Chemistry

Name: _____

PARENT NIGHT

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Welcome, Parents

Course: Chemistry

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http://www.nyostrander.us/Chemistry/ChemHome.html

Text: Welcher, Sharon H. *High Marks: Regents Chemistry Made Easy*. Forest Hills, NY: Sharon Welcher, 2017.

Goals:

While it is true that in this age of technology students should become as literate in the sciences as possible, I do not believe that teaching chemistry as an end is the most important goal of a high school chemistry course. Some of the basic skills and techniques that a good basic chemistry course requires are, however, life skills that should transfer well to any college course. Therefore, a concentration on the development of methods for problem solving and enhancing analytical skills is the main goal of this course. Developing the ability to think allows us to more fully comprehend the world around us and the marvelous Creator who made them.

Curriculum:

The curriculum is centered on the Physical Setting / Chemisty core curriculum (see http://www.nysed.gov/common/nysed/files/programs/curriculum-instruction/chemist.pdf) and the High Marks: Regents Chemistry Made Easy text by Sharon H. Welcher. The main strengths of this particular text are that it is written in ordinary language, sticks to the basics, and emphasizes in a clear, well-thought manner a methodical approach to the problems and skills required by any chemistry course. While not a NYS Regents course (there will be no Regents test at the end of the year), the NYS core curriculum is a very good curriculum to follow to ensure students will be prepared for college.

The laboratory experiments have been designed to supplement the class experience with many exercises and demonstrations. The goals of the lab experience are to help develop safe techniques for handling chemicals and to develop observational and analytical skills with "hands on" activities. Again, the course revolves around emphasizing the development of basic skills. We will be concentrating on the three C's of reporting: all answers must be Clear, Concise, and Complete. We will also be spending a good deal of time analyzing lab reports to help students master observational and analytical skills.

Syllabus for Chemistry: The NYSED Common Core

and Regents Chemistry Made Easy (Sharon Welcher)

0. Tools of Chemistry
   - Introduction to Chemistry
   - Scientific Inquiry
   - Numbers, Sig. Figs., Math
   - Analyzing Data
   - Dimensional Analysis
   - Introduction to the Periodic Table

Va. Physical Behavior of Matter (Energy, Gases)
   - Matter – Substances and Mixtures
   - Energy and Chemical Change
   - Heat, Temperature, and Phases
   - Heating Curves
   - KMT of Gases
   - Vapor Pressure
   - Particle Models

I. Atomic Concepts
   - Atom Model History
   - Atomic Structure
   - Electrons in Atoms
   - Atomic Particles
   - Atomic Mass
   - Lewis Electron Dot Diagrams (LEDs)

II. The Periodic Table
   - The Periodic Table and Periodic Law
   - Metals, Nonmetals, and Metalloid Trends
   - Group Properties
   - Periodic Trends
   - History of the Periodic Table

IV. Chemical Bonding
   - Introduction to Bonding
   - Intermolecular Forces (IMFs)
   - Electronegativity and Bond Type
   - LED and Bonding
   - Bonding and Phase Properties
   - Chemical Formulas

III. Moles and Stoichiometry
   - Writing Formulas
   - Naming Compounds
   - Gram Formula Mass (gfm)
   - Molecular and Empirical Formulas
   - Percent Composition (by mass)
   - The Mole / Mass – Mole Problems
   - Chemical Reactions / Reaction Types
   - Mole – Mole Stoichiometry

Vb. Physical Behavior of Matter (Solutions)
   - Mixtures and Solutions
   - Concentration / Solubility Curves / Factors
   - Calculating Concentration (%, ppm, M)
   - Colligative Properties

VI. Kinetics/Equilibrium
   - Collision Theory
   - Enthalpy / Entropy
   - Chemical Equilibrium / Le Châtelier
   - Common Ion Effects

IX. Acids, Bases, and Salts
   - Acids – Base Theory, and Neutralization
   - Balancing Acid – Base / Metal Reactions
   - Titration / pH

VIII. Oxidation-Reduction
   - Redox Reactions / Half-Reactions
   - Oxidation Numbers
   - Cells and Electrochemistry

VII. Organic Chemistry
   - Hydrocarbon Names and Functional Groups
   - Isomerism
   - Organic Reactions

X. Nuclear Chemistry
   - Nuclear Reactions / Radiation / Half-Life
   - Transmutation / Radioisotopes
   - Nuclear Energy