

Earth Science 11

Unit 3 – Minerals and Rocks

Day 1 – Introduction to Mineral Formation

Name: _____

Date: _____

Block: _____

A Mineral is:

1) Naturally occurring

- Synthetic gems are not considered minerals.

2) Solid

- Based on temperatures that occur on Earth

3) Orderly crystalline structure

- Opal is not a mineral because it does not have an orderly internal structure.

4) Definite chemical composition

- Salt = NaCl Quartz = SiO₂

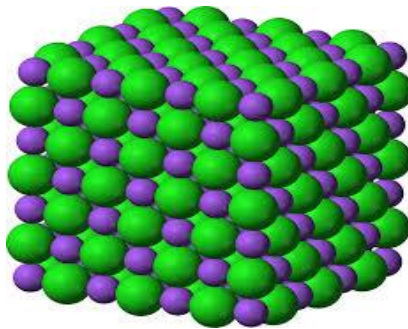
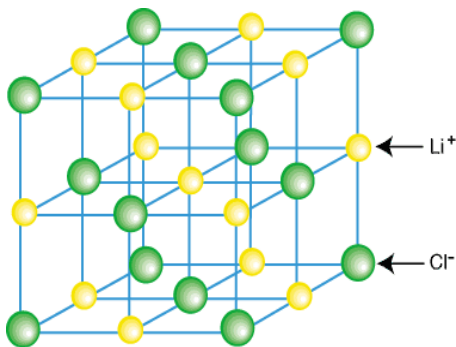
5) Inorganic

- Not formed from plant or animal processes.

Salt is a mineral. Sugar is not a mineral.



Crystal: a solid in which the atoms are arranged in a repeating pattern



Crystal Systems: different types of crystal patterns

1) Cubic – (Ex. Halite - rock salt)

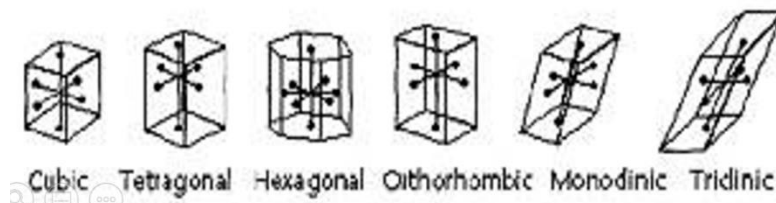
4) Orthorhombic – (Ex. Topaz: gem)

2) Tetragonal – (Ex. Wulfenite: yellow lead ore)

5) Monoclinic – (Ex. Gypsum: drywall)

3) Hexagonal – (Ex. Corundum: rubies, sapphires)

6) Triclinic – (Ex. Albite: a type of feldspar)





Mineral Formation: 4 most common ways

1) Cooling of magma



Fast cooling produces small crystals (grains)

Slow cooling produces large crystals (grains).



2) Precipitation: Liquid evaporates leaving behind solids. Solids are known as precipitates



Bristol Dry Salt Lake



Calcite in caves



Road salt left behind from evaporated salt water

3) Pressure and Temperature

Changes in temperature and pressure can cause minerals to recrystallize.

Ex. talc & muscovite

4) Hydrothermal Solution

Hot solutions come in contact with existing minerals.

some quartz & sulfur