

Name :

Properties of Matter

Everything around us is made of matter – the air we breathe, the water we drink, and the chair we sit on. Matter is anything that has mass and takes up space. Scientists describe matter by its properties, such as color, shape, size, texture, and state. These properties help us identify and classify different materials. For example, ice, water, and steam are all forms of the same matter – H₂O – but they look and feel very different.

Matter can exist in three main states – solid, liquid, and gas. Solids have a definite shape and volume, like a rock or pencil. Liquids take the shape of their container but keep the same volume, like water or juice. Gases have no fixed shape or volume and spread out to fill the space they are in, like air or helium in a balloon. These changes between states happen when matter gains or loses heat.

Mass is the amount of matter in an object, and volume is the amount of space it takes up.

We measure mass using a scale, and volume using tools like measuring cups or graduated cylinders. A large object doesn't always have more mass – for example, a small rock has more mass than a big balloon because the rock's particles are packed tightly together.

Sometimes matter changes form without becoming something new. These are called physical changes. Melting ice, cutting paper, or boiling water are all physical changes because the substance stays the same. But when matter changes and forms a new substance, it's called a chemical change – like baking a cake or rust forming on metal.

1-What is matter, and what are some of its basic properties?

2-Describe the three main states of matter and give one example of each

3-What is the difference between mass and volume?

4-What is the difference between a physical change and a chemical change?

5-Why is it important for scientists to study the properties of matter?

Multiple-Choice Questions:

Which of the following is not a state of matter?

- a) Solid
- b) Gas
- c) Vapor
- d) Liquid

When water boils and becomes steam, what type of change happens?

- a) Physical change
- b) Chemical change
- c) Permanent change
- d) No change

What tool is used to measure mass?

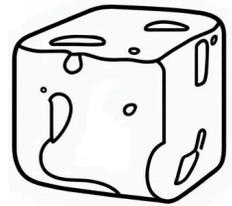
- a) Ruler
- b) Scale
- c) Thermometer
- d) Measuring cup

Which statement about solids is true?

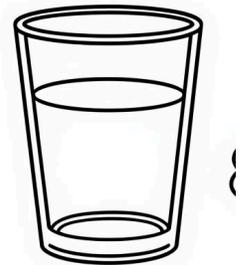
- a) They have a definite shape and volume.
- b) They take the shape of their container.
- c) They have no fixed shape.
- d) They spread out to fill a space.

What happens to matter when it gains heat?

- a) It freezes.
- b) It changes to a solid.
- c) It expands or changes state.
- d) It disappears.



SOLID



LIQUID



GAS

Properties of Matter: Answer Key

Comprehension Questions:

1-Matter is anything that has mass and takes up space. Its properties include color, shape, size, texture, and state.

2-Solids have a fixed shape and volume (example: rock). Liquids take the shape of their container (example: water). Gases spread out and fill space (example: air).

3-Mass is the amount of matter in an object, while volume is the space it occupies.

4-Physical changes do not form a new substance (melting ice), but chemical changes create a new substance (baking a cake).

5-Scientists study matter to understand materials, solve problems, and invent new products.

Multiple-Choice Answers

c) Vapor

a) Physical change

b) Scale

a) They have a definite shape and volume.

c) It expands or changes state