

# Florida FSA 2020 Grade 8 Science Practice

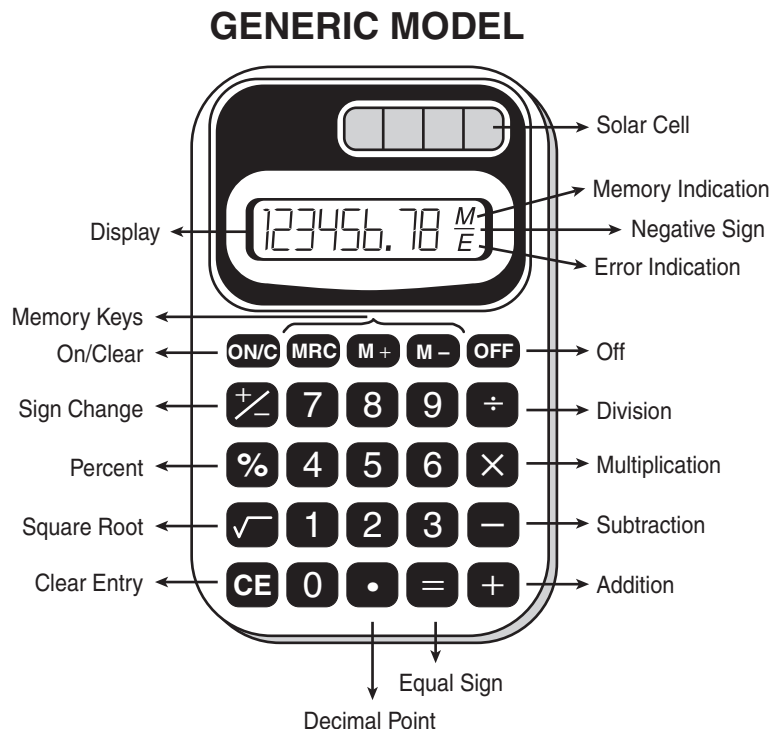
Reference Materials  
Pages 2 - 3

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Answer Key Materials  
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# Calculator Instructions

This is a picture of a generic calculator and its parts.



## HELPFUL HINTS FOR USING A FOUR-FUNCTION CALCULATOR

1. Read the problem very carefully. Then decide whether or not you need the calculator to help you solve the problem.
2. When starting a new problem, always clear your calculator by pressing the on/clear key.
3. If you see an **E** in the display, clear the error before you begin.
4. If you see an **M** in the display, clear the memory and the calculator before you begin.
5. If the number in the display is not one of the answer choices, check your work. Remember that when computing with certain types of fractions, you may have to round the number in the display.
6. Remember, your calculator will NOT automatically perform the algebraic order of operations.
7. Calculators might display an incorrect answer if you press the keys too quickly. When working with calculators, use careful and deliberate keystrokes, and always remember to check your answer to make sure that it is reasonable.
8. The negative sign may appear either to the left or to the right of the number.
9. Always check your answer to make sure that you have completed all of the necessary steps.

# Periodic Table of the Elements

(based on  $^{12}_6\text{C} = 12.0000$ )

