

Minerals – Notes Outline

1. Two Groups of Minerals

a. Silicates

- i. Contains Silicon (Si) and Oxygen (O)
- ii. 90% of Earth's crust
- iii. Combine with elements such as Al, Fe, Mg, and K

b. Nonsilicates

- i. Do not contain combinations of Si and O
- ii. May contain C, O, F, S
 1. Classes of Nonsilicates
 - a. Native Elements: Au, Cu, Ag
 - b. Oxides : Al or Fe combine with O
 - c. Carbonates: C + O
 - d. Sulfates: S + O
 - e. Halides: F, Cl, I, or Br combine with Na, K, or Ca
 - f. Sulfides: Pb, Fe, Ni, combine with S

2. Identifying Minerals

a. **Color – the same mineral can come in a variety of colors, not reliable**

b. **Luster – the way in which a mineral reflects light**

- i. Metallic - opaque and reflective, like metal
- ii. Submetallic - to nearly opaque and reflect well
- iii. Nonmetallic - not looking like a metal at all
 1. Vitreous - glassy
 2. Silky - fibrous
 3. Resinous – yellow, dark orange, brown
 4. Waxy
 5. Pearly – like inside a mollusk
 6. Earthy – dull, looks like dirt or clay

c. **Streak – the color of the mineral in a powdered form**

d. **Cleavage – when minerals break along a smooth, flat surface**

e. **Fracture – when minerals break unevenly along a curved or irregular surface**

f. **Hardness – a minerals resistance to being scratched**

- i. Moh's Scale of Hardness 1 - 10

g. **Density – how much matter is in a given amount of space**

h. **Special Properties**

- i. Fluorescence – glow under ultraviolet light
- ii. Chemical Reaction – fizzes with acid test
- iii. Optical Properties – double image formed
- iv. Magnetism – magnetic, attract iron
- v. Taste – salty
- vi. Radioactivity – radium or uranium contained