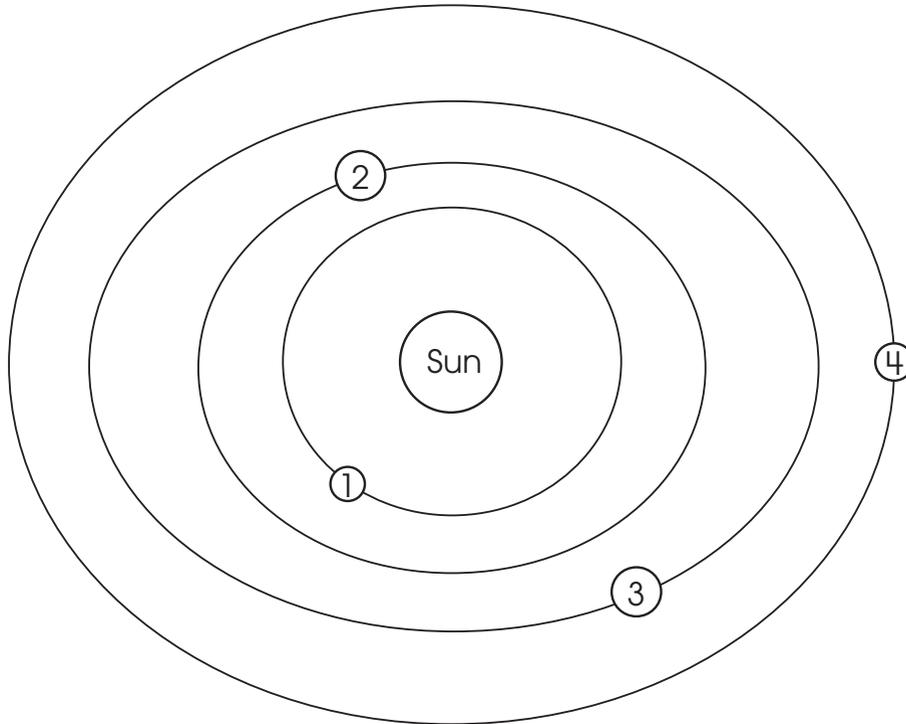
Today you will be taking the Ohio Grade 5 Science Achievement Test. Three different types of questions appear on this test: multiple choice, short answer and extended response.

There are several important things to remember:

1. Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they will help you understand the question.
2. For short-answer and extended-response questions, use a pencil to write your answers neatly and clearly in the space provided in the answer document. Any answers you write in the Student Test Booklet will not be scored.
3. Short-answer questions are worth two points. Extended-response questions are worth four points. Point values are printed near each question in your Student Test Booklet. The amount of space provided for your answers is the same for two- and four-point questions.
4. For multiple-choice questions, shade in the circle next to your choice in the answer document for the test question. Mark only one choice for each question. Darken completely the circles on the answer document. If you change an answer, make sure that you erase your old answer completely.
5. Do not spend too much time on one question. Go on to the next question and return to the question skipped after answering the remaining questions.
6. Check over your work when you are finished.
7. When you finish the test, you may not go on to, or look at, the social studies section of the Student Test Booklet.

Use the following diagram to answer question 1.

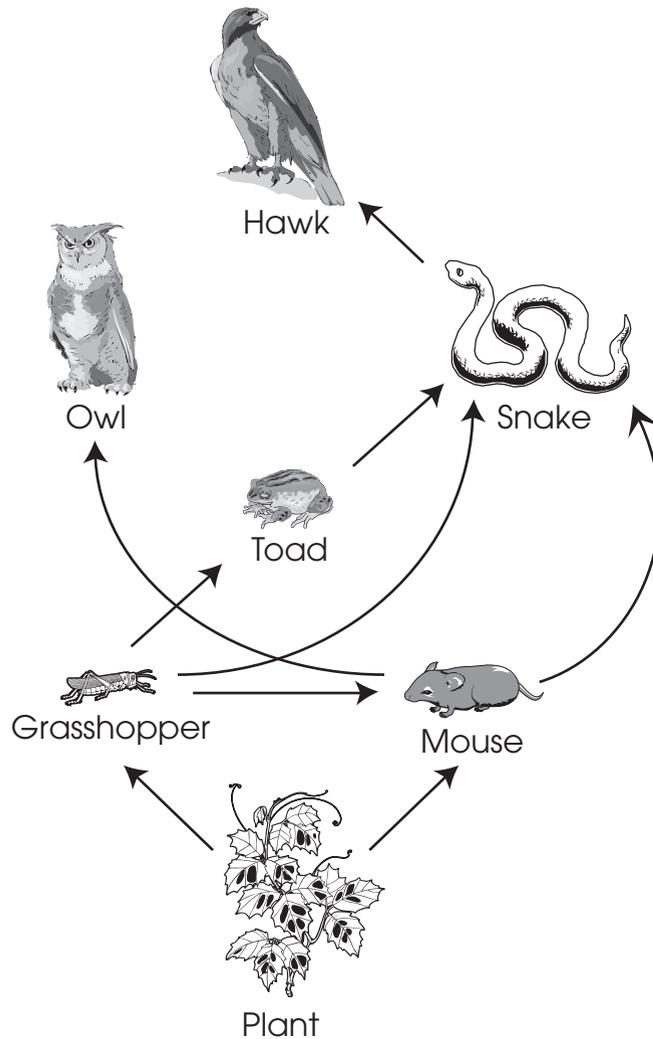
### A Diagram of the Planet Orbits Closest to the Sun



