Microorganisms: Friend and Foe

Physical Properties of Metal and Non-Meta

Physical Properties of Nonmetals

Some common general physical properties of nonmetals are given below :

(i) **Physical state :** Nonmetals may occur as solids, liquids or gases at room temperature. For example, under normal conditions, sulphur, phosphorus are solids, bromine is a liquid, whereas hydrogen, oxygen and nitrogen are gases.

(ii) **Colour :** Nonmetals come in many colours. For example, sulphur is yellow, phosphorus is white, or red, chlorine is greenish-yellow, bromine is redish-brown. Hydrogen, oxygen and nitrogen are colourless.

(iii) **Appearance :** Nonmetals have dull appearance i.e., they do not shine. However, graphite and iodine are the only nonmetals which have metallic lustre.

(iv) **Malleability and ductility :** Nonmetals are neither ductile nor malleable. Nonmetals cannot be drawn into wires, and beaten into leaves/sheets.

(v) **Conductivity :** Nonmetals do not conduct heat and electricity, i.e., nonmetals are insulators. Graphite however, is a good conductor of heat and electricity.

(vi) **Density :** Nonmetals usually have low densities and are soft. Diamond however is an exception. Diamond is the hardest natural substance known.

(vii) **Tensile strength :** Nonmetals have low tensile strength, i.e., Nonmetals can be easily broken.

(viii) **Melting and boiling points :** Nonmetals except graphite have low melting and boiling points.

(ix) Sound : Nonmetals do not produce sound when hit with an object, i.e., nonmetals are no sonorous

Physical Properties of Metals

All metals show similar physical properties. There are however a few exceptions.

(i) **Physical State :** Under normal pressure, all metals except mercury are solids at room temperature. Mercury is liquid at room temperature.

(ii) **Colour :** Most metals except gold and copper are silver-grey in colour. Copper is reddishbrown and gold is golden yellow.

(iii) **Appearance :** All metals are shiny. The characteristic shine of metals is called metallic lustre. Thus all metals have metallic lustre. Metals can be easily polished.

(iv) **Hardness :** Most metals are hard except sodium and potassium. Sodium and potassium metals can be easily cut with a knife. Osmium is hard enough to scratch glass.

(v) **Tensile strength :** Metals have high tensile strength. Metals are very strong. For example, iron can bear a lot of stress. That is why it is widely used in construction of buildings, bridges, railway lines etc.

(vi) **Malleability :** Metals are malleable. This means that metals can be hammered into very thin sheets. Silver can be beaten to very thin leaves. You must have seen silver varak on burfee. Aluminium foil is used in the packaging of food materials.

(vii) **Ductility :** Metals are ductile. This means that metals can be drawn into thin wires. Silver and gold can be drawn into very thin wires.

(viii) **Conductivity :** Metals are good conductor of heat and electricity. Silver is the best conductor of electricity. Copper is the next best conductor of electricity.

(ix) **Density :** Metals, except sodium and potassium have high densities. Sodium and potassium have much lower densities.

(x) **Sound :** Metals are sonorous. Metals when hit by a hammer produce a ringing sound. That is why metal are used for making bells and wires for musical instruments.