Group

1

1A

1

H

Hydrogen

1.008

2

2A

3

Li

Lithium

6.941

4

Be

Beryllium

9.012

11

Na

Sodium

22.990

12

Mg

Magnesium

24.305

19

K

Potassium

39.098

20

Ca

Calcium

40.078

37

Rb

Rubidium

85.468

38

Sr

Strontium

87.62

55

Cs

Cesium

132.905

56

Ba

Barium

137.327

87

Fr

Francium

223

2

He

Helium

4.003

10

Ne

Neon

20.180

18

Ar

Argon

39.948

36

Kr

Krypton

83.80

54

Xe

Xenon

131.29

86

Rn

Radon

222

14

Si

Silicon

28.086

Atomic number

Symbol

Name

Average Atomic Mass

13

3A

5

B

Boron

10.81

14

4A

6

C

Carbon

12.011

15

5A

7

N

Nitrogen

14.007

16

6A

8

O

Oxygen

15.999

17

7A

9

F

Fluorine

18.998

26

8

Fe

Iron

55.847

27

9

Co

Cobalt

58.933

28

10

Ni

Nickel

58.693

29

11

Cu

Copper

63.546

30

12

Zn

Zinc

65.39

31

Al

Aluminum

26.982

32

14

Si

Silicon

28.086

33

15

P

Phosphorus

30.974

34

16

S

Sulfur

32.06

35

17

Cl

Chlorine

35.453

49

31

Ga

Gallium

69.723

50

32

Ge

Germanium

72.61

51

33

As

Arsenic

74.922

52

34

Se

Selenium

78.96

53

35

Br

Bromine

79.904

81

49

In

Indium

114.82

82

50

Sn

Tin

118.710

83

51

Sb

Antimony

121.757

84

52

Te

Tellurium

127.60

85

53

I

Iodine

126.905

204.383

81

Tl

Thallium

204.383

207.2

82

Pb

Lead

207.2

208.980

83

Bi

Bismuth

208.980

208.982

84

Po

Polonium

208.982

210

85

At

Astatine

210

Transition Metals

3

3B

4

4B

5

5B

6

6B

7

7B

8

8B

9

8B

10

8B

11

1B

12

2B

Metals

Nonmetals

Inner Transition Metals

Lanthanide series

58

Ce

Cerium

140.12

59

Pr

Praseodymium

140.908

60

Nd

Neodymium

144.24

61

Pm

Promethium

144.913

62

Sm

Samarium

150.36

63

Eu

Europium

151.96

64

Gd

Gadolinium

157.25

65

Tb

Terbium

158.925

66

Dy

Dysprosium

162.50

67

Ho

Holmium

164.930

68

Er

Erbium

167.26

69

Tm

Thulium

168.934

70

Yb

Ytterbium

173.04

71

Lu

Lutetium

174.967

90

Th

Thorium

232.038

91

Pa

Protactinium

231.036

92

U

Uranium

238.029

93

Np

Neptunium

237.048

94

Pu

Plutonium

244.064

95

Am

Americium

243.061

96

Cm

Curium

247.070

97

Bk

Berkelium

247.070

98

Cf

Californium

251.080

99

Es

Einsteinium

252.083

100

Fm

Fermium

257.095

101

Md

Mendelevium

258.099

102

No

Nobelium

259.101

103

Lr

Lawrencium

260.105

Actinide series



**NGSSS**  
Science & Social Studies  
Assessments

# **Grade 8**

## **Florida Statewide Science Assessment Practice Test Questions**

The purpose of these practice test materials is to orient teachers and students to the types of questions on paper-based Florida Statewide Science Assessments. By using these materials, students will become familiar with the types of items and response formats that they may see on a paper-based test. The practice questions and answers are not intended to demonstrate the length of the actual test, nor should student responses be used as an indicator of student performance on the actual test. The practice test is not intended to guide classroom instruction.

### **Directions for Answering the Science Practice Test Questions**

Mark your answers on the Grade 8 Science Practice Test Answer Sheet on page 11. If you don't understand a question, ask your teacher to explain it to you. Your teacher has the answers to the practice test questions.

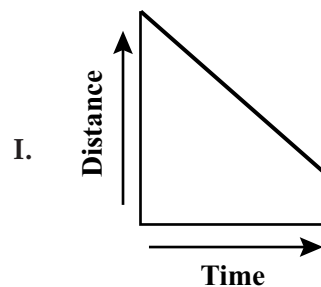
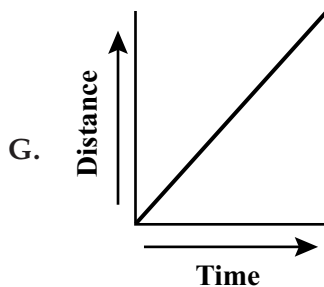
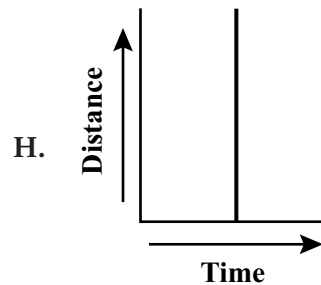
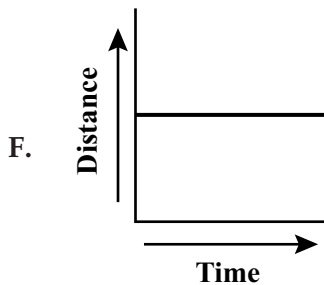
You may need the Periodic Table of the Elements to help you answer some of the questions. You may refer to the Periodic Table on page 3 as often as you like.

