

Class 7 Science Worksheet: Physical and Chemical Changes

Conceptual Questions (Testing definitions, basic properties, and identification)

Q1. When a solid substance is heated, it melts into a liquid. When cooled, it turns back into the exact same solid. What type of change is this, and why?

(a) Chemical change, because heat was applied to the substance.

(b) Physical change, because no new substance is formed and it can be reversed.

(c) Chemical change, because the state of the substance changed permanently.

(d) Physical change, because it turned into a completely new chemical substance.

Q2. Fill in the blanks to complete the core facts about chemical changes:

* A chemical change is also commonly known as a chemical _____. (reaction / process)

* During a chemical change, the chemical _____ of the original substance changes completely. (properties / shape)

Q3. Write True or False for the following statements:

* Crystallisation is an example of a chemical change used to get pure substances. [_____]

* Galvanisation is the process of coating iron with a layer of zinc to prevent rusting. [_____]

Q4. Rusting of iron requires the presence of two specific components from the environment. Name these two components.

Answer: _____ and _____

Q5. Match the everyday event to its correct type of change:

* Digestion of food in our stomach is a _____ change. (physical / chemical)

* Tearing a large sheet of chart paper into tiny pieces is a _____ change. (physical / chemical)

Logical Questions (Testing reasoning, cause-and-effect, and condition analysis)

Q6. Iron gates and railings in coastal areas (near the sea) catch rust much faster than iron gates in desert areas (like Rajasthan). What is the logical reason behind this?

(a) Coastal areas have higher temperatures which melts the iron.

(b) Desert air contains more oxygen than coastal air.

(c) Coastal air contains a high amount of moisture and salt, which speeds up rusting.

(d) Desert sand reacts chemically with iron to protect it from rusting.

Q7. When a piece of paper is torn, it is a physical change. However, when the same piece of paper is burnt with a matchstick, it becomes a chemical change. Explain the logic behind why burning is classified differently from tearing.

Answer:

Q8. You dissolve two spoonfuls of sugar into a glass of warm water. The sugar completely disappears from view.

* Is this a physical change or a chemical change? [_____]

* State the logical reason for your choice:

Q9. Lime water turns milky when Carbon Dioxide (CO₂) gas is bubbled through it. This happens because a new white solid substance settles down in the water.

* Name the new chemical substance formed: _____

* What type of change does this turning milky represent? [_____]

Q10. Why is the painting of an iron bridge or window grill considered a logical method to prevent it from rusting?

Answer:

HOTS Questions (Higher Order Thinking Skills - Testing application and deep analysis)

Q11. Imagine you have a shiny copper coin. Over many months, it develops a dull, green colored coating on its surface. Your friend claims the coin simply gathered green dust from the room. Do you agree with your friend? Analyze the situation and explain what actually happened.

Answer:

Q12. When baking soda (Sodium Hydrogen Carbonate) is added to a bowl of lemon juice, a loud hissing sound is heard and gas bubbles are seen rushing to the surface.

* Identify the gas being released in this reaction: _____

* If you hold a burning matchstick over these bubbles, what will happen to the flame?

Q13. Photosynthesis in green plants uses solar energy to convert water and carbon dioxide into food. On the other hand, burning a log of wood releases heat and light energy while turning the wood into ash. Compare these two processes and state the single biggest similarity between them in terms of the "type of change".

Answer:

Q14. A blacksmith heats a piece of iron in a hot furnace until it glows bright red. He then hammers it into the shape of a sharp spade and leaves it to cool. The spade cools down to its original grey color.

* Was heating and hammering the iron a physical or chemical change? [

_____]

* Explain your reasoning carefully:

Q15. Why does a freshly cut slice of an apple or a potato turn brown if left open in the air for a few minutes? Is this a change you can reverse by washing it with water? Explain the science behind it.

Answer:
