

Instructional Guidance based on Student Performance on the Spring 2014 Science Tests

Science
Standards of Learning

Grade 8 Science



Presentation may be paused and resumed using the arrow keys or the mouse.

Grade 8 Science: Areas Needing Improvement

Students had difficulty with items related to –

- weather and atmosphere;
- genetics; and
- basic chemical equations.

Grade 8 Science: Areas Needing Improvement

Weather and Atmosphere

(SOL 6.3, 6.5, 6.6.)

- air masses;
- characteristics and composition of the atmosphere;
- weather maps;
- air pressure; and
- water vapor

Grade 8 Science Example Item

In Earth's atmosphere, as altitude increases –

A air temperature remains relatively constant

B the number of gas molecules per unit volume increases

C air density increases

D air pressure decreases

Grade 8 Science Example Item

Water vapor in the atmosphere will form tiny droplets when the air –

A reaches 100 percent relative humidity

B warms above 10 degrees Celsius

C descends below an altitude of 1 kilometer (1000 meters)

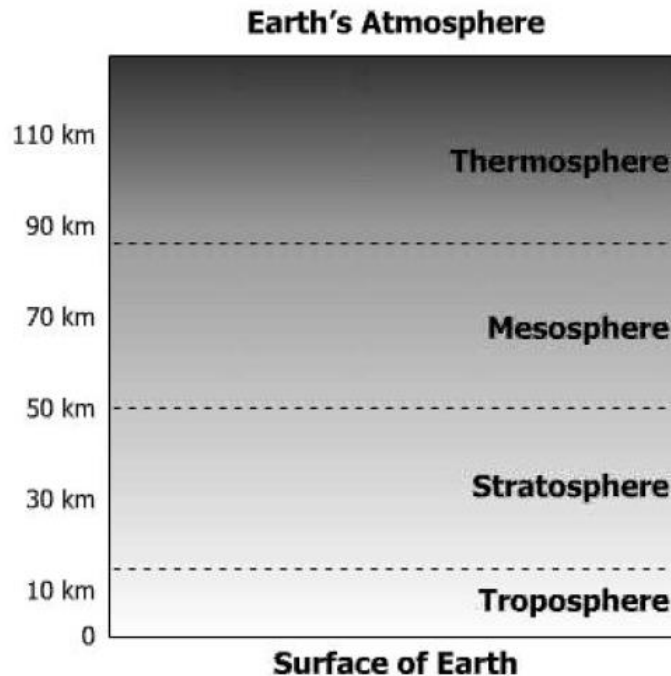
D pressure increases by 10 percent

Grade 8 Science Released Item

A cold air mass moves underneath a warm air mass causing the warm air to rise. This event can best be identified as —

- A** a cold front
- B** a warm front
- C** an occluded front
- D** a stationary front

Grade 8 Science Released Item



Which statement correctly describes a difference between the mesosphere and the stratosphere?

- A The mesosphere has more active weather than the stratosphere.
- B The mesosphere contains fewer oxygen molecules than the stratosphere.
- C Air pressure is lower in the stratosphere than in the mesosphere.
- D Temperatures decrease with altitude only in the stratosphere.

Grade 8 Science: Areas Needing Improvement

Genetics

(SOL LS.12)

- elements of historical development; and
- key terminology

Grade 8 Science Example Item

The way a living organism appears as a result of its genetic expression is its –

A genome

B incomplete dominance

C recessive allele

D phenotype

Grade 8 Science Example Item

The work of Franklin, Watson, and Crick contributed most to which of the following areas in the field of genetics?

A the idea of recessive traits

B selective breeding of hybrid plants

C the structure of the DNA molecule

D the discovery of the role of chromosome pairs

Grade 8 Science Released Item

Which of these has been improved by genetic engineering?

- A** Visibility of insects to predators
- B** Growth of insects in cornfields
- C** Reduced number of pollinating insects
- D** Resistance of corn plants to insects

Grade 8 Science: Areas Needing Improvement

Basic Chemistry

(SOL PS.4, concepts introduced in SOL 6.4)

- balancing chemical equations (conservation of matter)

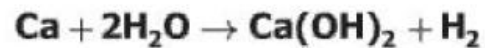
Grade 8 Science Example Item

What number is needed to balance the following equation?



Grade 8 Science Released Item

Directions: Type your answer in the box. Use a whole number.



How many different elements are involved in the chemical reaction shown?

3

Practice Items

This concludes the student performance information for the spring 2014 Grade 8 Science test.

Additionally, test preparation practice items for this test can be found on the Virginia Department of Education Web site at:

<https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/sol-practice-items-all-subjects>

Contact Information

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