

# Directed Reading A

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## Section: What Is Matter?

### 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?

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2. What is matter?

\_\_\_\_\_

### MATTER AND VOLUME

\_\_\_\_\_ 3. What unit would you use to measure the amount of water in a lake?

a. grams (g)

c. meters (m)

b. liters (L)

d. milliliters (mL)

\_\_\_\_\_ 4. What unit would you use to measure the volume of soda in a can?

a. centimeters (cm)

c. liters (L)

b. grams (g)

d. milliliters (mL)

5. What is volume?

\_\_\_\_\_

6. Things with \_\_\_\_\_ cannot share the same space at the same time.

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

8. The volume of solid objects is commonly expressed in \_\_\_\_\_ units.

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

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

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**Directed Reading A *continued***

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11. Why can you express the volume of the 12-sided object measured by this method in cubic units?

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**MATTER AND MASS**

\_\_\_\_\_ 12. The amount of matter in an object is its  
a. volume. c. meniscus.  
b. length. d. mass.

\_\_\_\_\_ 13. The SI unit of mass is the  
a. newton. c. kilogram.  
b. liter. d. pound.

\_\_\_\_\_ 14. The SI unit of weight is the  
a. newton. c. kilogram.  
b. liter. d. pound.

\_\_\_\_\_ 15. One newton is equal to the weight of an object that has  
a. a mass of 100 g on the moon.  
b. a volume of 1 m<sup>3</sup> on Earth.  
c. a mass of 1,000 g on Earth.  
d. a mass of 100 g on Earth.

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

\_\_\_\_\_

\_\_\_\_\_

**For each description, write whether it applies to mass or to weight.**

\_\_\_\_\_ 17. is always constant no matter where the object is located

\_\_\_\_\_ 18. is a measure of the gravitational force on an object

\_\_\_\_\_ 19. is measured using a spring scale

\_\_\_\_\_ 20. is expressed in grams (g), kilograms (kg), or milligrams (mg)

\_\_\_\_\_ 21. is expressed in newtons (N)

\_\_\_\_\_ 22. is less on the moon than on Earth

\_\_\_\_\_ 23. is a measure of the amount of matter in the object

**Directed Reading A *continued***

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**INERTIA**

- \_\_\_\_\_ 24. The tendency of an object to resist a change in motion is known as
- a. mass.
  - b. gravitation.
  - c. inertia.
  - d. weight.

25. What is needed in order to cause an object at rest to move, or an object in motion to change its direction or speed?

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26. How does mass affect the inertia of an object?

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27. Why is it harder to get a cart full of potatoes moving than one that is empty?

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