

Phoenix Christian Sr High School

SCI300 Chemistry

Course Scope & Sequence

COURSE DESCRIPTION

Chemistry is a lab science dedicated to the study of matter and the changes that matter undergoes. The labs provide for the verification of theory, and the course accommodates the non-college bound as well as those planning further study in college.

The grading for each quarter of chemistry is as follows: 50% - average of tests, 30% - average of all homework and quizzes, 20% - average of all labs

REQUIRED TEXTS AND *KEY SUPPLEMENTAL MATERIALS

Chemistry, Matter and Change, Glencoe 2002

Study Guide (same text), Glencoe 2002

Laboratory Manual, Glencoe 2002

COURSE SCOPE AND SEQUENCE

First Semester

Data Analysis 3 Weeks

Key Concepts: Scientific Methods and Research, Units of Measurements, Scientific Notation and Dimensional Analysis, Reliability of Measurements, Graphing.

Assessments: Unit Test, Homework, Quizzes, Labs.

Biblical Integration: Define Creationism, Evolution, (religions) and Science.

Emphasize that every branch of science appears to support only one option (Creationism)

Matter – Properties and Changes 3 Weeks

Key Concepts: Properties, Changes, and Mixtures of Matter, Elements and Compounds.

Assessments: Unit Test, Homework, Quizzes, Labs

Structure of the Atom 3 Weeks

Key Concepts: Early Theories of Matter, Subatomic Particles and the Nuclear Atom, How Atoms Differ, Unstable Nuclei and Radioactive Decay

Assessments: Unit Test, Homework, Quizzes, Labs

Biblical Integration: (SA) Matter is amazingly uniform-this speaks of a Designer.

Every proton in the universe, for example, is exactly the same. (10^{81} protons)

Electrons In Atoms 2 Weeks

Key Concepts: Light and Quantized Energy, Quantum Theory and the Atom, Electron Configurations.

Assessments: Unit Test, Homework, Quizzes, Labs

Biblical Integration: Genesis 1-Let there be light.

The Periodic Table And Periodic Law 2 Weeks

Key Concepts: Development of the Modern Periodic Table, Classification of Elements, Periodic Trends.

Assessments: Unit Test, Homework, Quizzes, Labs

The Periodic Table And Periodic Law 2 Weeks

Key Concepts: Development of the Modern Periodic Table, Classification of Elements, Periodic Trends.

Assessments: Unit Test, Homework, Quizzes, Labs.

Biblical Integration: Proverbs 25:2- 'it is the glory of man to uncover a matter.' God hides things and has put it man to search out the same things.

The Elements 2 Weeks

Key Concepts: S-Block Elements, P-Block Elements, D and F-Block Elements

Assessments: Unit Test, Homework, Quizzes, Labs

Ionic Compounds 1 Week

Key Concepts: Forming Chemical Bonds, Nature of Ionic Bonds, Names and Formulas of Ionic Compounds, Metallic Bonds and Properties of Metals.

Assessments: Unit Test, Homework, Quizzes, Labs

Biblical Integration: Colossians 1:17 '...in Him all things hold together'

Covalent Bonding 2 Weeks

Key Concepts: Covalent Bonds, Naming Molecules, Molecular Structures, Molecular Shape, Electronegativity and Polarity.

Assessments: Unit Test, Homework, Quizzes, Labs

Second Semester

Chemical Reactions 3 Weeks

Key Concepts: Reactions and Equations, Classifying Chemical Reactions, Reactions in Aqueous Solutions

Assessments: Unit Test, Homework, Quizzes, Labs

The Mole 3 Weeks

Key Concepts: Measuring Matter, Mass and the Mole, Moles of Compounds, Empirical And Molecular Formulas, Hydrate Formulas.

Assessments: Unit Test, Homework, Quizzes, Labs

Stoichiometry 3 Weeks

Key Concepts: Definition of Stoichiometry, Stoichiometric Calculations, Limiting Reactants, Percent Yield.

Assessments: Unit Test, Homework, Quizzes, Labs

States Of Matter 1 Week

Key Concepts: Gases, Forces of Attraction, Liquids and Solids, Phase Changes.

Assessments: Unit Test, Homework, Quizzes, Labs

Biblical Integration: The precise mathematical order of the most unordered substance (gases) speaks of the Source of order; Jesus Christ.

Gases 2 Weeks

Key Concepts: Gas Laws, Combined Gas Law and Avagadro's Principle, Ideal Gas Law, Gas Stoichiometry.

Assessments: Unit Test, Homework, Quizzes, Labs

Solutions 2 Weeks

Key Concepts: Definition of Solutions, Solution Concentrations, Colligative Properties of Solutions, Heterogeneous Mixtures.

Assessments: Unit Test, Homework, Quizzes, Labs

Energy And Chemical Change 3 Weeks

Key Concepts: Heat in Reactions and Processes, Thermochemical Equations, Calculating Enthalpy Change, Reaction Spontaneity

Assessments: Unit Test, Homework, Quizzes, Labs

Biblical Integration: 2Peter 3:10 'the elements will be destroyed with intense heat' The LORD will use heat to end the present natural order some day.