

**VIII SCIENCE LESSON 4 METALS & NON - METALS**

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**KEY WORDS:**

1. **ATOM:** The smallest unit of an element.
2. **CONDUCTOR:** Substance which allow heat and electricity to pass through them.
3. **DISPLACEMENT REACTION:** More reactive metals displace less reactive metals from the compounds in aqueous solutions.
4. **DUCTILITY:** The property of metal by which it can be drawn into wires.
5. **ELEMENTS:** Substance which has same type of atoms and it cannot be broken down further by chemical reactions, cooling, heating or electrolysis.
6. **HARDNESS:** It is the quality of metal. It cannot be brittle.
7. **MATTEABILITY:** The property of metal by which it can be beaten into thin sheets.
8. **Metals:** The materials which are hard, lustrous, malleable, ductile, sonorous and good conductor of heat and electricity.
9. **Metalloids:** Metalloids are the elements which posses the characteristics of metals and non-metals.
10. **NON-METALS:** The materials which are soft, dull, non-lustrous, brittle, non-sonorous and poor conductor of heat and electricity.
11. **SONOROUS:** The property of metal by which it can be produce a ringing sound when struck hard.

**EXERCISES:**

**1. PROPERTIES**

**METALS**

- |                               |   |                |
|-------------------------------|---|----------------|
| i. Appearance                 | - | Lustrous       |
| ii. Hardness                  | - | Hard           |
| iii. Malleability             | - | Malleable      |
| iv. Ductility                 | - | Ductile        |
| v. Heat conduction            | - | Good conductor |
| vi. Conduction of electricity | - | Good conductor |

## PROPERTIES

<u>PROPERTIES</u>		<u>METALS</u>
i. Appearance	-	Dull
ii. Hardness	-	soft
iii. Malleability	-	Non – malleable
iv. Ductility	-	Non – ductile
v. Heat conduction	-	Bad – conductor
vi. Conduction of electricity	-	Bad – conductor

### 2. Give reasons for the following:

#### i. Aluminum foils are used to wrap food items.

Aluminum is highly malleable. It can be easily beaten into thin sheet, that's why aluminum foils are generally used to wrap food items.

#### ii. Immersion rods for heating liquids are made up of metallic substance.

Metals are good conductor of heat. That is why immersion rods are made up of metallic substances.

#### iii. Copper cannot displace zinc from its salt solution.

A more reactive metal can replace a less reactive metal but a less reactive metal cannot replace a more reactive metal. Zinc is more reactive than copper so it cannot replace from its salt solution.

#### iv. Sodium and potassium are stored in Kerosene.

Sodium and potassium metals are very reactive. It reacts vigorously with oxygen and water. So it is stored in kerosene.

### 3. Can you store lemon pickle in an aluminum utensil? Explain:

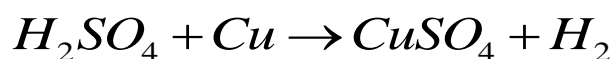
Aluminum is a metal and lemon is acidic in nature. The acids react with metals to give hydrogen. So we cannot store lemon pickle in aluminum utensil.

### 4. What happens ?

#### i. When Dilute sulphuric acid is poured on a copper plate?

When Dilute Sulphuric acid is poured on a copper plate, copper reacts with acid to give copper sulphate and hydrogen.

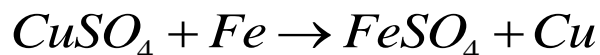
Sulphuric acid + copper  $\rightarrow$  copper sulphate + hydrogen.



**ii. When iron nails are placed in copper sulphate solution?**

When iron nails are placed in copper sulphate solution, displacement reaction takes place in which iron displaces copper.

Copper sulphate + Iron  $\rightarrow$  Iron sulphate + copper



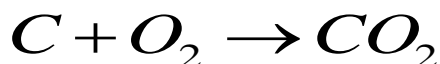
**5. Saloni took a piece of burning charcoal and collected the gas evolved in a test tube.**

**i. How will she find the nature of gas?**

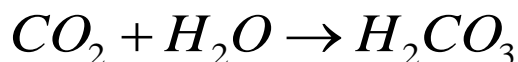
To find the nature of gas Saloni should bring a wet litmus paper in contact with the gas. If the gas turns wet blue litmus paper in contact with the gas. If the gas turns wet blue litmus paper into red, the gas will be acidic.

**ii. Write down word equations of all the reactions taking place in this process.**

Carbon + Oxygen  $\rightarrow$  carbon dioxide



Carbondioxide + water  $\rightarrow$  carbonic acid



**6. One day Reeta went to a Jeweller's shop with her mother. Her mother gave an old gold jewellery to the goldsmith to polish. Next day when they brought the jewellery back, they found that there was a slight less in its weight. Can you suggest a reason for the loss in weight?**

The goldsmith use acid solutions to clean gold ornaments. Gold is a metal, when it is washed in acidic solution, some gold dissolves in acid to form oxide. This causes the loss of gold in the form of gold oxide.

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