

All About MATTER

Study Guide

The test is on _____.

Definitions:

boiling -- liquid turning into a gas, forming bubbles inside the liquid

boiling point -- the temperature at which an object boils

density -- how much matter is in a certain size space

mass -- the amount of matter in an object

matter -- anything that takes up space (has volume) and has mass

melting -- changing state from solid to liquid

melting point -- the temperature at which an object melts and freezes

physical property -- a characteristic of matter that can be observed or measured

states -- forms of matter

temperature -- how much heat energy an object has

volume -- how much space an object takes up

Facts to Know:

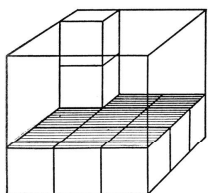
All living and nonliving things are made of **matter**. All matter has **mass**. All matter has **volume**.

You use your senses to describe the **physical properties** of matter. Physical properties tell how an object looks, feels, or acts. Some examples of physical properties are **size, color, shape, smell, texture, sound, and taste**.

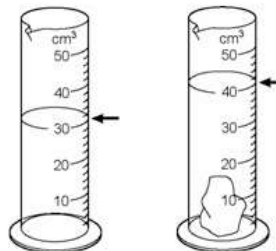
Different types of matter have different **physical properties**.

You use a **balance** to find the mass of an object. Mass is measured in **grams** or **kilograms**.

Volume is measured in **cubic centimeters**. To find the volume of rectangular objects, you can multiply the length times the width times the height. To find the volume of other objects, you use the **water displacement method** in a **graduated cylinder**.



$3 \times 3 \times 3 = 27$
so the volume is 27 cubic centimeters



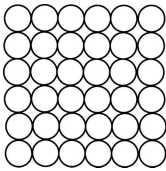
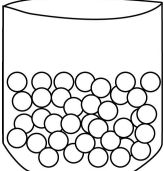
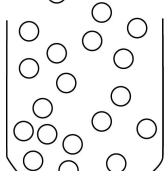
The water went from 30 mL to 40 mL.
 $40 - 30 = 10$,
so the volume is 10 mL

Objects that are heavy for their size have a **high density**. Objects that are light for their size have a **low density**. Objects that are the same size (volume) can have different densities.

Most **thermometers** show two different temperature scales. The **Fahrenheit scale** is used in the United States. Most other countries use the **Celsius scale**.

| | Fahrenheit Scale | Celsius Scale |
|-------------------------------|------------------|---------------|
| Water boils | 212°F | 100°C |
| Normal human body temperature | 98.6°F | 37°C |
| Room temperature | 68°F | 20°C |
| Water freezes | 32°F | 0°C |

There are many **states of matter**, but only three states are common on Earth: **solid**, **liquid**, and **gas**. A few kinds of matter can be a **plasma** on Earth.

| | Solid | Liquid | Gas |
|------------------|---|--|---|
| shape | has its own shape | takes shape of the container | fills the container |
| size | stays the same | stays the same | changes |
| particles |  |  |  |
| water | ice | water | water vapor |

Matter can change from one state to another depending on the temperature.

