**Unit 2- Basic Chemistry & Minerals**

**Objectives and Vocabulary**

**Objectives:**

* Explain how elements are related to minerals
* Identify the particles that make up atoms
* Explain what compounds are and why they form
* Compare and Contrast different types of chemical bonds
* Explain a mineral is a naturally-occurring, inorganic, solid substance with a definite chemical composition and structure
* List 5 characteristics of minerals
* Describe the processes resulting in mineral formation
* Explain how minerals can be identified
* Experiment with mineral samples and identify them
* List and describe major groups of minerals
* Explain why color is often not a useful property in identifying minerals
* Define the terms luster, crystal form, streak, and Mohs hardness
* Explain how to test for luster, crystal form, streak, Mohs hardness, and cleavage
* Distinguish between cleavage and fracture
* Explain chemical properties and how they can be used to identify minerals and substances
* Give examples of how minerals are used in the home
* Explain how many minerals are used on average by an American in a lifetime
* Experiment with common household items and compare minerals versus effectiveness of intended use

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**Vocabulary**

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| Element | Atomic number | Energy level | Isotope |
| Mass number | Compound | Chemical bond | Ionic bond |
| Covalent bond | Metallic bond | Proton | Neutron |
| Electron | Mineral | Silicates | Silicon oxygen tetrahedron |
| Carbonates | Oxides | Sulfides | Sulfates |
| Halides | Native elements | Color | Streak |
| Luster | Crystal form | Hardness | Mohs hardness scale |
| Cleavage | Fracture | Density | Gemstone |