Unit 7 - What a Gas?

Content Area: **Science**
Course(s): **Chemistry Honors**
Time Period: **February**
Length: **6 weeks**
Status: **Published**

Transfer Skills

The behavior and properties of gases according to the Kinetic Molecular Theory have an affect many worldly occurrences.

Enduring Understandings

Intermolecular forces affect the properties of gases.

Temperature affects the properties and behavior of matter.

The kinetic molecular theory can conceptually predict, analyze, and explain the properties of gases.

The Gas Laws can predict predict, analyze, and explain many everyday occurrences involving gases.

Essential Questions

How can the behavior of gases be predicted?

To what extent can a gas be classified as ideal?

Content

barometer, manometer, partial pressure

Skills

Determine the relationship between volume, temp, and pressure through analysis of experimental data.

Relate the Kinetic molecular theory to pressure, temperature and volume relationships and effusion properties of an ideal gas.

Use Boyle, Charles, Ideal and Gay-Lussac Laws to calculate unknown gas variables.

Use Dalton's Law of partial pressures to calculate the pressure of a gaseous mixture.

State and use the ideal gas law to calculate pressure, volume, temperature, or amount of gas when various quantities are known.

Use Grahams Law of diffusion experimentally or theoretically to determine relative speed of diffusion and molecular mass of an unknown gas.

Resources

Standards

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.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.9-12.5.1.12.B.4	Develop quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
SCI.9-12.5.1.12.C.1	Reflect on and revise understandings as new evidence emerges.
SCI.9-12.5.1.12.C.2	Use data representations and new models to revise predictions and explanations.
SCI.9-12.5.2.12.B.2	Describe oxidation and reduction reactions, and give examples of oxidation and reduction reactions that have an impact on the environment, such as corrosion and the burning of fuel.
SCI.9-12.5.2.12.C.1	Use the kinetic molecular theory to describe and explain the properties of solids, liquids, and gases.
SCI.9-12.5.2.12.C.2	Account for any trends in the melting points and boiling points of various compounds.