

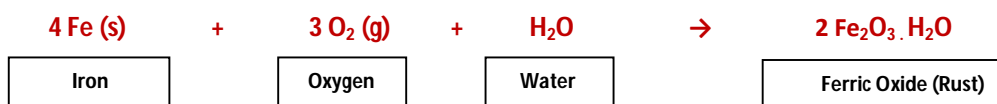
(Note down in science class work copy/rough copy and read it thoroughly and carefully to understand the content properly)

Materials: Metals and Non-metals

(In-text Notes-2: Based on NCERT Book and other books)

Chemical Properties of Metals:

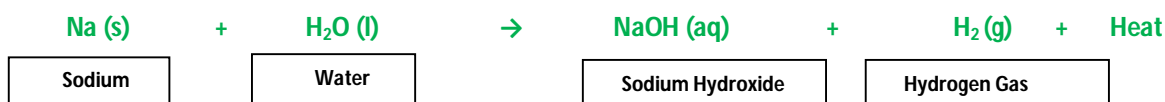
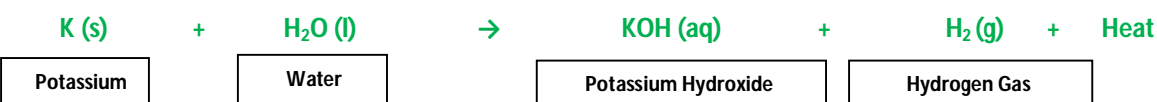
Certain metals undergo various chemical changes while reacting with oxygen, water, acids, bases and salts.

1. Metals react with oxygen to give Metal oxides.**Reaction 1:** Burning of magnesium ribbon:**Reaction 2:** Rusting of iron**2. Metals react with acids to give Metal salts and hydrogen gas.****Reaction 1:** Reaction of metals with hydrochloric acid

❖ Same reaction will occur in case of Zinc (Zn) and Calcium (Ca)

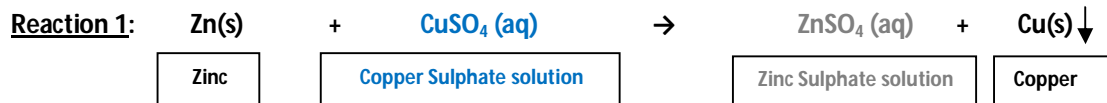
Reaction 2: Reaction of metals with sulphuric acid**3. Metals react with water to give Metal hydroxides and hydrogen gas.**

Some highly reactive metals react with cold water to form metals hydroxides and hydrogen gas.

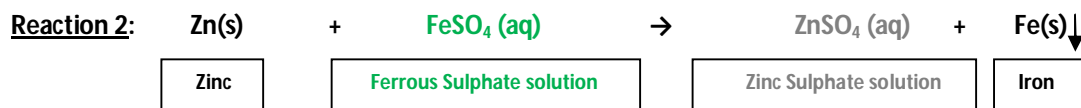
Reaction 1: Reaction of sodium with water**Reaction 2:** Reaction of potassium with water

4. **Metals show displacement reactions.** A **Displacement Reaction** is a reaction in which a metal (which is more reactive) takes place of another metal (which is less reactive) in a compound.

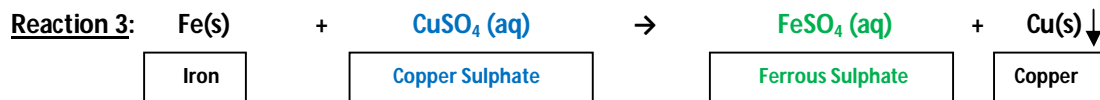
Zinc (Zn) is more reactive than Iron (Fe) and Iron (Fe) is more reactive than Copper (Cu)



In the above reaction, on adding **zinc** to CuSO₄ solution, **zinc** displaces **copper** from **copper sulphate solution (blue colour)** and forms **zinc sulphate solution (colourless)** because **zinc** is more reactive than **copper** and displaces copper metal from its solution. This is indicated by a colour change from **blue** to **colourless**. This is an example of a **Displacement reaction**.



In the above reaction, on adding **zinc** to FeSO₄ solution, **zinc** displaces **iron** from **ferrous sulphate (blue colour)** and forms **zinc sulphate solution (colourless)** because **zinc** is more reactive metal which displaces less reactive metal from its solution. This is indicated by a colour change from green to colourless. This is an example of a **Displacement reaction**.



In the above reaction, **Iron** being more reactive than **copper** will displace copper from **Copper Sulphate solution (Blue Colour)** and form a subsequent solution of **Ferrous Sulphate (Green Colour)**. This is an example of a **Displacement reaction**. (Figure given below)

