

1. STATES OF MATTER (KEY)

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. B) Solids are easily compressible.

Solids are generally not easily compressible; they maintain their shape and volume under pressure.

2. C) Elasticity.

Elasticity refers to the property of a solid that allows it to stretch and then return to its original shape.

3. B) It takes the shape of the container.

When a liquid is poured into a container, it adapts to the shape of that container.

4. C) They have a definite volume.

Liquids have a fixed volume but take the shape of their container.

5. C) They move faster and spread out more.

When gas particles are heated, they gain energy, causing them to move faster and spread further apart.

6. C) Because their particles are tiny and have a lot of space between them.

This space allows gas particles to be compressed more easily compared to solids and liquids.

ADVANCED LEVEL

More than One Answer Type

7. The characteristics of solids are: A) Solids keep their shape, C) Solids do not flow, D) Solids have a definite volume.

B) Solids are easily compressible is not a characteristic of solids; they are generally not easily compressible.

8. The properties of liquids are: B) They take the shape of their container, C) They have a definite volume, D) They can flow smoothly. A) They have a fixed shape is not a property of liquids; liquids do not have a fixed shape.

9. The important reasons why gases are significant include: A) We need oxygen to breathe, B) Plants need carbon dioxide to make food, C) Gases can be squished into smaller spaces.

D) Gases have a fixed shape and volume is incorrect, as gases do not have a fixed shape or volume.

Fill In the Blanks

10. Rubber

11. Move

12. Carbon dioxide

Matching Type

13.

1. Shape - D. Unlike solids, liquids take the shape of whatever container they are in.

2. Volume - B. Liquids always take up the same amount of space, no matter the container they are in.

3. Flow - C. Liquids can move smoothly and be poured.

4. Particles - A. The tiny bits in a liquid are close together but can move around each other.

5. Examples of liquids - E. Common liquids we encounter in our daily lives.

Answer the Following Questions

14. The property of solids that allows some of them to stretch and then return to their original shape is called 'elasticity'.

15. Liquids differ from solids in that liquids do not have a fixed shape; instead, they take the shape of their container. In contrast, solids maintain a definite shape and do not change their form unless acted upon by an external force.

16. Gases can spread out to fill any space they are in because their particles are far apart and have high kinetic energy. This allows them to move freely and rapidly in all directions, enabling them to occupy the entire volume of their container. Additionally, the weak intermolecular forces in gases allow the particles to move independently, contributing to their ability to expand and fill any available space.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. C) Ice.

Ice is the solid form of water.

2. C) It is hard to compress.

Solids, like bricks, have tightly packed particles that do not easily change shape or compress.

3. D) Sand.

Sand is a solid, while water, juice, and milk are all liquids.

4. B) They are used for drinking, cooking, and cleaning.

Liquids play a crucial role in many daily activities.

5. C) Helium.

Helium is lighter than air, which allows balloons filled with it to float.

6. D) Oxygen.

Oxygen is essential for humans to breathe and is necessary for cellular respiration.

ADVANCED LEVEL

More than One Answer Type

7. The correct answers are A) Wood and C) Plastic. Both wood and plastic are examples of solids, while air is a gas and water is a liquid.

8. The correct answers are A) Water, B) Juice, and D) Milk. All three are

examples of liquids, while sand is a solid.

9. The correct answers are B) We need them to breathe and C) They are involved in the process of photosynthesis. Both oxygen and carbon dioxide are essential gases for respiration and photosynthesis, respectively.

Fill In the Blanks

10. Definite
11. volume
12. compressed

Matching Type

13.
 1. Rock - a. Hardness
 2. Rubber - c. Elasticity
 3. Ice - b. Brittleness

Answer the Following Questions

14. You can hold solids like a rock or a water bottle because they have a definite shape and volume, allowing them to maintain their form when you grip them. In contrast, liquids like water do not have a fixed shape; they take the shape of their container. When you try to hold water, it flows and spills out because it cannot hold its shape without being contained.

15. Liquids are important in our daily lives for several reasons:

1. Hydration: Liquids like water and beverages are essential for maintaining hydration and overall health.
2. Cooking: Many cooking processes involve liquids, whether it's boiling, steaming, or making sauces and soups.
3. Cleaning: Liquids are crucial for cleaning, as they help dissolve dirt and grime, making it easier to wash surfaces, dishes, and clothes.
4. Transportation of Nutrients: In our bodies, liquids help transport nutrients and oxygen to cells and remove waste products.
5. Industrial Uses: Many industries rely on liquids for manufacturing, processing, and various applications.

6. Recreation: Liquids are involved in recreational activities like swimming, drinking, and enjoying beverages.

Overall, liquids play a vital role in health, cooking, hygiene, and various daily activities.

16. When gases are heated, their particles gain energy and move faster. This increase in energy causes the gas to expand, as the particles spread out more and occupy a larger volume. Consequently, heated gases can fill a container more completely and exert greater pressure if contained. This behavior is explained by the principles of kinetic molecular theory and the gas laws.

CHANGE OF STATES OF MATTER (KEY)

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. b) When a solid turns into a liquid.

It occurs when a solid absorbs heat and its particles gain enough energy to overcome their fixed positions.

2. c) A liquid turns into a gas.