Use the space in this booklet to do your work on the multiple-choice questions, but be sure to put your answers on the Answer Sheet.

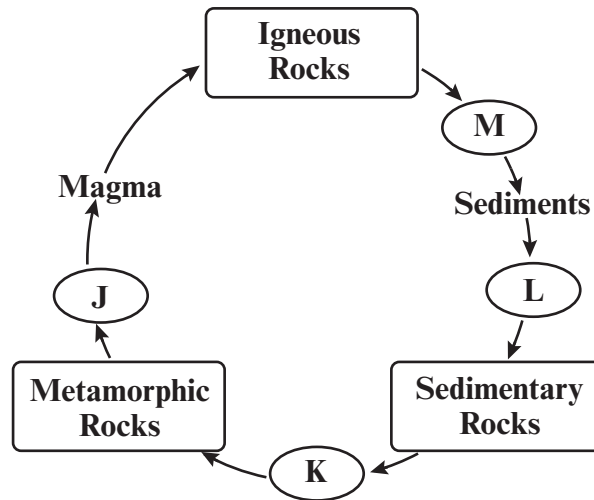
1 Ethan is observing chemical and physical properties of a substance. He heats a substance and observes that the substance turns from a brown solid to a black powder. He refers to several chemistry journals that claim this represents a chemical reaction. From his observation and research, he concludes that the substance goes through a chemical change when heated. How can Ethan **best** defend his conclusion?

- A. by demonstrating that the substance will eventually melt if the temperature continues to increase
- B. by verifying that the substance is now made up of different molecules than before it was heated
- C. by verifying that the substance is made up of only one type of element
- D. by demonstrating that the substance is less dense after it is heated

2 Mr. Roberts drives his car away from his house at a constant speed. Which of the following graphs **best** shows the relationship between the distance traveled and the time spent driving?



- 3 Ice forms in the cracks of a basalt rock formation and breaks some rock into smaller pieces. The diagram below shows part of the rock cycle.

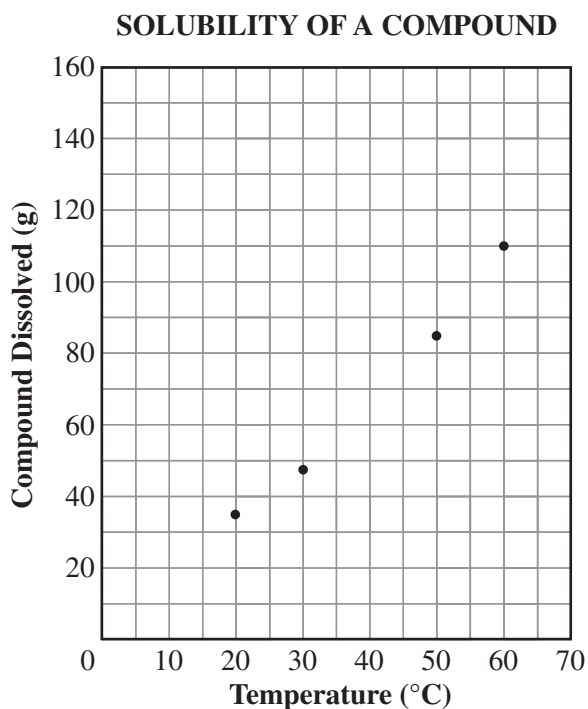


At which point in the cycle shown above would the process of breaking down rocks occur?