1. Which number in the diagram represents Earth?
- A. 1
  - B. 2
  - C. 3
  - D. 4

Use the following food web to answer question 2.

### Prairie Food Web

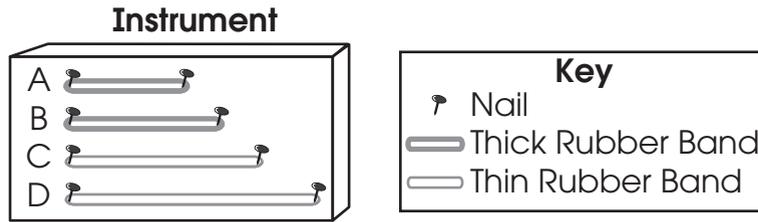


2. In this food web, which organism captures the sun's energy?
- A. plant
  - B. hawk
  - C. mouse
  - D. grasshopper

# S

## Science

3. Students pluck each rubber band on the instrument shown below.



Which rubber band produces a sound with the highest pitch?

- A. rubber band A
- B. rubber band B
- C. rubber band C
- D. rubber band D

Items 4–6 have not been slated for public release in 2008.

On the May 2008 Grade 5 Science Achievement Test, items 7–12 are field-test items, which are not released.

# S

## Science

13. Oak trees produce seeds that are contained in acorns. Blue jays eat the seeds in acorns. Blue jays also collect acorns and hide them in the ground, often far away from the parent oak tree. Blue jays do not eat the seed of every acorn they hide.

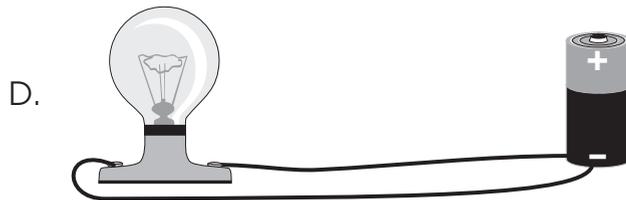
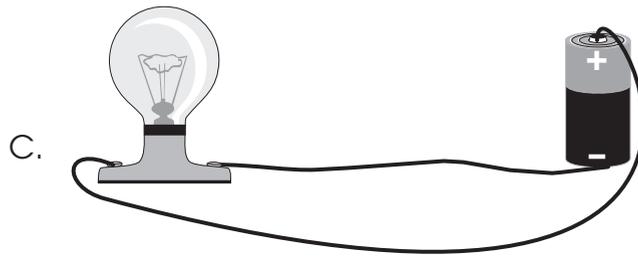
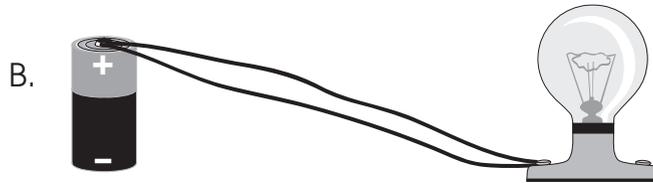
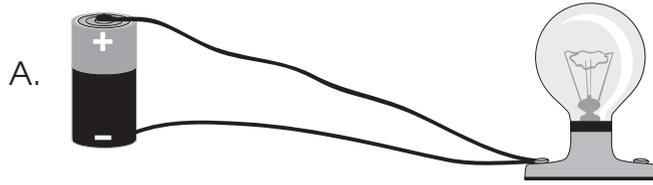
How do oak trees benefit from blue jays' collecting and hiding acorns?

- A. The oak trees are pollinated by the blue jays.
- B. The oak trees are protected from other herbivores.
- C. The seeds of oak trees are protected from the sun.
- D. The seeds of oak trees are planted in new environments.

Item 14 has not been slated for public release in 2008.



15. Which electric circuit produces light?



Items 16–17 have not been slated for public release in 2008.

