FLORIDA DEPARTMENT OF EDUCATION
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Grade 8

Science

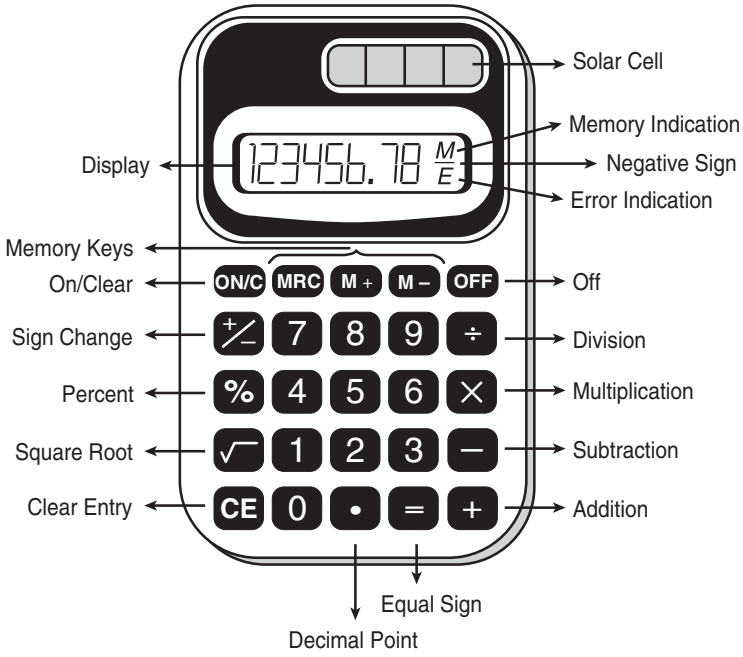
Sample Test Materials

The purpose of these sample test materials is to orient teachers and students to the types of paper-based Grade 8 Science questions. By using these materials, students will become familiar with the types of items and response formats they may see on a paper-based test. The sample items 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 sample test materials are not intended to guide classroom instruction.

HELPFUL HINTS FOR USING A FOUR-FUNCTION CALCULATOR

This is a picture of a generic 4-function calculator and its parts.

