Norwood Public Schools

Honors Chemistry Curriculum Overview

Description

HONORS CHEMISTRY (320H)

This Honors Chemistry course is a rigorous study of the quantitative and qualitative aspects of chemistry. Topics include atomic structure, the mole, the Periodic Table, chemical bonding, stoichiometry, solutions, nuclear chemistry, and green chemistry. Students are expected to be able to apply algebra skills and to practice and solve problems independently. The course topics are directly correlated with the Massachusetts chemistry standards. Laboratory work is used to enhance student understanding of concepts and principles. In this honors level course the expectations are high with respect to the pace of the course and the amount of work and homework required.

Learning Experiences:

- Students work independently and collaboratively to develop problem-solving skills.
- Students learn to use a variety of lab equipment effectively, including electronic technology.
- Students conduct laboratory experiments for most of the topics studied.
- Students analyze and interpret results of scientific investigations, and demonstrate this by writing sophisticated conclusions to their lab reports.
- Students maintain a binder of all notes and handouts.
- Students write a short research paper strictly following MLA format.
- Students make a Powerpoint and present it to the class.
- Students read scientific writing and demonstrate an ability to make decisions and evaluations based on the reading.

Content Outline:

Term I:
Matter, Metric System, The Atom, Molar mass problems, Significant Digits, Scientific Notation, Writing Ionic Formulas, Mole problems, Reactions Patterns, Balancing Equations

Term 2:
Radioactivity, Stoichiometry, Graphing, The Periodic Table, Ionic v. Covalent, Naming covalent compounds, Lewis Dot Diagrams, VSEPR Shapes

Term 3:
Formulas and Compounds, Equations and Reactions, Water, The Combined Gas Law, The Ideal Gas Law, Liquids and Solids, Solutions

Term 4:
Colligative Properties, Green Chemistry, Acids and Bases, Entropy and Enthalpy

Resources Used:

Textbook: Modern Chemistry (Holt)

World of Chemistry videos (Annenberg)

teacher website with links to other sites, other videos

teacher-created notes and worksheets

other practice worksheets, readings

laboratory resources

varied computer resources.

As of (3/21/2012