INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VII	**DEPARTMENT: SCIENCE** **2025- 2026**	**DATE: 25/10/2025**
WORKSHEET NO: 8 **WITH ANSWERS**	**TOPIC: CHANGES AROUND US-PHYSICAL AND CHEMICAL**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE TYPE QUESTIONS (1M):

1. Which of the following are indicators that a chemical change has occurred in a substance?
   (a) Irreversibility of a substance after burning
   (b) A substance breaking into smaller pieces of itself
   (c) The expansion in size of a material upon being heated
   (d) A substance not resuming its original shape after being pressed

2. Which of the following is/are true when milk changes into curd?
   (i) Its state is changed from liquid to semi-solid.
   (ii) It changes taste.
   (iii) It changes colour.
   (iv) The change cannot be reversed.
   (a) (i) and (ii) are correct
   (b) (ii) and (iii) are correct
   (c) (i), (iii) and (iv) are correct
   (d) (i), (ii) and (iv) are correct

3. Which of these pairs correctly matches the type of change?
   (a) Rusting – Physical change
   (b) Melting – Chemical change
   (c) Burning – Chemical change
   (d) Boiling – Chemical change

4. What is the minimum temperature at which a substance catches fire called?
   (a) Boiling point
   (b) Ignition temperature
   (c) Melting point
   (d) Freezing point

5. Keerthi observed that ice kept on a table melts into water and later turns into steam when

heated. What type of changes are these?

(a) It is a chemical change (b) New substances are formed

(c) It is a physical and reversible change (d) It cannot be reversed

6. A student mixes vinegar with baking soda in a closed bottle. After a few seconds, the bottle's cap pops open. What can be concluded from this observation?
   (a) Heat from the room expanded the air inside the bottle.
   (b) The reaction produced a gas that increased the pressure inside the bottle.
   (c) The vinegar evaporated and pushed the cap open.
   (d) The baking soda melted and released air.
7. When food is cooked, the taste and smell change. What type of change has occurred?

   (a) Physical change

   (b) Chemical change

   (c) Temporary change

   (d) Reversible change

For the questions that follow, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below:

i) Both A and R are true, and R is the correct explanation of the assertion.
ii) Both A and R are true, but R is not the correct explanation of the assertion.
iii) A is true, but R is false.
iv) A is false, but R is true.

8. **Assertion (A):** Freezing is the process in which water turns to ice at 100°C.

   Reason(R): Freezing of water is a physical change because only the physical state of water is changed.

9. **Assertion (A):** Formation of rust is a chemical change.

   Reason(R): For the formation of rust, iron must be exposed to air and water.

10. **Assertion (A):** Chemical change is always an irreversible change.

    Reason(R): Heat, light or any other radiation like UV rays may be given off or absorbed during a physical change.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. What is meant by a change? **[Hint: A change refers to a noticeable difference in shape, size, colour, state, internal structure or any other property.]**
2. Give two examples for each of the following cases:

   a) Reversible physical changes**. [Hint: Blowing a balloon, folding paper]**

   b) Physical changes which are not reversible**. [Hint: Chopping of vegetables, breaking of a glass tumbler]**
3. Is cloud formation a chemical or physical change? Explain.

   [Hint: Physical change. Clouds are formed by the condensation of water vapour present in the atmosphere. When rainwater goes back to the earth, no new substance is formed.]
4. Justify the following statement: Photosynthesis and the digestion of food are chemical changes.

   [Hint: During Photosynthesis, plants use carbon dioxide and water in the presence of sunlight and chlorophyll to form new substances- glucose and oxygen.

   During digestion, various food materials are broken down to form new substances which can be absorbed by the body.
5. Why is formation of manure from leaves a chemical change?

   [Hint: Formation of manure from leaves is a chemical change because the manure formed has a different composition from leaves.]
6. Write three differences between physical and chemical changes.

   [Hint: Physical changes- No new substance is formed. Usually temporary and mostly reversible in nature. Heat or light is generally not involved.

   Chemical changes- One or more new substances are formed. Usually permanent and irreversible in nature. Heat or light is absorbed or released.]

III. SHORT ANSWER TYPE QUESTIONS (3M):

1. Explain the process of rusting.

   [Hint: When an iron object is left in damp air (or water) for a considerable time, it gets covered with a red-brown flaky substance called rust. This is called rusting of iron. During the rusting of iron, iron metal combines with the oxygen (of air) in the presence of water (moisture) to form a compound iron oxide.]

2. Give an example of a chemical reaction for each of the following situations:

a) A colour change is observed. **[Hint: Browning of an apple]**

b) A gas is evolved. **[Hint: During a reaction between vinegar and baking soda, carbon dioxide gas is evolved]**

c) Sound is produced**. [Hint: Bursting of firecrackers]**

d) A change in smell. **[Hint: Spoilage of food]**

e) Heat is given out. **[Hint: Bursting of firecrackers]**

3. The same iron wires are kept in the following different places –

a) On the moon. b) Near the beach in Mumbai. c) In Delhi.

Compare the degree of rust formation in the three places.

[Hint: a) The moon has no air. In the absence of air, no rust will form.

b) Mumbai is a coastal region which has more water vapour in the air, and rusting will occur faster.

c) Delhi is far away from the sea coast. The amount of water vapour in the air is less. Thus, the rusting process will be slow.]

