

## **a-g Physical Science**

### **Course Description:**

This course is an introductory study of the properties of matter. It includes a study of motion, sound, light, electricity, magnetism, and the interactions of matter. The scientific process is emphasized.

**Prerequisite(s):** none

**Length of Course:** One year required for graduation

**Year in School Taken:** 9 or 10

### **Course Objectives/Details:**

Coursework will include:

#### **Matter:**

- Characteristics & structure

- Atomic Theory

- Elements and the periodic table

- Metals & Nonmetals

- Radioactivity: radioactive elements, use of radiation, nuclear reactions

#### **Energy / Matter in Motion:**

- Force & acceleration Gravity

- Laws of motion

- Force, work, & power

- Energy laws

- Heat

#### **Waves:**

- Characteristics

- Direction

- Sound: properties, production, hearing, use of sound

- Light: characteristics, images, lenses, spectrum, lasers, uses of light

**Fields:**

Electricity: static, electric current, electric circuits, uses of electricity

Magnetism: permanent magnets, magnetic fields, magnetism & electricity

**Changes in Matter:**

Solutions, suspensions, colloids

Chemical compounds, chemical reactions, bonding

Acids, bases, pH, salts

Carbon compounds

**Laboratory/Demonstration Assignments:**

Measurement lab

Molecular model lab

Evidence of chemical reaction lab

Endothermic/exothermic reactions demonstration/lab

Expansion/contraction of a balloon

Diffusion demonstration/lab

Thermal expansion demonstration

Fault line model lab

Astronomy- centripetal motion lab (motion of planets)

Spectral line analysis demonstration/lab

Motion in one dimension lab

Graphing motion lab

Acceleration due to gravity

Newton's Second Law lab

Newton's Third Law lab

Pendulum lab (conservation of energy)

Measuring the speed of a wave

Static electricity lab

Basic circuits lab

Ohm's Law lab

Heat energy transfer lab

**Methods for Evaluating Student Performance:**

Evaluation of student performance is based on individual abilities, interests, and talents. Methods by which student progress is assessed will be through a variety and/or combination of methods. The methods available include but are not limited to the following:

Monthly review of work by education specialist (credentialed teacher),

Portfolios

Parent facilitator and education specialist observation

Student demonstrations,

Student grades,  
Student work samples  
Written examination  
Research projects

**Texts:**

Glencoe Science: An Introduction to Physical Science  
Glencoe McGraw-Hill, 1999  
ISBN: 0028275675