

# Conceptual Chemistry

**Instructors:**

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This half-year course is designed to serve as an alternate or introductory course to full-year chemistry. It aims to introduce the student to the content and applications of chemistry, to increase the student's confidence in science, and to prepare the student for further study in this field. It will address the Learning Results content standards in the area of chemistry, including the study of matter, energy and change. Topics may include properties of matter, behavior of gases, atomic structure, nuclear changes, chemical bonding, chemical reactions, and solution chemistry. Laboratory activities will be a major part of this course. Juniors who successfully complete this course will be prepared for more intensive study of chemistry in their senior year. Please note that to receive a full year credit in science, this course must be taken in combination with **Conceptual Physics** in the second semester. Students who have successfully completed full-year Chemistry are not eligible for this course.

**Graduation Standards** (the number of the standard is referenced in the performance indicators listed in each unit):

**Standard****SCIENCE STANDARD 1: PHYSICAL SCIENCES: STRUCTURE, PROPERTIES AND INTERACTIONS OF MATTER**

- Understand and analyze matter, reactions, and physical systems. (PS 1)
- **SCIENCE STANDARD 8: ENGINEERING, TECHNOLOGY, AND APPLICATION OF SCIENCE** Demonstrate engineering concepts across multiple disciplines and novel situations. (HS-ETS1)

<b>Unit 1</b>	<b>Introduction to Science</b>
Summary	Students will explore chemistry
Performance Indicators Assessed in Unit	1A. Understand various patterns of the periodic table and use knowledge of these patterns to predict chemical and physical properties.
<b>Unit 2</b>	<b>Matter and Energy</b>
Summary	Students will explore matter and energy
Performance Indicators Assessed in Unit	1E. Demonstrate that the kinetic molecular theory describes the motion of atoms and molecules, and explains the properties of gases.
<b>Unit 3</b>	<b>Matter and Change</b>
Summary	Students will explore matter and change

Performance Indicators Assessed in Unit	1I. Understand solutions are homogeneous mixtures of two or more substances and categorize acids, bases, and salts as three classes of compounds that form ions in water solutions.
<b>Unit 4</b>	<b>Atoms and Nuclear Chemistry</b>
Summary	Students will explore atoms and nuclear chemistry
Performance Indicators Assessed in Unit	1H. Model nuclear processes in which an atomic nucleus changes, including radioactive decay of naturally occurring and human-made isotopes, nuclear fission, and nuclear fusion.
<b>Unit 5</b>	<b>Atoms and the Periodic Table</b>
Summary	Students will explore atoms and the periodic table
Performance Indicators Assessed in Unit	1A. Understand various patterns of the periodic table and use knowledge of these patterns to predict chemical and physical properties.
<b>Unit 6</b>	<b>Structure of Matter</b>
Summary	Students will explore the structure of matter
Performance Indicators Assessed in Unit	1 B. Understand that chemical and physical properties of matter result from the ability of atoms to form bonds due to electrostatic forces between electrons and protons and intermolecular forces between molecules.
<b>Unit 7</b>	<b>Chemical Reactions</b>
Summary	Students will explore chemical reactions
Performance Indicators Assessed in Unit	1G. Demonstrate chemical reaction rates depend on factors that influence the frequency of collisions between reactant molecules.

### **Summative Assessments Retake**

- Students have the opportunity to retake summative assessments.
- The student must submit a retake form to the teacher within five (5) school days of the date that the summative assessment score is reported to the student.
- The highest score a student can receive on a retake or late assessment is a 75.
- The score achieved on a retake will replace the current score (even if the score is lower).
- If a student is making up a test from an absence, that assessment will be graded up to 100.

## Grading of Formative Assessments

- Formative assessments will count as 20% of the grade.
- Formative assessments may be scored on either a 0-100 scale or a 0-4 scale.
- The 0-4 scale will be represented in Power School as 4=100, 3=87, 2=77, and 1=67.
- The method of scoring of formative assessments will be determined by assignment.