MASS CHANGES

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DATE

NAME

MASS CHANGE FACTS

Basic information

Matter can change form through physical and chemical changes, but through any of these changes matter is conserved. The same amount of matter exists before and after the change—none is created or destroyed. This concept is called the Law of Conservation of Mass.
A chemical change occurs when new compounds are created during a reaction.
Reversing these alterations is extremely difficult, if not impossible. If a chemical reaction is completed in a closed system (when nothing extra can get in and nothing can escape), then the mass will remain constant. But, if the chemical reaction happens in an open system (where air can get in and out), then mass may appear to change.

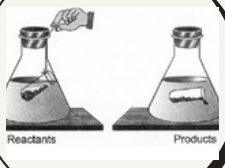
Matter facts

Matter is capable of undergoing changes, which are classified as either physical or chemical. Chemical changes occur when bonds are broken and/or formed between molecules or atoms. This means that one substance with a certain set of properties (such as melting point, color, taste, etc) is turned into a different substance with different properties. Chemical changes are frequently harder to reverse than physical changes.

Some types of physical changes include:

- Changes of state (changes from a solid to a liquid or a gas and vice versa).
- Separation of a mixture.
- Physical deformation (cutting, denting, stretching).
- Making solutions (special kinds of mixtures).

Matter is anything that has mass and takes up space. It includes molecules, atoms, fundamental particles, and any substance that these particles make up.



Important Facts

- When a substance changes state,the mass of the substance does not change.
- When a substance dissolves in a liquid,the total mass of the substance and the liquid it dissolves in does not change.
- When substances react to form new substances as products, the mass of the products is the same as the mass of the reactants

Fill in the graphic organizer about matter.

What is Matter?

What is a chemical change?

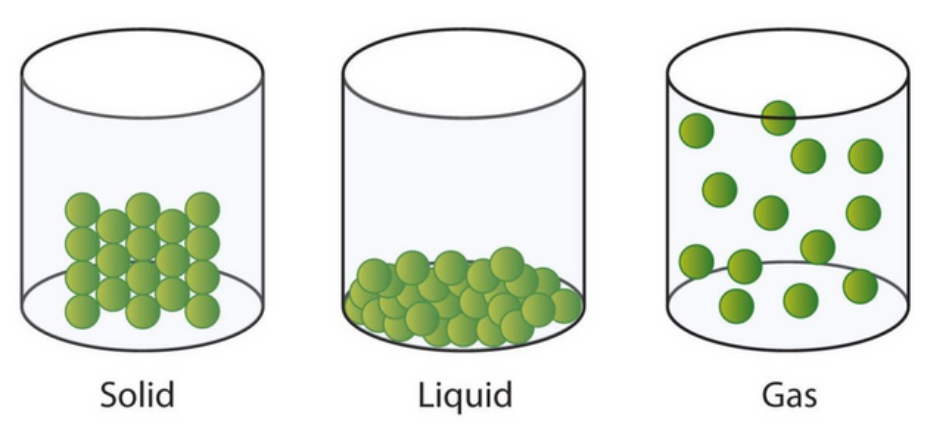
Matter

What is a physical change?

Examples of Physical changes?

States of Matter Fast Facts

A “state of matter” is a way to describe the behaviour of atoms and molecules in a substance.



Important Facts

1. Solids – relatively rigid, definite volume and shape. In a solid, the atoms and molecules are attached to each other. They vibrate in place but don’t move around.

2. liquids – definite volume but able to change shape by flowing. In a liquid, the atoms and molecules are loosely bonded. They move around but stay close together.

3. Gases – no definite volume or shape. The atoms and molecules move freely and spread apart from one another.

elements and compounds can move from one phase to another phase if energy is added or taken away. The state of matter can change when the temperature changes. Generally, as the temperature rises, matter moves to a more active state.

Vocabulary

condensation: To go from a gaseous state to a liquid state.
evaporation:To change from a liquid state to a gaseous state.
solidification: The transition from a liquid state to a solid state.
sublimation: To change from a solid state directly to the gaseous state without going through a liquid phase.
melting: The change of state from a solid to a liquid.
temperature: The degree of hotness of a substance, related to the average kinetic energy of its molecules or atoms.

