



# Southmoreland School District Introductory Chemistry Curriculum Overview

## **Introductory Chemistry Overview:**

In this first year Chemistry course students will investigate the atom, electrons, energy, matter, mass relationships and chemical bonding. Some of the basic concepts explored in Chemistry will include atomic theory, periodic properties of the elements, stoichiometry, bonding theory and molecular geometries, types of chemical and physical changes, gases and thermodynamics. There will be a laboratory component of the course, as well.

## **Module Titles:**

**Module 1: Atomic Structure and the Nature of Matter**

**Module 2: Chemical Reactions and Stoichiometry**

**Module 3: Gases and Gas behavior**

**Module 4: Electron Configurations and Molecular Geometries**

## **Module Overviews:**

### **Module 1: Scientific Measurement and the Nature of Matter**

Students learn to use the periodic table of elements, modern atomic theory, and the concept of isotopes to determine average atomic masses of elements and compounds with regard to accuracy and precision as given by significant figures.

### **Module 2: Chemical Reactions and Stoichiometry**

Students will learn to name and write the formulas for chemical compounds, to balance chemical equations, and to apply the mole concept and principles of stoichiometric calculation to quantitatively determine amounts of reactants and products in chemical reactions.

### **Module 3: Chemical Reactions and Stoichiometry**

Students will learn to identify the differences between Ideal and Real Gas behavior and to apply the principles of the Kinetic Molecular Theory, and the individual and Ideal gas laws for calculations involving changes in temperature, volume, pressure, and numbers of moles.



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## **Module 4: Electron Configurations and Molecular Geometries**

Students will learn to apply the Aufbau Principle, Hund's Rule, and the Pauli Exclusion Principle to determine the likely arrangements of electrons around elements, ions, and compounds.