

## Chemistry

## I. Course Description:

This is a year long course designed to give students a good working knowledge of chemistry. This course will help students understand the material world around them, develop an appreciation of the beauty and marvel of Gods creation, and wisely use and develop the resources of this planet and universe. This course should be an adventure and a challenge. Students will also perform numerous lab experiments.

## II. Instructional Materials:

1. LIFEPAK Chemistry Curriculum published by Alpha Omega
2. MicroChem Manual by Frank Eshelman, Ph.D.

## III Course Goals and Objectives:

1. Describe careers related to chemistry
2. Understand metric measurements
3. Demonstrate how and when to use common Laboratory instruments.
4. Make observations and present data graphically.
5. Describe elements
6. Distinguish between and describe chemical, physical and phase changes.
7. Classify compounds.
8. Explain and use different scientific laws and theories.
9. Explain and use scientific formulas
10. Identify key scientists and explain their contributions.
11. Learn how to Hypothesize and observe.
12. Explain and diagram scientific data.

## IV. Course Outline:

## A. First Quarter:

1. Metric Units
2. Observation and hypothesizing
3. Scientific notation
4. Careers in chemistry

5. Alchemy
6. Elements
7. Compounds
8. Mixtures
9. Kinetic theory
10. Gas Laws
11. Moles

B. Second Quarter:

1. Historical Models
2. Modern Atomic structure
3. Periodic Law
4. Nuclear reactions
5. Ion charges
6. Electronegativity
7. Chemical bonds
8. Molecular shape
9. Detecting reactions
10. Energy changes
11. Reaction rates
12. Equilibriums

C. Third Quarter:

1. Equilibrium system solutions
2. Solubility equilibriums
3. Acid base equilibriums
4. Redox Equilibriums
5. Organic compounds
6. carbon atoms
7. carbon bonds
8. saturated and unsaturated hydrocarbons

D. Fourth Quarter:

1. Saturated and unsaturated carbon chemistry
2. reaction types
3. oxygen groups
4. nitrogen groups
5. atoms and molecules
6. chemical bonding
7. chemical systems
8. organic chemistry

V. Teaching Methods:

- A. Independent Study of Material.
- B. Group Discussions and Readings

C. Perform Lab experiments

VI. Evaluation:

A. Components:

1. LifePac assignments
2. Experiments
3. Quizzes and Tests

VII. Grading Scale:

100-90= A

89-80= B

79-70= C

69-60= D