- A. J
- B. K
- C. L
- D. M

- 4 An object moves through space with balanced forces acting on it. Which statement **best** describes the speed and direction of the object as long as the forces acting on it remain balanced?
- F. The speed and direction of the object will both change.
  - G. The speed and direction of the object will remain constant.
  - H. The speed will change, but the direction will remain constant.
  - I. The speed will remain constant, but the direction will change.
- 5 A scientist performs an experiment and asks other scientists around the world to replicate it. Why would other scientists **most likely** try to perform the same experiment?
- A. to find out if weather of various regions of the world would affect the results
  - B. to see if the experiment would be less expensive in another part of the world
  - C. to confirm the results of the experiment conducted by the scientist
  - D. to verify that the hypothesis of the experiment is a scientific law

- 6 Students in Ms. Alvarez's eighth grade science class are investigating how temperature, in degrees Celsius ( $^{\circ}\text{C}$ ), affects the solubility of a compound in 100 milliliters (mL) of water. Ms. Alvarez provides the students with a graph that shows the solubility of a certain compound, as shown below.



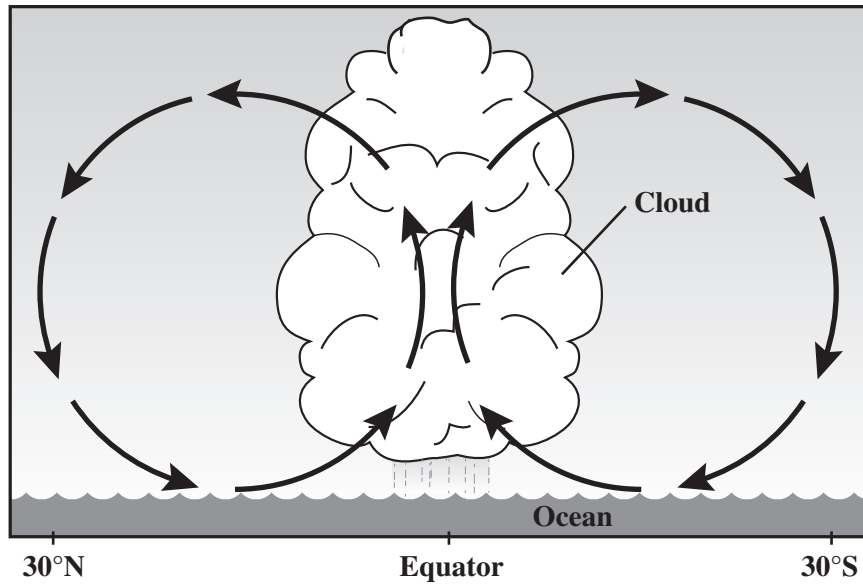
She then tells the students that she will demonstrate how many grams (g) of the compound will dissolve in 100 mL of water at  $40^{\circ}\text{C}$ . Based on the information in the graph, which of the following is the **best** prediction of how many grams of the compound will dissolve at  $40^{\circ}\text{C}$ ?

- F. 40 g
- G. 65 g
- H. 85 g
- I. 100 g



- 7 Food webs show feeding relationships among different types of organisms. Those organisms each have a specific niche. Which of the following **best** describes a function of decomposers in food webs?
- A. to recycle nutrients into soil
  - B. to convert solar energy into food
  - C. to provide food for secondary consumers
  - D. to compete with secondary consumers for oxygen
- 8 The interaction between the cryosphere and hydrosphere can have an impact on Earth's oceans. Which of the following is an example of an interaction between the cryosphere and hydrosphere?
- F. evaporation of water from oceans at the equator
  - G. release of fresh water into ocean water as icebergs melt
  - H. decomposition of organic matter at the bottom of oceans
  - I. release of large amounts of salt from icebergs into the ocean

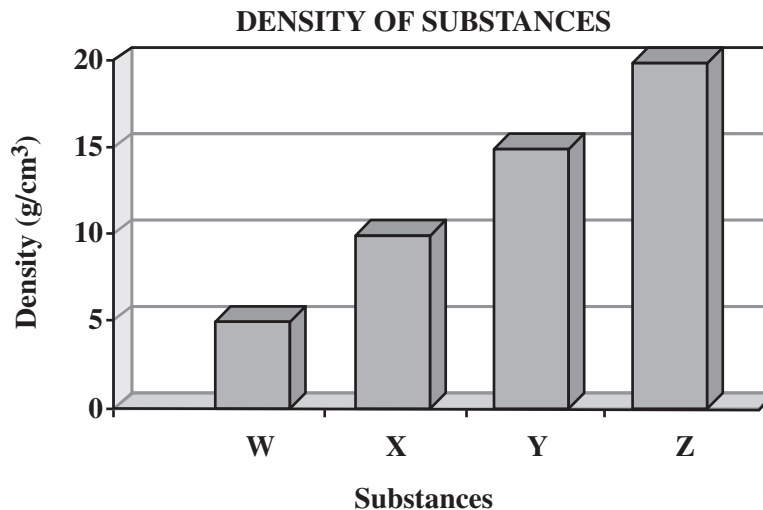
- 9 Several factors can cause weather patterns in the atmosphere. The diagram below shows how air movement near the equator can form thunderstorms.



