

Mineral Resources



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MINERAL RESOURCES

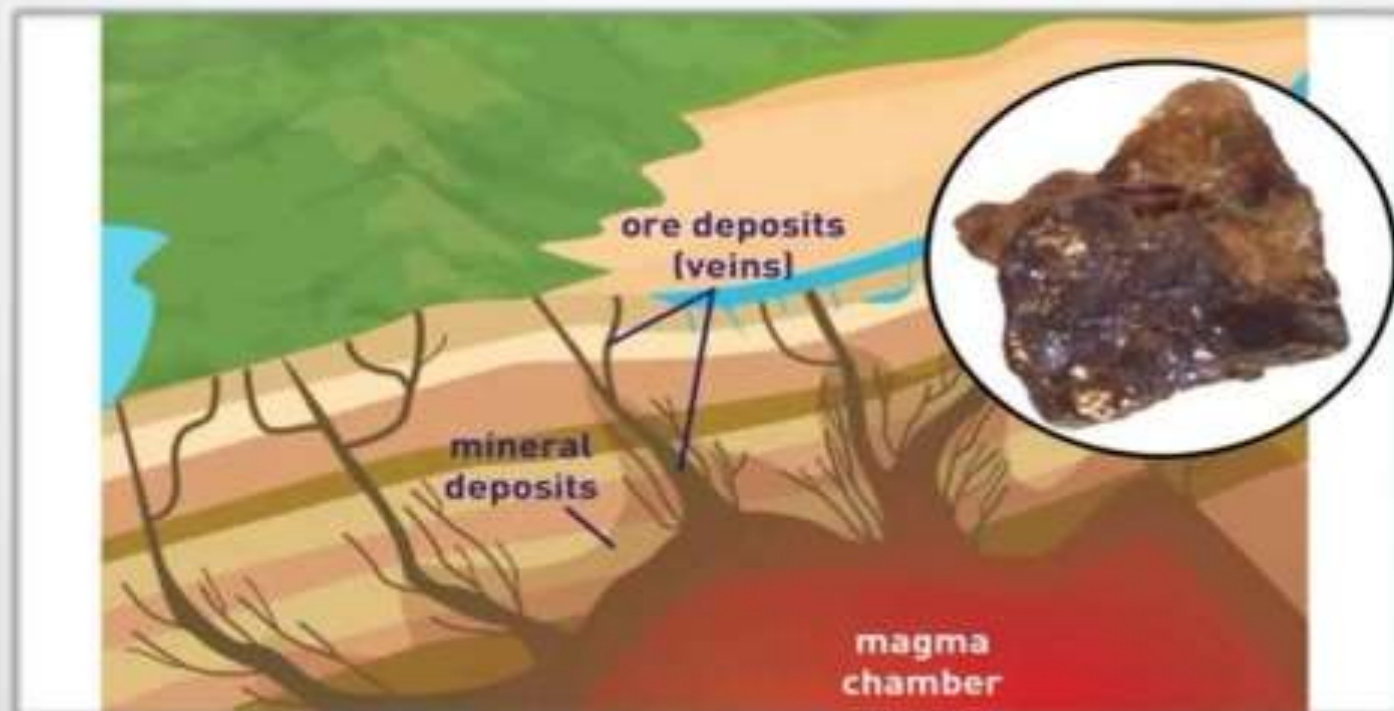
- ▶ **Minerals** are naturally occurring, inorganic, crystalline solids having a definite chemical composition and characteristic physical properties.

- ▶ An **ore** is a mineral or combination of minerals from which a useful substance, such as a metal, can be extracted and used to manufacture a useful product.

a gold ore



- ▶ Minerals are formed over a period of millions of years in the earth's crust.



USE AND EXPLOITATION

The main uses of minerals are as follows:


- (i) Development of industrial plants and machinery.
- (ii) Generation of energy e.g. coal, lignite, uranium.
- (iii) Construction, housing, settlements.
- (iv) Defense equipments weapons, armaments.

- (v) Transportation means.
- (vi) Communication– telephone wires, cables, electronic devices.
- (vii) Medicinal system– particularly in Ayurvedic System.
- (viii) Formation of alloys for various purposes (e.g. phosphorite).



- (IX) Agriculture □ as fertilizers, seed dressings and fungicides (e.g. zineb containing zinc, Maneb-containing manganese etc.).
- (x) Jewellery □ e.g. Gold, silver, platinum, diamond.





Based on their properties, minerals are basically of two types:

- ▶ (i) **Non metallic minerals** e.g. graphite, diamond, quartz, feldspar.
- ▶ (ii) **Metallic minerals** e.g. Bauxite, laterite, haematite etc.

Table 2.3.1. Major reserves and important uses of some of the major metals

Metal	Major World Reserves	Major Uses
Aluminium	Australia, Guinea, Jamaica	Packaging food items, transportation, utensils, electronics
Chromium	CIS, South Africa	For making high strength steel alloys, In textile/tanning industries
Copper	U.S.A., Canada, CIS, Chile, Zambia	Electric and electronic goods, building, construction, vessels
Iron	CIS, South America, Canada, U.S.A.	Heavy machinery, steel production transportation means
Lead	North America, U.S.A., CIS	Leaded gasoline, Car batteries, paints, ammunition
Manganese	South Africa, CIS, Brazil, Gabon	For making high strength, heat-resistant steel alloys
Platinum group	South Africa, CIS	Use in automobiles, catalytic converters, electronics, medical uses.
Gold	South Africa, CIS, Canada	Ornaments, medical use, electronic use, use in aerospace
Silver	Canada, South Africa, Mexico	Photography, electronics jewellery
Nickel	CIS, Canada, New Caledonia	Chemical industry, steel alloys

Table 2.3.2. Major uses of some non-metallic minerals

Non-metal Mineral	Major Uses
Silicate minerals	Sand and gravel for construction, bricks, paving etc.
Limestone	Used for concrete, building stone, used in agriculture for neutralizing acid soils, used in cement industry
Gypsum	Used in plaster wall-board, in agriculture
Potash, phosphorite	Used as fertilizers
Sulphur pyrites	Used in medicine, car battery, industry.

Thank you!