18. Corals are animals that live in tropical oceans. Fossils of corals are found in Ohio.

What does the presence of coral fossils suggest about how the environment of Ohio has changed over time?

- A. Ohio was once covered by warm seas.
- B. A large glacier once passed over Ohio.
- C. The average rainfall in Ohio is now much more than it once was.
- D. The average temperature in Ohio is now much warmer than it once was.



Item 19 has not been slated for public release in 2008.

20. A student wraps a wire around an iron nail. The student then connects the wire to a battery. The nail attracts another nail and they stick together.

What force holds the two nails together?

- A. gravitational force
- B. magnetic force
- C. electric force
- D. friction force



21. A student plays his trumpet on the stage of an empty auditorium. He hears the sound echo back to the stage. Later, the auditorium is full of people. He does not hear an echo.

In your **Answer Document**, explain why sound echoes in an empty auditorium.

Then, describe what happens to the sound that prevents an echo from being heard in the full auditorium. (2 points)

Item 22 has not been slated for public release in 2008.

# S

## Science

23. Which property of air does a barometer measure?
- A. speed
  - B. pressure
  - C. humidity
  - D. temperature

Item 24 has not been slated for public release in 2008.

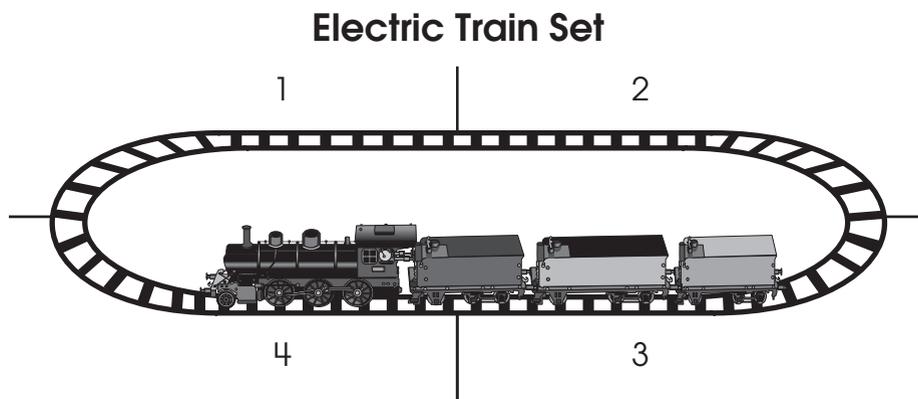


# S

## Science

25. A student observes and measures how long it takes a train to go around equal parts of a track. The student records the observations in the table below.

Part	Total Distance Traveled	Total Time Elapsed
1	100	5
2	200	9
3	300	15
4	400	21



Another student plans to use the same train set and repeat these observations. What information is missing from the table that would make it difficult for the second student to repeat these observations and compare their data?

- A. the shape of the track
- B. the unit of measurement
- C. the model of electric train
- D. the date of the observations

26. Which motion causes the pattern of day and night on Earth?
- A. Earth rotates on its axis
  - B. Earth orbits around the sun
  - C. the moon rotates on its axis
  - D. the moon orbits around Earth

Item 27 has not been slated for public release in 2008.

28. Popcorn kernels contain a solid material called starch and a small amount of water at room temperature. When the temperature of the kernels of popcorn increase, they explode or pop.

### Popcorn



Unpopped  
Kernel



Popped  
Kernel

Which change in the state of the water takes place inside the kernel, causing the volume to increase?

- A. solid → gas
- B. liquid → gas
- C. solid → liquid
- D. liquid → solid

Item 29 has not been slated for public release in 2008.

# S

## Science

30. Some processes that shape Earth's surface are slow. Other processes are rapid.

Which statement describes a rapid change?

- A. Glaciers melt and form rivers.
  - B. Wind weathers rocks into sand.
  - C. Earthquakes move land and rocks.
  - D. Rivers carry sediment and build deltas.
31. From which part of the plant does a bee get food?
- A. flower
  - B. seed
  - C. stem
  - D. root