Name:
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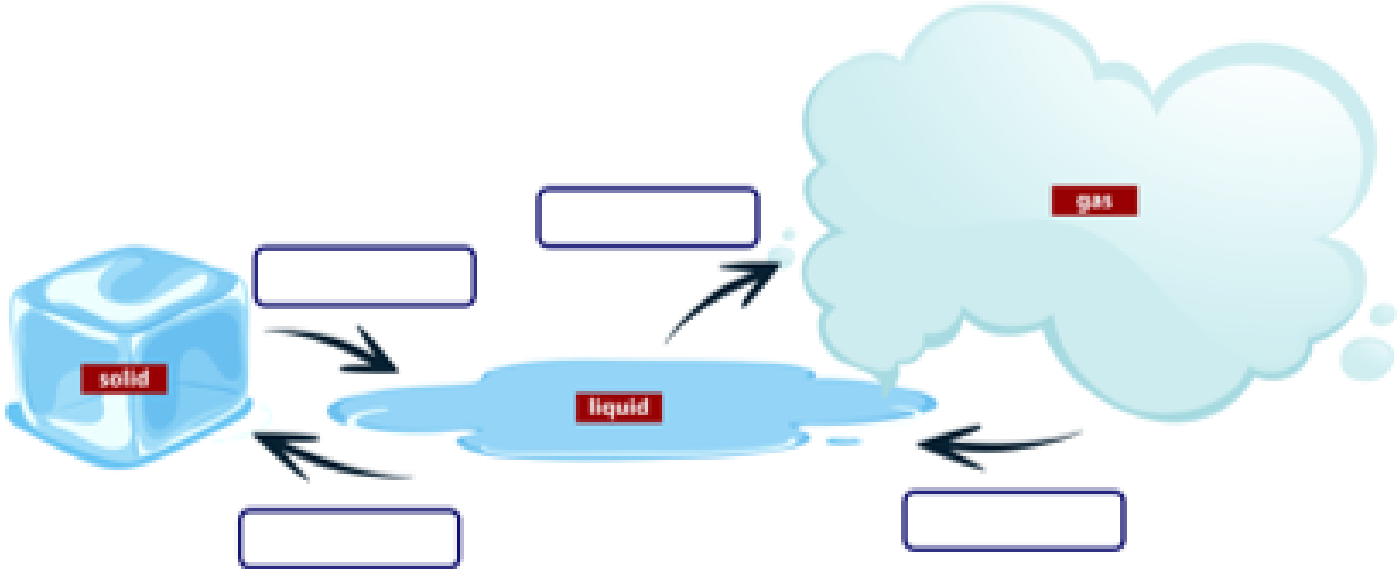
Changing States of Matter (Worksheet)

Q.1. Label the diagram showing the changing states of matter with following words.

• freezing	• condensation
• evaporation	• melting



Q.2. Write **T** or **True** if the statement is true; write **F** or **False** if the statement is false.

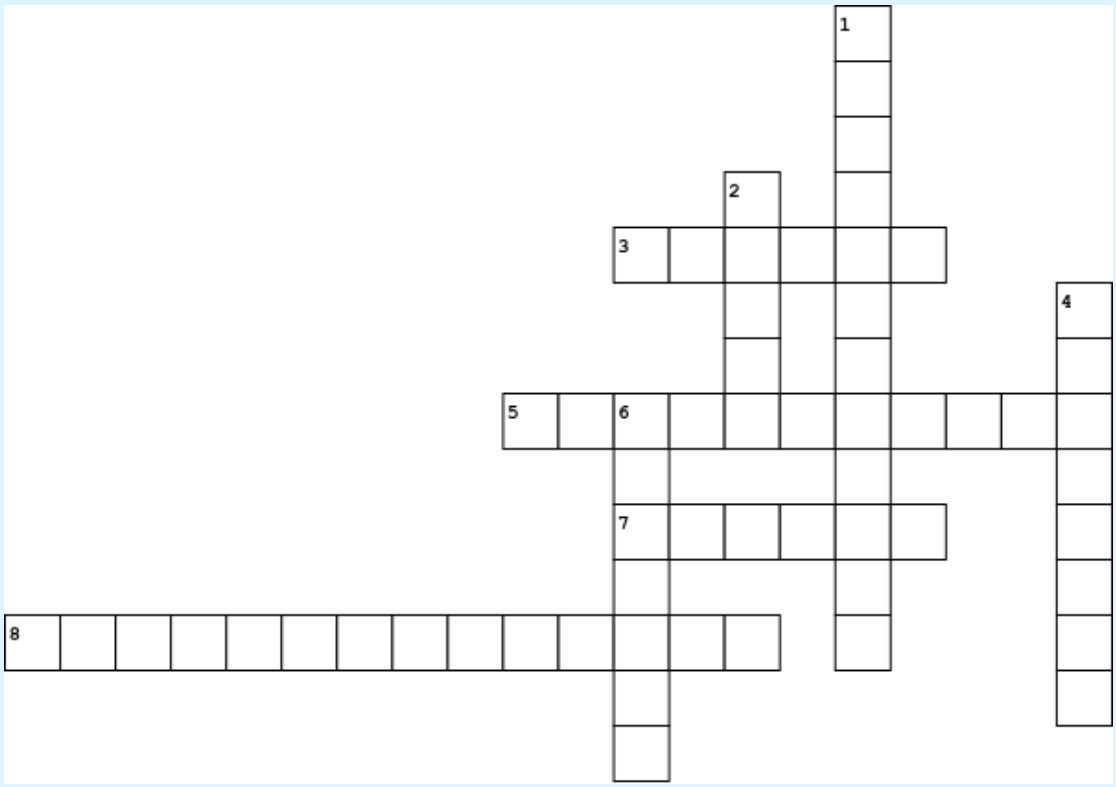
_____ **1.** The temperature at which a solid melts is called its freezing point.

_____ **2.** Changes in state are reversible and can be made by adding or removing heat.

_____ **3.** The melting and freezing points of a material are the same temperature.

_____ **4.** At higher temperatures particles in an object move slower.

_____ **5.** Ice, liquid water, and water vapor are three different states of water.



Across

3. Anything that has mass and takes up space.
5. The degree of hotness of a substance.
7. definite volume but able to change shape.
8. The transition from a liquid to a solid.

Down

1. Gaseous state to a liquid state. sublimation solid state directly to the gaseous state.
2. The behavior of atoms and molecules in a substance.
4. changes occur when bonds are broken and/or formed between molecules or atoms.
6. The change of state from a solid to a liquid.

Reflection

- Write about what you learned:

- Did anything surprise you?

- Share any other thoughts you have:

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