This process occurs when molecules at the surface of a liquid gain enough energy to escape into the air as gas.

3. d) Droplets of water forming on the outside of a cold drink glass.

This occurs when water vapor in the air cools and changes back into liquid water on the surface of the glass.

4. d) Dry ice turning directly into a gas without becoming a liquid first.

Sublimation occurs when a solid transitions directly to a gas.

5. c) Condensation.

Condensation occurs when water vapor in the air cools and changes back into liquid water.

ADVANCED LEVEL

More than One Answer Type

6. The processes that don't involve a change of state from solid to liquid are b) Evaporation and d) Sublimation.
7. The change of state that doesn't occur when a liquid turns into a gas is a) Melting.
- a) Melting: This process involves a solid turning into a liquid, not a liquid turning into a gas.
- b) Evaporation: This is the process where a liquid transitions to a gas, so it directly involves that change.
- c) Condensation: This is the opposite process, where a gas turns into a liquid, so it does not occur when a liquid is turning into a gas.
- d) Sublimation: This involves a solid turning directly into a gas, which is unrelated to a liquid changing to a gas.

Fill In the Blanks

8. Gas
9. Liquid

Matching Type

- 10.
1. Condensation - b. gas turning into a liquid
2. Sublimation - c. gas without going through the liquid stage
3. Freezing - a. Liquid turns into a solid

Answer the Following Questions

11. The process described when solid ice turns into liquid water is called melting.
12. Imagine a sunny day at the beach. You go for a swim in the ocean, and after spending some time in the water, you get out and sit on a towel to dry off. As the sun shines down, the warm air surrounds you, and the heat causes the water on your skin to slowly disappear. This happens because the liquid water is gaining energy from the heat, transforming into water vapor and evaporating into the air. You notice that the towel also dries as the moisture evaporates. This process of water turning from

liquid to gas due to heat is a perfect example of evaporation.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. c) Pouring juice into an ice cube tray and putting it in the freezer. This process involves the liquid juice turning into solid ice as it cools down.
2. c) A gas turning into a liquid.
3. d) Dry ice turning directly into a gas without becoming a liquid first. This is sublimation, where a solid (dry ice, which is solid carbon dioxide) transitions directly into a gas (carbon dioxide gas) without passing through the liquid state.
4. b) When a solid turns into a liquid. This process happens when a solid absorbs heat and its particles gain enough energy to move apart and transition into the liquid state.
5. The process that involves ice turning into water is c) Melting.

ADVANCED LEVEL

More than One Answer Type

6. The processes that don't involve a direct change of state from solid to gas are a) Melting and b) Freezing.
 - a) Melting: This process involves a solid turning into a liquid. For example, ice melting into water.
 - b) Freezing: This process is the opposite of melting and involves a liquid turning into a solid, such as water freezing into ice.
 - c) Evaporation: This process involves a liquid turning into a gas, such as water evaporating into vapor, but it does not directly involve a solid.
 - d) Sublimation: This is the process where a solid transitions directly to a gas, such as dry ice turning into carbon dioxide gas without becoming liquid.

7. d) Sublimation: This process involves a solid turning directly into a gas without becoming a liquid, so in the context of sublimation, there is no conversion of gas to liquid.

The other options (a, b, and c) involve processes where gases can turn into liquids:

a) Freezing: This is the process of a liquid turning into a solid.

b) Evaporation: This is a process where a liquid turns into a gas.

c) Condensation: This is specifically the process where a gas turns into a liquid.

Fill In the Blanks

8. Solid

9. Liquid

Matching Type

10.

1. Melting - C. Solid turns into a liquid

2. Freezing - A. Liquid turns into a solid

3. Evaporation - B. Liquid turns into a gas

Answer the Following Questions

11. Condensation is the process where water vapor in the air cools down and changes into liquid water. A common example is when you see water droplets forming on the outside of a cold glass of water.

Here's how it works:

1. Water Vapor: The air around us contains water vapor, which is water in its gaseous form.

2. Cooling: When the warm, humid air comes into contact with the cold surface of the glass, it cools down.

3. Droplets Form: As the air cools, the water vapor loses energy and transitions back into liquid form, resulting in tiny droplets on the glass.

This process is why you often see condensation on cold surfaces, like windows on a chilly day or the bathroom mirror after a hot shower. It's all about temperature changes and the properties of water.

12. Sublimation is the process where a solid changes directly into a gas without passing through the liquid state. Here are a few everyday examples:

1. Dry Ice: When dry ice (solid carbon dioxide) is exposed to air, it sublimates and turns into carbon dioxide gas. You often see this effect at parties or in science demonstrations, where it creates a fog-like effect.
2. Ice in Freezers: If you leave ice in a freezer for a long time, you might notice that it gradually gets smaller. This happens because the ice is sublimating into water vapor, especially in very low humidity conditions.
3. Fresh Snow: On sunny days, you might notice that snow can gradually disappear even if the temperature is still below freezing. The solid snow sublimates directly into water vapor.
4. Air Fresheners: Some air fresheners use solid fragrance blocks that release their scent into the air through sublimation, allowing them to freshen a room without melting or turning into a liquid.

These examples show how sublimation occurs in nature and in products we use daily.