GENERIC 4-FUNCTION CALCULATOR

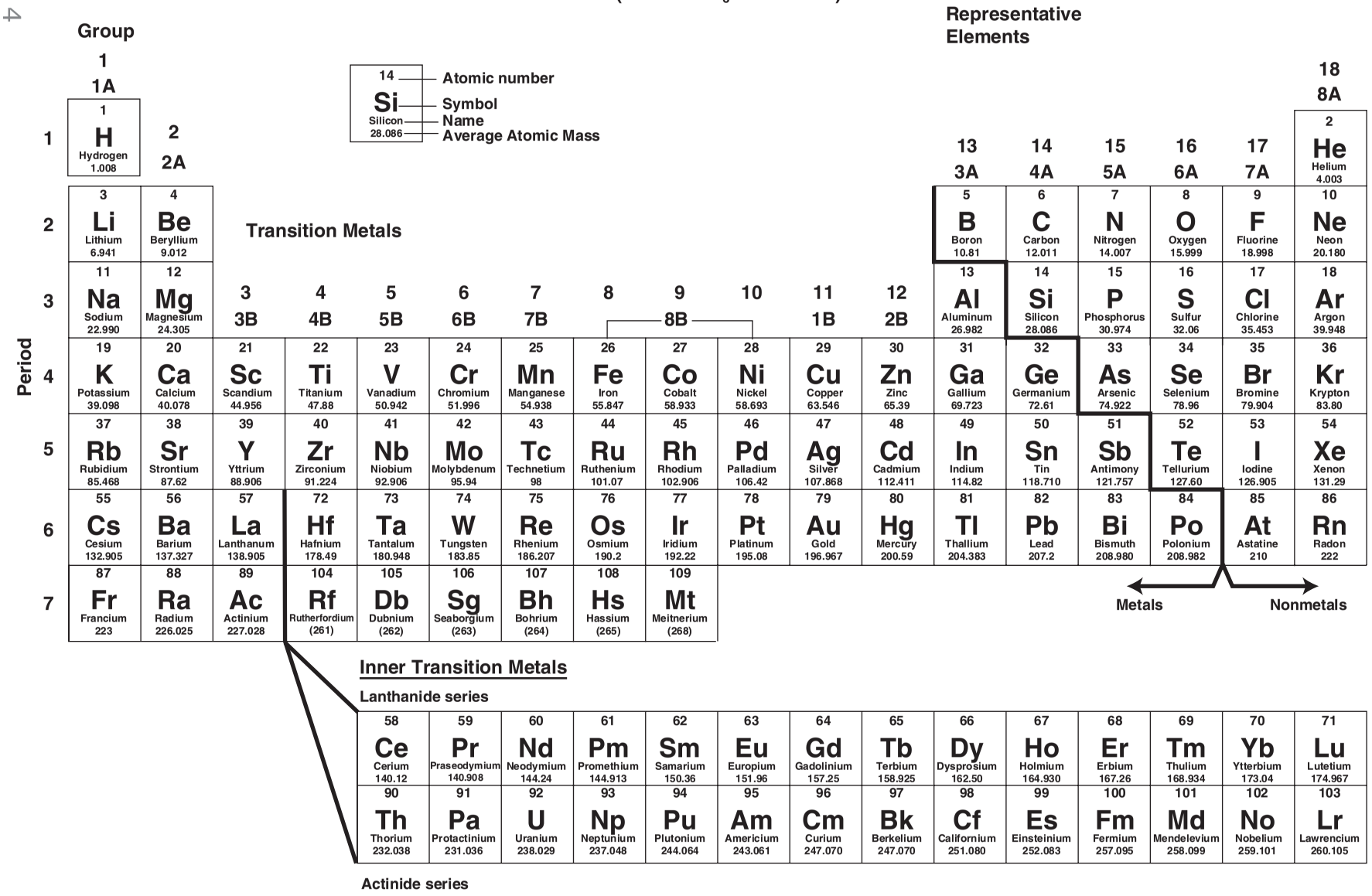


If you decide you need the calculator to help you answer a question, use the following information:

1. When starting a new problem, always clear your calculator by pressing the on/clear key.
2. If you see an **E** in the display, clear the error before you begin.
3. If you see an **M** in the display, clear the memory and the calculator before you begin.
4. If the number in the display is not one of the answer choices, check your work.
5. Remember, your calculator will NOT automatically perform the order of operations.
6. 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.
7. The negative sign may appear either to the left or to the right of the number.
8. Always check your answer to make sure that you have completed all of the necessary steps.

Periodic Table of the Elements

(based on $^{12}_{6}C = 12.0000$)



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?

Ⓐ by demonstrating that the substance will eventually melt if the temperature continues to increase

Ⓑ by verifying that the substance is now made up of different molecules than before it was heated

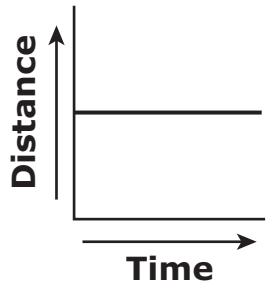
Ⓒ by verifying that the substance is made up of only one type of element

Ⓓ by demonstrating that the substance is less dense after it is heated

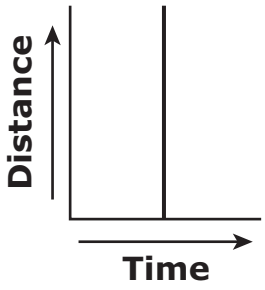
Go On

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?

