

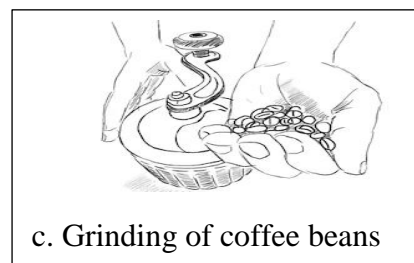
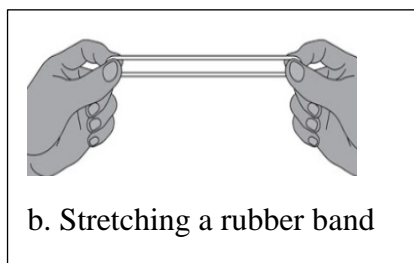
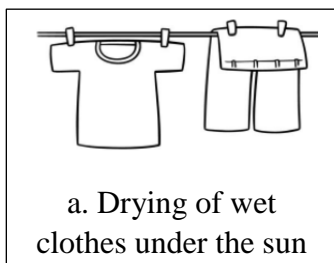


## INDIAN SCHOOL AL WADI AL KABIR

<b>Class: VII</b>	<b>DEPARTMENT: SCIENCE-2020-2021</b>	<b>Date: 15-11-2020</b>
<b>Worksheet No.: 12 WITH ANSWERS</b>	<b>TOPIC: PHYSICAL AND CHEMICAL CHANGES</b>	<b>NOTE: A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT:</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### I. OBJECTIVE TYPE QUESTIONS:

- The shipping industry has to bear huge financial loss because of rusting. The rusting of ships occurs because:
  - The body of ship is always in contact with water.
  - The air around the ship is always humid.
  - Presence of salts in the sea water speeds up the process of rusting.
  - All of the above.**
- Complete the following analogy if, chopping vegetables: physical change then cooking vegetables: \_\_\_\_\_.
  - Chemical change**
  - Physical change
  - No change
  - fast change
- Which among the following changes represent a physical change:



- Only a
  - Only b and c
  - Only a and c
  - a, b and c**
- Paheli's mother made a concentrated sugar syrup by dissolving sugar in hot water. On cooling, crystals of sugar got separated. This indicates a –
    - physical change that can be reversed.**
    - chemical change that can be reversed.
    - physical change that cannot be reversed.
    - chemical change that cannot be reversed.
  - A cube of ice, 2cm in length, is left out in a cup and it turns to water. The cup is then kept in the freezer. The ice formed has the diameter of the cup. What kind of change occurs in the ice?
    - Physical change with a change in state.**
    - A periodic change and naturally reforms over time.
    - A direct change in shape from cube to thick a circle.
    - A chemical change with formation of a new substance on melting.
  - A woman mixes flour, milk, eggs and water to create a batter, for baking a cake. The steps in the process are:

Step 1: Mix flour, water, eggs, sugar and milk in a bowl.

Step 2: Place the batter in a baking tray and bake a cake in the oven.

Which types of changes do each of these steps represent?

i) 1: Physical change, 2: Chemical change

ii) 1: Physical change, 2: Physical change

iii) 1: Chemical change 2: Chemical change

iv) 1: Chemical change, 2: Physical change

7. In a bowl of ripe fruits a few fresh fruits were placed. The next day it was observed that the fresh fruits had ripened, and ripe fruits had rotten. What kind of change occurred within the fresh fruits?

i) Physical change fruits the appearance of the fruit alone changes

ii) Physical change as the color of fruit changes

iii) Chemical change as the shape of the fruit changes.

iv) Chemical change as the change cannot be reversed.

**For question numbers 8 to 10, 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 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-** Tearing of paper into small pieces is a chemical change.

**Reason-** It is not possible to rejoin small paper bits to get back the original paper.

**Ans: iv) A is false but R is true**

9. **Assertion-** Taps and bicycle handles are usually chromium plated.

**Reason-** Coating a layer of chromium prevents rusting of iron articles.

**Ans: i) Both A and R are true but R is the correct explanation of the assertion.**

10. **Assertion-** Change of water from liquid to steam is a physical change.

**Reason-** When water change from liquid to gaseous state the chemical composition of water changes.

**Ans: iii) A is true but R is false.**

## **II. BASIC CONCEPTS LEVEL:**

- 1) List the physical properties of a substance. [The properties such as state, size, shape and colour of a substance are called physical changes]
- 2) Give two examples for each of the following cases:
  - (a) Physical changes which are reversible. [Blowing a balloon, Folding of paper]
  - (b) Physical changes which are not reversible. [Chopping of vegetables, breaking of a glass tumbler]

- 3) Write three differences between physical and chemical changes.  
 [Hint: Physical- no new substance is formed, usually temporary and mostly reversible in nature, heat or light is generally not involved. Chemical- one or more new substances are formed, usually permanent and irreversible in nature, heat or light is absorbed or released.]
- 4) Define the following terms:  
 a) Galvanisation [The process of depositing a thin layer of zinc metal on iron objects.]  
 b) Crystallisation [The process of obtaining a substance in its pure crystal form from its saturated solution.]
- 5) What is meant by the process of rusting? Write the word equation for it.  
 [Hint- The process in which iron develops a reddish-brown layer in the presence of **oxygen and moisture**. Word equation- Iron + Oxygen (from the air) + water → rust (iron oxide)]
- 6) Mention the different ways by which rusting of iron can be prevented.  
 [By oiling, painting, greasing the iron objects, galvanisation, chromium plating, alloying]