Which process is the main source of this movement?

- A. movement of ocean currents
- B. decrease in relative humidity
- C. heating by energy from the Sun
- D. warming in the upper atmosphere

- 10 The graph below compares the density, in grams per cubic centimeter ( $\text{g}/\text{cm}^3$ ), of four different substances.



Based on information from the graph, which of the following **best** compares the physical properties of two of the substances?

- F. Substance X has less mass than substance Y has.
- G. Substance W has less volume than substance X has.
- H. Substance Y would have less mass than substance Z would have if they had the same volume.
- I. Substance Z would have less mass than substance W would have if they had the same volume.

Name \_\_\_\_\_

Answer all the Science Sample Questions on this Sample Answer Sheet.

1    A    B    C    D

6    F    G    H    I

2    F    G    H    I

7    A    B    C    D

3    A    B    C    D

8    F    G    H    I

4    F    G    H    I

9    A    B    C    D

5    A    B    C    D

10    F    G    H    I



# **Grade 8**

## **Florida Statewide Science Assessment Answer Key**

This booklet contains answers to the Florida Statewide Science Assessment practice test questions, as well as explanations for the correct answers and rationales for the incorrect answers (distractor rationales). It also gives the Next Generation Sunshine State Standards (NGSSS) benchmark assessed by each item. In February 2008, the State Board of Education adopted updated benchmarks. These new benchmarks are included in this booklet to provide teachers with additional information.

Multiple-choice items in Florida Statewide Science Assessments are scored by awarding one point for each correct answer.

The intent of these practice test materials is to orient teachers and students to the types of questions on Florida Statewide Science Assessments. By using these materials, students will become familiar with the types of items and response formats that they will see on the actual test. The practice test questions and answers are not intended to demonstrate the length of the actual test, nor should student responses be used as an indicator of student performance on the actual test.

- 1** The correct answer is B (by verifying that the substance is now made up of different molecules than before it was heated).

Reporting Category: The Nature of Science

Big Idea 1: The Practice of Science

Benchmark: SC.8.N.1.1 Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding; plan and carry out scientific investigations of various types, such as systematic observations or experiments; identify variables; collect and organize data; interpret data in charts, tables, and graphics; analyze information; make predictions; and defend conclusions.

Knowledge of the processes used in scientific investigations and an understanding of the data and/or methods necessary to defend a conclusion are needed to answer this question.

#### **Distractor Rationales**

- A. Melting is a physical change.
- C. Verifying that the substance is made of a single element is not enough to determine if a chemical change occurred.
- D. Density is a physical property.

**2 The correct answer is G.**

Reporting Category: Physical Science

Big Idea 12: Motion of Objects

Benchmark SC.6.P.12.1 Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.

An understanding of the relationship between distance and time for an object in motion is needed to answer this question.

**Distractor Rationales**

- F. This graph represents Mr. Roberts's car when it is stopped.
- H. This graph shows the time spent driving to be zero. The speed on this graph is undefined.
- I. This graph represents Mr. Roberts's car moving toward the house.

**3 The correct answer is D (M).**

Reporting Category: Earth and Space Science

Big Idea 6: Earth Structures

Benchmark: SC.7.E.6.2 Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).

An understanding of weathering in the rock cycle is needed to answer this question.

**Distractor Rationales**

- A. Heating and melting occur at point J.
- B. Heat and pressure occur at point K.
- C. Layering and pressure occur at point L.



- 4** The correct answer is G (The speed and direction of the object will remain constant).

