Unit 4 - Interacting with Others: Formulas and problems

Content Area: **Science**
Course(s): **Chemistry Honors**
Time Period: **November**
Length: **4 weeks**
Status: **Published**

Transfer Skills

Chemicals species will combine in small whole number ratios to form compounds.

Enduring Understandings

A compound is a substance composed of two or more elements chemically combines in a fixed proportion.

A chemical compound can be represented by a specific formula and assigned a name based in the IUPAC system.

The mole is an important unit of measurement that aides in the quantification of matter.

Essential Questions

How does the Periodic Table help you determine the names and formulas of ions and compounds?

Why is the mole an important measurement in chemistry?

How can the molecular formula of a compound be determined experimentally?

Content

Binary, diatomic, oxyacid, Greek method, molecule, compound, Empirical and molecular formula, mole, percent composition, hydrate, molar mass, combustion analysis,

Skills

Write and name the compounds of acids, binary and oxyacids, and use the Greek system to name molecular compounds.

Use molar mass to determine composition of compounds.

Determine a compound's empirical formula & molecular formula from various types of data.

Determine molecular formula or formula unit from its empirical formula.

Use combustion analysis data to calculate empirical formulas

Resources

Standards

SCI.9-12.5.1.12.A	Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.
SCI.9-12.5.1.12.A.1	Refine interrelationships among concepts and patterns of evidence found in different central scientific explanations.
SCI.9-12.5.1.12.A.2	Develop and use mathematical, physical, and computational tools to build evidence-based models and to pose theories.
SCI.9-12.5.1.12.A.3	Use scientific principles and theories to build and refine standards for data collection, posing controls, and presenting evidence.
SCI.9-12.5.1.12.B.1	Design investigations, collect evidence, analyze data, and evaluate evidence to determine measures of central tendencies, causal/correlational relationships, and anomalous data.
SCI.9-12.5.1.12.B.2	Build, refine, and represent evidence-based models using mathematical, physical, and computational tools.
SCI.9-12.5.1.12.B.3	Revise predictions and explanations using evidence, and connect explanations/arguments to established scientific knowledge, models, and theories.
SCI.9-12.5.2.12.A.2	Account for the differences in the physical properties of solids, liquids, and gases.
SCI.9-12.5.2.12.B.1	Model how the outermost electrons determine the reactivity of elements and the nature of the chemical bonds they tend to form.