

Chemistry

<p>Standard #1 Scientific Investigation Students applied the process of scientific investigation and design, conducted, communicated about, and evaluated investigation.</p>
<p>Standard #2 Physical Science Students understood common properties, forms and changes in matter and energy.</p>
<p>Standard #3 Life Science Students understood the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p>
<p>Standard #4 Earth and Space Science Students understood the processes and interactions of Earth's systems and the structure and dynamics of Earth and other space objects.</p>
<p>Standard #5 Scientific Method Students understood that the nature of science involves a particular way of building knowledge and making meaning of the natural world.</p>

Description

This course introduces the elements and the periodic chart, the mole and its application in stoichiometric problems, molecular structure and bonding, the states of matter, and gas laws. Laboratory experiments and projects are integrated throughout the course. A scientific/graphing calculator is essential.

Time Allocation
 Ninety minutes daily

Texts/References
Chemistry, Wilbraham, Addison-Wesley, 2000

Themes /Topics
 Matter and Change
 Scientific Measurement and Problem Solving
 Atomic Structure and the Periodic Table
 Chemical Names and Formulas
 Chemical Quantities
 Chemical Reactions
 Stoichiometry
 States of Matter
 Thermochemistry
 Behavior of Gases
 Electrons and Atoms
 Chemical Periodicity
 Ionic Bonding and Ionic Compounds
 Covalent Bonding

Assessments
 Performance Assessments – inquiry lab reports
 Formative Assessments – daily quizzes
 Summative Assessments – teacher constructed tests

Grades and Achievement Levels
 Grades are based on class activities, quizzes, tests, and projects.

Essential Learning: Chemistry

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<ul style="list-style-type: none"> • Concepts of the scientific method and deductive/inductive reasoning and communication of results 	<ul style="list-style-type: none"> • Common properties and composition of substances including use of models • Changes in matter to its composition and structure • Quantitative relationships involved with energy forms, energy transfer or transformation • Physical and chemical changes involving the conservation of matter and energy • Physical interactions of matter using conceptual models 	<ul style="list-style-type: none"> • Not assessed in this course 	<ul style="list-style-type: none"> • Not assessed in this course 	<ul style="list-style-type: none"> • Process of building scientific knowledge through critique and consensus

Expectations: Chemistry

Standard #1	Standard #2	Standard #3	Standard #4	Standard #5
<ul style="list-style-type: none"> Apply the scientific method to a variety of situations and problems 	<ul style="list-style-type: none"> Examine, describe, measure, classify, and predict common properties of substances (for example, chemical reactivity, acidity, periodicity) Describe and explain properties and composition of samples of matter using models (for example, atomic and molecular structure, the periodic table) Separate substances based on their chemical and physical properties (for example, color, solubility, chemical reactivity, melting point, boiling point) Use word and chemical equations to relate observed changes in matter to its composition and structure Identify measure, calculate, and analyze quantitative relationships involved with energy forms (for example, heat transfer in a system involving mass, and change in temperature of matter) Identify, measure, calculate, and analyze qualitative and quantitative relationships associated with energy transfer or energy transformation (for example, changes in temperature) Identify, describe, and explain physical and chemical changes involving the conservation of matter and energy (for example, chemical reactions) Describe and explain physical interactions of matter using conceptual models 	<ul style="list-style-type: none"> Not assessed in this course 	<ul style="list-style-type: none"> Not assessed in this course 	<ul style="list-style-type: none"> Demonstrate the interrelationships between science and technology Explain the use of technology in an occupation (chemist, engineer) Demonstrate that the scientific way of knowing uses a critique and consensus process (for example, peer review, openness to criticism, logical arguments, skepticism) Use graphs, equations, or other models to analyze systems involving change and constancy Explain an exponential model (for example, pH scale)