

## Chemistry Learning Objectives – Target Goals

I know the safety material and can pass the safety test with 100%.

**C4.8A** I know the location, mass, and charge for electrons, protons, and neutrons.

**C4.8B** I know the center of the atom is the nucleus made of protons and neutrons and the outside of the nucleus is the electron cloud where the electrons are found

**C4.8C** I know that protons repel each other and that a strong force needs to be present to keep the nucleus intact.

**C4.8D** I can calculate the number of electrons, protons and neutrons present in a neutral atom

I know what A and Z represent in terms of the periodic table

I need to know the critical vocabulary to reach my target goals.

**C1.2k** I know by whom and how the atom and its parts were discovered.

I know that on the periodic table elements are arranged in order of increasing number of protons (called the atomic number).

I know that vertical groups in the periodic table (families) have similar physical and chemical properties due to the same outer electron structures.

**C4.9A** I can identify elements with similar chemical and physical properties using the periodic table.

**C4.9b** I can identify metals, non-metals, and metalloids using the periodic table.

**C4.9c** I can list three of the periodic trends and categorize elements based on the trends

I can identify an element's name when given the element's symbol.

In the periodic table, elements are arranged in order of increasing number of protons (called the atomic number). Vertical groups in the periodic table (families) have similar physical and chemical properties due to the same outer electron structures.

**C5.2B** I can distinguish between chemical and physical changes in terms of the properties.

**C3.3B** I can describe melting on a molecular level.

I understand that properties of solids, liquids, and gases are explained by a model of matter that is composed of tiny particles in motion.

**P4.p1A** For a substance that can exist in all three phases, I can describe the relative motion of the particles in each of the phases.

**P4.p2A** Distinguish between an element, compound, or mixture based on drawings or formulas.

**P4.p2B** Identify a pure substance (element or compound) based on unique chemical and physical properties

**P4.p2C** I know that mixtures can be separated based on the differences in physical properties of the individual components

**P4.p2D** I can recognize that the properties of a compound differ from those of its individual elements.

**C5.5d** Compare the melting point, electrical and thermal conductivity and hardness for ionic, metallic, and covalent compounds.

I can list the differences between ionic and covalent bonds.

I can draw ionic and covalent bonds.

**C1.1h** Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.

I can create an ionic compound when given the compound's name.

I can name an ionic compound when given its formula.

Calculate the formula/molecular mass of a compound

Balance a chemical equation

Compare endothermic and exothermic reactions

List characteristics of a chemical reaction

Identify if energy is gained or loss in a chemical reaction

**C3.3A** Describe how heat is conducted in a solid.

**P4.p1C** For a simple compound, present a drawing that shows the number of particles in the system does not change as a result of a phase change.

**C5.4d** Explain why freezing is an exothermic change of state.

**C5.4A** Compare the energy required to raise the temperature of one gram of aluminum and one gram of water the same number of degrees.

**C5.4B** Measure, plot, and interpret the graph of the temperature versus time of an ice-water mixture, under slow heating, through melting and boiling

**C5.7B** Predict products of an acid-base neutralization.

**C5.7C** Describe tests that can be used to distinguish an acid from a base.

**C5.7D** Classify various solutions as acidic or basic, given their pH.

**C5.7E** Explain why lakes with limestone or calcium carbonate experience less adverse effects from acid rain than lakes with granite beds.

I can draw structural formulas for up to ten carbon chains of simple hydrocarbons.

I can draw isomers for simple hydrocarbons.

I can recognize that proteins, starches, and other large biological molecules are polymers