Matter & Minerals

Elements & Atoms

Bonding

“Shaken, not stirred!”
Fluorite, halite, and calcite all exhibit perfect cleavage.
Moh's Hardness Scale

Mineral Groups

Element Abundance in Crust

- Oxygen (O): 46.6%
- Silicon (Si): 27.7%
- Aluminum (Al): 8.1%
- Iron (Fe): 5.0%
- Calcium (Ca): 3.6%
- Sodium (Na): 2.8%
- Potassium (K): 2.6%
- Magnesium (Mg): 2.1%
Mineral Groups

Silicates

Silicon-Oxygen Tetrahedron

\[ \text{SiO}_2 \]

Chains and Sheets of Tetrahedra

Single Chains

Double Chains

Sheets

Common Minerals
Light Silicates
Feldspar Group

Plagioclase
Orthoclase

Light Silicates
Quartz

All quartz but different colors!!

Light Silicates
Muscovite Mica

Light Silicates
Clay Minerals
Nonsilicate Minerals

Halite
(Table salt)

Nonsilicate Minerals

Sphalerite
(Zinc sulfide)

Nonsilicate Minerals

Native Copper

Next Lecture

Igneous Rocks