
PETERS TOWNSHIP HIGH SCHOOL

COURSE SYLLABUS: HONORS CHEMISTRY

Course Overview and Essential Skills

Honors Chemistry is offered as a first year Honors Science Course in Chemistry at Peters Township High School. Due to this course's heavy math component, students are expected to excel in algebra and mathematic problem solving.

Honors Chemistry meets for seven 41-minute periods each week, including 2 back-to-back double periods. This arrangement provides flexibility for lab, small group collaboration, testing, and open-ended investigations. Course topics include scientific method, atoms, compounds, chemical bonds, chemical reactions, phases of matter, solutions, and acids and bases. Laboratory experiments and activities complement theory while emphasizing safety and science writing skills.

A PTHS Honors Chemistry Student exemplifies the following characteristics necessary to achieve success: academic initiative and enthusiasm, high standard of honesty and reliability, self-motivation and an independent work ethic, strong study skills, enjoys being academically challenged, completes his/her own work, asks and answers questions during class.

Course Textbook and Required Materials

- *Modern Chemistry* (2017) ISBN#: 978-0-544-81784-5
- 2" or 3" Binder, lined paper, scientific calculators

Course Outline of Material Covered:

Unit	Topic	Assessments	Timeframe
Foundations of Chemistry	Laboratory Safety Matter and Change (Chpt 1) Measurements and Calculations (Chpt 2)	Lab safety quiz, Bunsen Burner and Bending Glass Lab, Chapter 1 Exam, Chapter 2 Exam, Evidence of Chemical Change Lab, Accuracy and Precision Lab, Specific Heat of a Metal Lab	3 Weeks
The Atom	Atoms: Building Blocks of Matter (Chpt 3) Electron Arrangement in Atoms (Chpt 4) The Periodic Table (Chpt 5)	Chapter 3 Exam, Chapter 4 Exam, Intro to Spectroscopy Lab, Beer's Law Lab, Periodic Law Exam, Constructing a Periodic Table Project, Qualitative Analysis Lab Report	7 Weeks
Compounds	Chemical Bonding (Chpt 6) Chem Formulas and Compounds (Chpt 7)	Chromatography Lab, VSEPR Model Lab, Chapter 6 Exam, Determination of a Metal Oxide Lab, Nomenclature Exam, Chapter 7 Exam, Chromatography Inquiry, Polyatomic Ion Quiz, Percent Oxygen in Potassium Chlorate Lab, Cupric Carbonate Lab, Hydrate Lab Inquiry	6 Weeks
Chemical Reactions	Chem Equations and Reactions (Chpt 8) Stoichiometry (Chpt 9)	Chemical Reactions Lab, Chemical Reactions Exam, Stoichiometry Exam, Percent Yield Inquiry, Carbonate Lab, Limiting Reactant Inquiry	7 Weeks

Phases of Matter	Gases (Chpt 11) States of Matter (Chpt 10)	Physical Characteristics of Gases Exam, Physical and Chemical Properties of Hydrogen Lab, Physical and Chemical Properties of Oxygen Lab, Butane Lab, Molar Volume Lab, Molecular Composition of Gases Exam, Molar Heat of Fusion Lab, Heating and Cooling of Paradichlorobenzene Lab, Dry Ice Inquiry, Liquids and Solids Exam	6 Weeks
Solutions	Solutions (Chpt 12) Ions in Solution (Chpt 13 & 19) Acids and Bases (Chpt 14) Titrations (Chpt 15)	Solutions Exam, Ions in Solution Exam, Acid and Base Exam, Experimental Creation of a Solubility Curve Lab Report, Solubility Rules Lab, Acid/Base Titrations	7 Weeks

**Depending on the needs of the class or changes in the school year, the course outline is subject to change.*