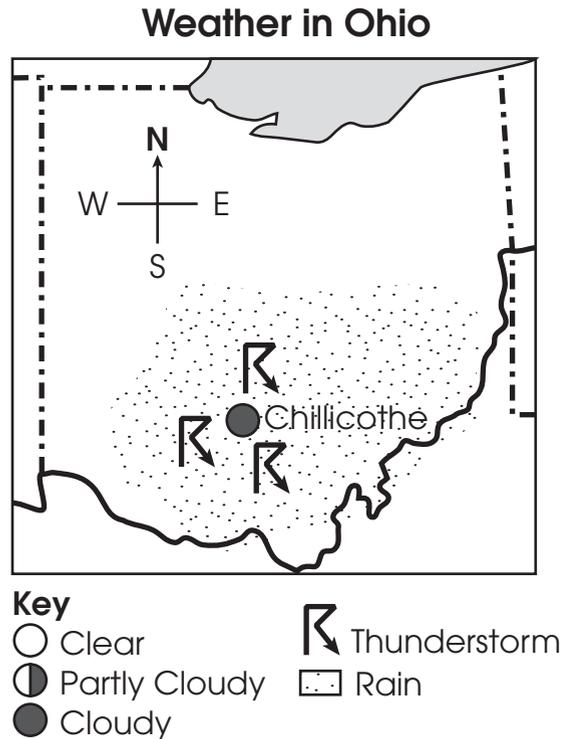
Items 32–33 have not been slated for public release in 2008.

34. What is the role of decomposers in a food web?
- A. Decomposers use sunlight to make food.
  - B. Decomposers are a food source for plants.
  - C. Decomposers break down dead plants and animals.
  - D. Decomposers only eat plants that grow underground.



Items 35–40 have not been slated for public release in 2008.

Use the following weather map to answer question 41.



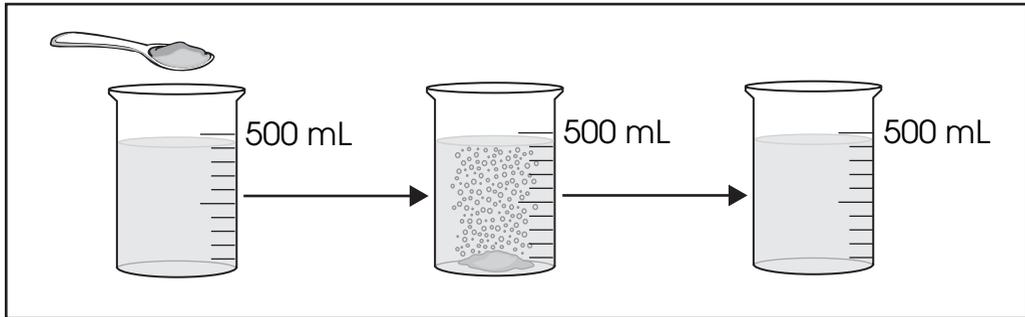
41. What type of clouds must be in the sky above Chillicothe?
- A. cirrus, which are high and feathery clouds
  - B. cumulus, which are white and puffy clouds
  - C. cumulonimbus, which are dark-gray and tall clouds
  - D. stratus, which are low, light-gray and flat-layered clouds

Use the following information to answer questions 42 and 43.

### Two Investigations

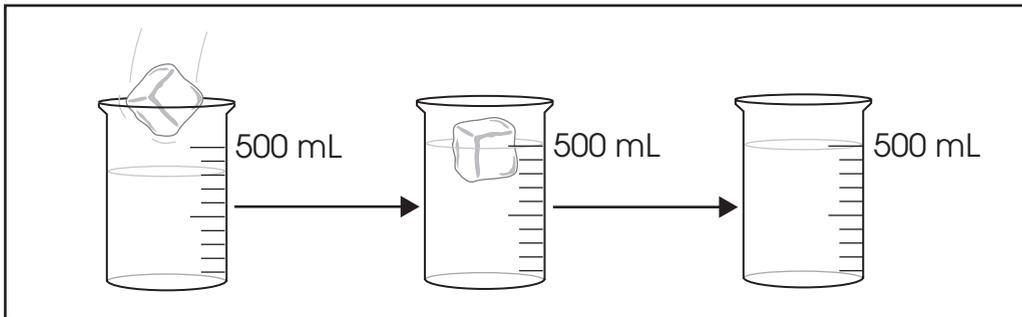
Students conduct investigations with solids and liquids over several days.

#### Day 1 Investigation



Students pour vinegar into a beaker. They add a spoonful of baking soda to the vinegar. They observe bubbles. The bubbles stop when the baking soda is no longer visible.

#### Day 2 Investigation



Students pour water into a beaker. They add a cube of frozen water (ice). They observe that the water level changes to 500 mL. After a few minutes, the cube begins to melt. When the cube melts, the water level does not change.

42. Look at the investigation from day 1.

What observation suggests that a gas has formed?

- A. The baking soda disappears.
- B. Bubbles are formed in the vinegar.
- C. All chemical reactions produce gas.
- D. The vinegar begins to give off a smell.

43. Look at the investigation from day 2.

Why does the ice cube melt?

- A. The ice transfers cold to the water.
- B. The water transfers cold to the ice.
- C. The ice transfers thermal energy to the water.
- D. The water transfers thermal energy to the ice.

Item 44 has not been slated for public  
release in 2008.