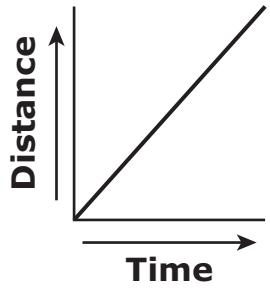
Ⓐ



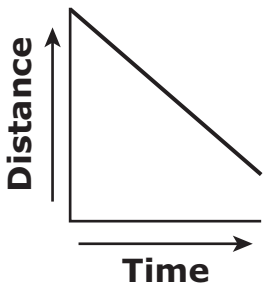
Ⓒ



Ⓑ

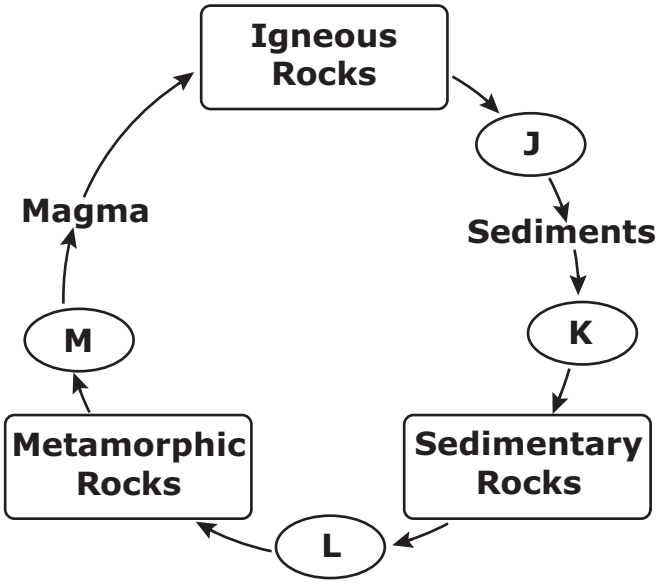


Ⓓ



Go On

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?

Ⓐ J

Ⓑ K

Ⓒ L

Ⓓ M

Go On

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?

Ⓐ The speed and direction of the object will both change.

Ⓑ The speed and direction of the object will remain constant.

Ⓒ The speed will change, but the direction will remain constant.

Ⓓ The speed will remain constant, but the direction will change.

Go On

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?

Ⓐ to find out if the weather of various regions of the world would affect the results

Ⓑ to see if the experiment would be less expensive in another part of the world

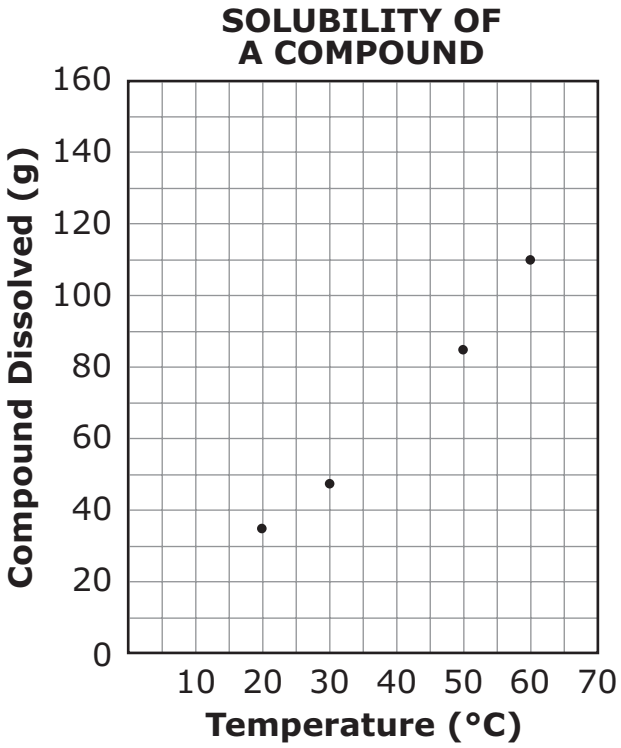
Ⓒ to confirm the results of the experiment conducted by the scientist

Ⓓ to verify that the hypothesis of the experiment is a scientific law

Go On

Solubility

Students in Ms. Alvarez's eighth grade science class are investigating how temperature, in degrees Celsius (°C), affects the solubility of a compound in 100 milliliters (mL) of water. Ms. Alvarez provides the students with a graph that indicates the solubility of a certain compound, in grams (g), as shown below.



She then tells the students that she will demonstrate how many grams of the compound will dissolve in 100 mL of water at 40°C.

Go On

To answer this question, refer to the "Solubility" passage and graph.

6. 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°C?

Ⓐ 40 g

Ⓑ 65 g

Ⓒ 85 g

Ⓓ 100 g

Go On

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?

Ⓐ to recycle nutrients into soil

Ⓑ to convert solar energy into food

Ⓒ to provide food for secondary consumers

Ⓓ 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?

