



METALS

Unit 6

PROPERTIES OF METAL

- Hard
- Non-adhesive
- Cold
- Smooth
- Shiny
- Conductors of heat, electricity and sound



HOW WE OBTAIN METALS

○ Metal is taken from minerals in rocks using machines, explosives and drills. There are two main types of obtaining metals:

1. **Surface mining-** The minerals are near the surface of the Earth and easier to obtain.
2. **Underground mining-** The minerals are deep inside the Earth and harder to obtain.



TYPES OF METALS

- There are two types of metals, one that contains iron and one that does not contain iron.
- **Ferrous metals-** contain iron
- **Non-ferrous metals-** do not contain iron



FERROUS METALS

○ Characteristics of ferrous metals

1. Common (found in many places)
2. Inexpensive to extract from the Earth
3. Needs to be processed to make pure iron
4. Used to make alloys

An **alloy** is a mixture of two or more chemical elements. The main element is a metal.

STEEL

○ Steel is an alloy of iron and carbon. It is classified into three types of steel, based on the amount of carbon it contains.

1. Mild steel
2. Medium carbon steel
3. High carbon steel



Steel is stronger and harder than iron when the amount of carbon is increased. However, when the amount of carbon is increased, the steel is more brittle and rusts easily.

NON-FERROUS METALS

- **Non-ferrous metals** are classified by density: *ultralight*, *light* and *heavy*. Remember, non-ferrous metals do not contain iron. They also resist corrosion.

- **Examples:**

1. Copper
2. Nickel
3. Tin
4. Aluminum
5. Titanium

