

Skills Worksheet

Directed Reading B**Section: What Is Matter?** (pp. 78–83)**MATTER**

1. What characteristic do a human, hot soup, the metal wires in a toaster, and the glowing gases in a neon sign have in common?

They are all made of matter (PNe's = protons, neutrons, electrons)

2. What is matter?

Anything that has mass and takes up space.
Inertia - (resistance to being shaken)

MATTER AND VOLUME

Kiloliters

3. Which of the following units would be best for expressing the amount of water in a lake?

- a. grams (g)
- b. liters (L)
- c. meters (m)
- d. milliliters (mL)

milliliters

4. Which of the following units would be best for expressing the volume of soda in a can?

- a. centimeters (cm)
- b. grams (g)
- c. liters (L)
- d. milliliters (mL)

5. What is volume?

A measure of the size of a body in 3D

6. Things with **volume** cannot share the same space at the same time.

7. To measure the volume of water in a graduated cylinder, you should look at the bottom of the curve at the surface of the water called

the **meniscus**.

8. The volume of solid objects is commonly expressed

in **cubic meter, or cubic centimeters** units.

9. What three dimensions are needed to find the volume of a rectangular solid?

volume = length x width x height
 $v=lwh$

Directed Reading B *continued*

10. How could the volume of a 12-sided object be found using water and a graduated cylinder?

Use the method of displacement = first put the water in the cylinder then measure this and call it V_{initial} . Then put the 12-sided object in and under the water, and measure this and call it V_{final} .
 $V_{\text{object}} = V_{\text{final}} - V_{\text{initial}}$

11. If the volume of water displaced by the 12-sided object is 8 mL, what is the volume of the 12-sided object in cubic units?

8 cc = 8 cubic centimeters

MATTER AND MASS

mass

12. The measure of the amount of matter in an object is its

- a. volume.
- b. length.
- c. meniscus.
- d. mass.

weight

13 The measure of the gravitational force on an object is its

- a. mass.
- b. length.
- c. weight.
- d. volume.

Kilogram

14. The SI unit of mass is the

- a. newton.
- b. liter.
- c. kilogram.
- d. pound.

100 g on Earth

One newton is about equal to the weight of an object that has

- a. a mass of 100 g on the moon.
- b. a volume of 1 m^3 on Earth.
- c. a mass of 1 kg on Earth.
- d. a mass of 100 g on Earth.

16. What is the only way to change the mass of an object?

remove material from the object
(ex. take jelly beans out of the jar)