Ⓐ evaporation of water from oceans at the equator

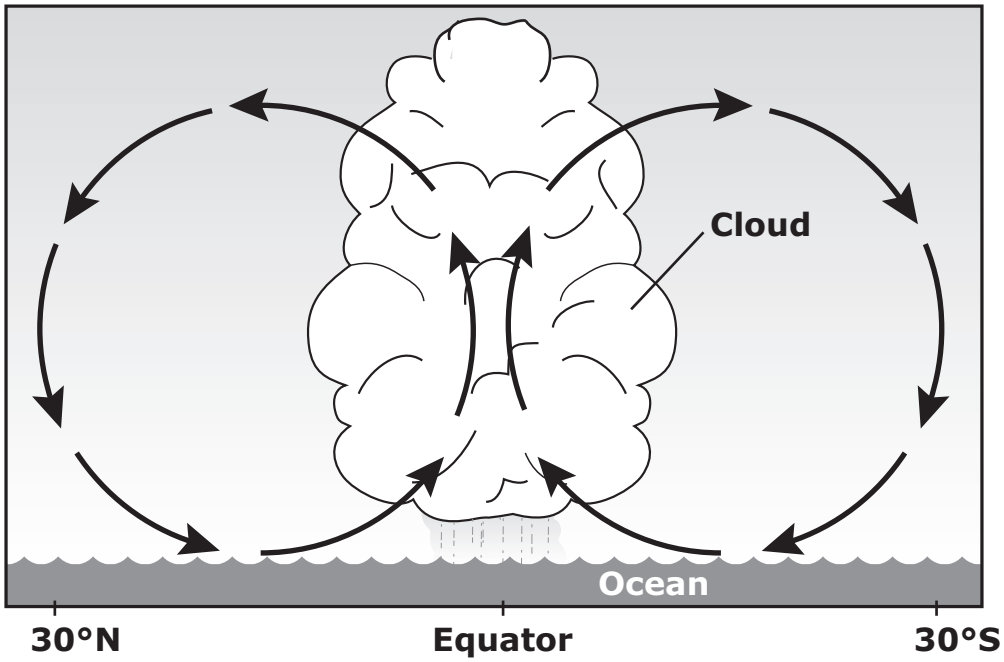
Ⓑ release of fresh water into ocean water as icebergs melt

Ⓒ decomposition of organic matter at the bottom of oceans

Ⓓ release of large amounts of salt from icebergs into the ocean

Go On

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?

Ⓐ movement of ocean currents

Ⓑ decrease in relative humidity

Ⓒ heating by energy from the Sun

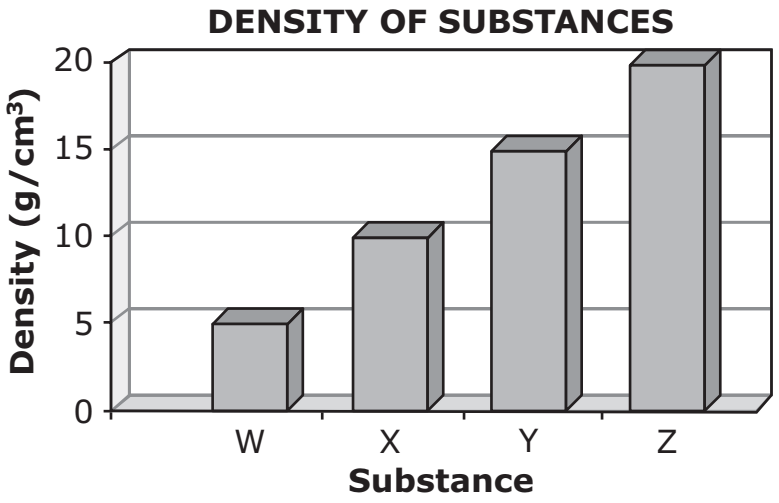
Ⓓ warming in the upper atmosphere

Go On

10. A student calculated the density, in grams per cubic centimeter (g/cm^3), of four different substances—W, X, Y, and Z—using the density equation shown below.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

Then, the student recorded the density of each substance, as shown in the graph below.



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

Ⓐ Substance X has less mass than substance Y has.

Ⓑ Substance W has less volume than substance X has.

Ⓒ Substance Y would have less mass than substance Z would have if they had the same volume.

Ⓓ Substance Z would have less mass than substance W would have if they had the same volume.

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Office of Assessment
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