



Unit 2 Atoms and the Periodic Table

High School Chemistry

Unit Length and Description:

5 Instructional Weeks

Students will continue to use the periodic table to predict relative properties of elements (reactivity, bond type, bond number, and reaction with oxygen) based on valence electrons and composition of nucleus. They will also gather evidence to compare the structure of substances at the macroscale (melting and boiling point, vapor pressure) to infer the strength of electrical forces between particles. Students will also communicate information about why the atomic, subatomic and/or molecular level structure is important in the function of designed materials.

Science Standards:

- HS-PS1-1** Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level and the composition of the nucleus of atoms.
- HS-PS1-3** Plan and conduct an investigation to gather evidence to compare the structure of substances at the macroscale to infer the strength of electrical forces between particles.
- HS-PS2-6** Communicate scientific and technical information about why the atomic-level, subatomic-level, and/or molecular level structure is important in the functioning of designed materials.

Enduring Understandings- Unit Anchor Phenomenon:

The existence and properties of Technetium were accurately predicted 70 years before it was discovered.

Essential Questions- Reflective Summaries:

- Predict the properties of an element from the Periodic Table given the properties of other elements in its group and period.
- Design an experiment to determine the microscale configuration of a material by examining its macroscale properties.
- Create a brochure or informational advertising a specific element or molecule to a scientific audience. Choose a specific purpose to advertise and communicate why that element/molecule would be best suited to your application.