### **III. INTERMEDIATE LEVEL QUESTIONS:**

- 1) Classify the following changes as physical or chemical change and give reason for it-

S.No.	Activity	Kind of change	Reason
1.	Rotting of eggs	Chemical change	The smell of rotten eggs is different from the smell of fresh eggs. Change in composition takes place and it is an irreversible process.
2.	Burning of coal	Chemical change	When coal is burnt, a new substance carbon dioxide is formed.
3.	Evaporation of sea water	Physical change	When water <b>evaporates</b> , it <b>changes</b> from the liquid state to the gaseous state. It has not changed into any new substance.
4.	Neutralisation reaction	Chemical change	When an acid reacts with a base, new substances salt and water are formed.
5.	Crystallisation	Physical change	In forming a crystal no change occurs in the chemical properties of the substance, only the shape changes.

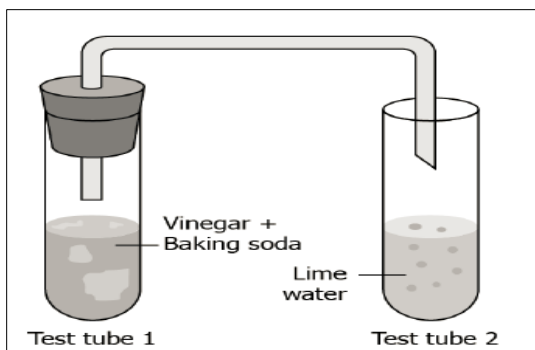
- 2) Give an example of a chemical reaction for each of the following situations:  
 a) A change in colour is observed. [Browning of an apple]  
 b) A gas is evolved. [During a reaction between vinegar and baking soda, carbon dioxide gas is evolved]  
 c) Sound is produced. [Bursting of fire crackers]  
 d) A change in smell. [Spoilage of food]

e) Heat is given out. [Burning of wood]

3) “Chemical changes are very important in our life.” Give any two examples to support it.

[Hint- extraction of metal from ore, production of medicine]

4) Observe the given activity and answer the questions-



a) Name the acid used in the activity.

[Acetic acid]

b) Which gas is produced when baking soda reacts with vinegar?

[Carbon dioxide]

c) What change will you observe in lime water and why? [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.

[Carbon dioxide gas is given off in the reaction between vinegar (acetic acid) and baking soda (sodium hydrogen carbonate).

Acetic acid + sodium hydrogen carbonate  $\longrightarrow$  carbon dioxide + other substances

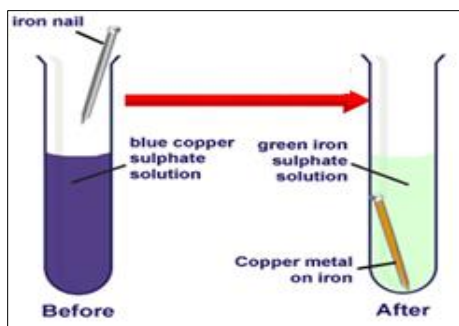
When carbon dioxide gas is passed through lime water (Calcium hydroxide), it turns milky due to the formation of calcium carbonate.

Calcium hydroxide + carbon dioxide  $\longrightarrow$  calcium carbonate + water]

5) Why formation of manure from leaves is a chemical change?

[Hint: Formation of manure from leaves is a chemical change because manure formed has a different composition from leaves.]

6) Observe the given picture and answer the following questions-



a) What change will you observe in the colour of the solution after dropping an iron nail into it?

[Hint: blue to green]

b) Why do we observe the colour change in solution?

[Hint- formation of iron sulphate]

c) What causes brown deposition on iron nail?

[Hint- formation of copper]

d) Write the word equation involved in the above reaction.

[Copper sulphate + Iron  $\longrightarrow$  Iron sulphate + Copper]

#### IV. ADVANCED LEVEL:

1) A sheet of paper was torn into pieces and then burned. What changes does this sheet of paper undergoes? Explain.

[When the paper is torn into pieces, it undergoes a physical change as only the size of the paper changes and no new substance is getting formed. Whereas when a paper is burned, a new substance ash is formed, hence it is a chemical change]

2) Justify the following statement- Photosynthesis and 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 break down to form new substances which can be absorbed by the body.]

3) How ozone layer acts as a protective shield?

[Hint: Ozone layer protects us from ultraviolet radiation which come from the sun. Ozone absorbs ultraviolet radiation and breaks down to form oxygen. In this way ozone layer absorbs harmful ultraviolet radiations.]

#### **IV. EXEMPLAR QUESTIONS:**

1) Is cloud formation a chemical or physical change? Explain.

[Hint: Physical change. Clouds are formed by the condensation of water vapours present in the atmosphere. When rainwater goes back to the earth, no new substance is formed.]

2) Same iron wires are kept in following different places-

- a) On the moon.      b) Near 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) Delhi is far away from sea coast. The amount of water vapour in the air is less. Thus, rusting process will be slow.

c) Mumbai is a coastal region which has more water vapour in air. So, rusting will occur faster.]

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