4. Explain why burning wood and cutting it into small pieces are considered two different types of changes.

[Hint: Cutting of wood is a physical change as it does not change the nature of the wood. On the other hand, burning of wood is a chemical change as wood is converted to charcoal with the liberation of Carbon dioxide.]

5. What is combustion? State the three requirements for the combustion process to occur.

[Hint: A chemical reaction in which a substance reacts with oxygen and produces heat and/or light is called combustion. Substances that undergo combustion reactions are called combustible substances. For example, wood, paper, cotton, and kerosene.

The three requirements for the combustion process to occur are-

i) A combustible substance, also called 'fuel'

ii) Oxygen

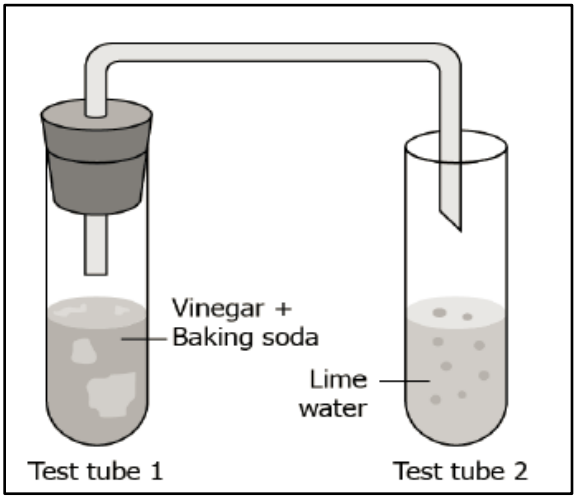
iii) Heat that allows the fuel to reach its ignition temperature.]

IV. LONG ANSWER TYPE QUESTIONS (5M):

1. Classify the following changes as physical or chemical changes and give a reason for it-

SL. NO.	ACTIVITY	KIND OF CHANGE	REASON
I	Rotting of eggs	**Chemical change**	**Change in composition takes place and is an irreversible process. The smell of rotten eggs is different from fresh eggs.**
II	Burning of coal	**Chemical change**	**When coal is burnt, a new substance, carbon dioxide, is formed.**
III	Evaporation of seawater	**Physical change**	**When water evaporates, it changes from the liquid state to the gaseous state, but it is still water; it has not changed into any other substance.**

2. Observe the given activity and answer the questions –



a) Name the acid present in vinegar used in this activity**. [Hint: Acetic acid]**

b) Which gas is produced when baking soda reacts with vinegar? **[Hint: Carbon dioxide]**

c) What change will you observe in lime water and why? **[Hint: Lime water turns milky on passing carbon dioxide gas through it due to the formation of calcium carbonate]**

d) Write word equations for both chemical changes**. [Hint: Carbon dioxide gas is given off in the reaction between vinegar (acetic acid) and baking soda (sodium hydrogen carbonate).**

Acetic acid + Sodium hydrogen carbonate ⟶ Carbon dioxide + Other substances

When carbon dioxide gas is passed through lime water (Calcium hydroxide), it turns milky due to the formation of calcium carbonate.

Calcium hydroxide + carbon dioxide ⟶ Calcium carbonate + Water]

V. CASE STUDY- BASED QUESTIONS/ PASSAGE-BASED QUESTIONS:

1. A chemical change results in a substance that was not there before. Chemical changes occur when a substance combines with another to form a new substance, or chemical decomposition into two or more different substances. These processes are called chemical reactions. Chemical changes are very important in our lives. All new substances are formed as a result of chemical changes. For example, if a metal is to be extracted from an ore, such as iron from iron ore, we need to carry out a series of chemical changes. A medicine is the end product of a chain of chemical reactions. Useful new materials, such as plastics and detergents, are produced by chemical reactions. Indeed, every new material is discovered by studying chemical changes.

i) When does a chemical change occur? **[Hint: Chemical changes occur when a substance combines with another to form a new substance, or chemical decomposition into two or more different substances.]**

ii) Why can't a chemical change be normally reversed? **[Hint: A chemical change cannot be normally reversed because it results in the formation of new substances with different properties, making it difficult to revert to the original substances.]**

iii) "Chemical changes are very important in our lives." Give two examples to support it. **[Hint: Extraction of metal from ore, production of medicine]**

2. Megha was a student of Class VII. Her father purchased a new bicycle on her birthday. After a few months, she found that the cycle chain and even the handle were rusted. Her father advised her to apply a coating of paint to the cycle and not to keep it in the open in future. Why does her cycle get rusted?

[Hint: Megha's cycle was kept in the open for a longer time, as air contains both oxygen and moisture. Thus, in the presence of oxygen and water, her cycle slowly gets rusted.]

Iron + Oxygen + Water → Rust (hydrated Iron oxide)

ANSWERS FOR THE QUESTIONS 1 TO 10

1. **(a) Irreversibility of a substance after burning**
2. **(d) (i), (ii) and (iv) are correct**
3. **(c) Burning – Chemical change**
4. **(b) Ignition temperature**
5. **(c) It is a physical and reversible change**
6. **(b) The reaction produced a gas that increased the pressure inside the bottle.**
7. **(b) Chemical change**
8. **iv) A is false, R is true**
9. **ii) Both A and R are true, but R is not the correct explanation of the assertion.**
10. **iii) A is true, but R is false**

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