Reporting Category: Physical Science

Big Idea 13: Forces and Changes in Motion

Benchmark SC.6.P.13.3 Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.

An understanding of how the forces acting on an object affect the object's speed and direction of motion is needed to answer this question.

#### **Distractor Rationales**

- F. The speed and the direction of the object do not change.
- H. The speed of the object does not change.
- I. The direction of the object does not change.

- 5** The correct answer is C (to confirm the results of the experiment conducted by the scientist).

Reporting Category: The Nature of Science

Big Idea 1: The Practice of Science

Benchmark: SC.6.N.1.2 Explain why scientific investigations should be replicable.

An understanding of the importance of replication in scientific investigations and experiments is needed to answer this question.

#### **Distractor Rationales**

- A. Weather conditions are not likely the reason scientists replicate an experiment.
- B. Although the ability to replicate an experiment may depend on cost, the importance of replication to the scientific process is not dependent on cost.
- D. Hypotheses are not scientific laws.

**6 The correct answer is G (65 g).**

Reporting Category: The Nature of Science

Big Idea 1: The Practice of Science

Benchmark: SC.8.N.1.1 Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding; plan and carry out scientific investigations of various types, such as systematic observations or experiments; identify variables; collect and organize data; interpret data in charts, tables, and graphics; analyze information; make predictions; and defend conclusions.

An understanding of interpreting data from a graph and making predictions based on the data is necessary to answer this question.

**Distractor Rationales**

- F. Forty grams (40 g) would be the prediction for how many grams of the compound will dissolve at approximately 25°C.
- H. Eighty-five (85 g) grams would be the prediction for how many grams of the compound will dissolve at approximately 50°C.
- I. One hundred grams (100 g) would be the prediction for how many grams of the compound will dissolve at approximately 57°C.

- 7** The correct answer is A (to recycle nutrients into soil).

Reporting Category: Life Science

Big Idea 17: Interdependence

Benchmark: SC.7.L.17.1 Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

An understanding of the role of decomposers in a food web is needed to answer this question.

#### **Distractor Rationales**

- B.** Decomposers do not convert solar energy into food. This is the role of the producer.
- C.** Decomposers are not the primary food source for secondary consumers.
- D.** Decomposers do not compete with secondary consumers for oxygen.

- 8** The correct answer is G (release of fresh water into ocean water as icebergs melt).

Reporting Category: Earth and Space Science

Big Idea 7: Earth Systems and Patterns

Benchmark: SC.6.E.7.4 Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.

An understanding of the interactions between the cryosphere and the hydrosphere is needed to answer this question.

### Distractor Rationales

- F. Evaporation is an interaction between the hydrosphere and the atmosphere.
- H. The decomposition of organic matter at the bottom of oceans is an interaction between the biosphere and the hydrosphere.
- I. Icebergs contain little or no salt.

**9 The correct answer is C (heating by energy from the Sun).**

Reporting Category: Earth and Space Science

Big Idea 7: Earth Systems and Patterns

Benchmark: SC.6.E.7.5 Explain how energy provided by the Sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

Knowledge of how energy provided by the Sun influences atmospheric movement is needed to answer this question. Solar energy is the main source of energy for thunderstorms.

**Distractor Rationales**

- A. Movement of ocean currents is not the main source of energy for thunderstorms.
- B. A decrease in relative humidity does not provide energy to a thunderstorm.
- D. Warming in the upper atmosphere does not provide energy to a thunderstorm. Thunderstorms are formed in the lower atmosphere.

- 10** The correct answer is H (Substance Y would have less mass than substance Z would have if they had the same volume).

Reporting Category: Physical Science

Big Idea 8: Properties of Matter

Benchmark: SC.8.P.8.4 Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points; and know that these properties are independent of the amount of the sample.

An understanding of the relationships among the physical properties of objects is needed to answer this question. The density of an object depends on its mass and volume.

### Distractor Rationales

- F. The mass of substance X and the mass of substance Y cannot be determined from the graph if the volume of each substance is not known.
- G. The volume of substance W and the volume of substance X cannot be determined from the graph if the mass of each substance is not known.
- I. Substance Z has a greater mass per volume than substance W; therefore, the mass of substance Z would be greater than substance W if they each had equal volumes.