MACOPIN MIDDLE SCHOOL

SYLLABUS

I. COURSE TITLE:

Resource Center Physical Science - Grade 8

II. TEXTBOOK:

Physical Science. Marshall and Jacobs. American Guidance Services. Circle Pines, Minnesota, 1997.

III. COURSE DESCRIPTION:

Resource Center Science is designed as a replacement for students who are classified and in need of small group individualized instruction. The learning challenges of the students require a modified course of study which will replace their regular education science curriculum while allowing for individualized growth and achievement.

This course is designed to meet the New Jersey Core Curriculum Science Standards and the Cross Content Workplace Readiness Standards. It will serve as an introduction to basic chemistry and physics concepts. This will include an overview of basic atomic structure up to chemical interactions of matter. In addition, the laws of physics relating to motion and energy will be discussed. Associated with each major topic is a series of laboratory activities following the scientific method and experiences designed for optimum pupil success.

IV. COURSE OBJECTIVES:

Individualized goals are listed in each student's Individualized Education Plan. The following is a general guideline for the information that can be learned in a physical science class. Completion of all of the objectives will be based upon the learning challenges of the students and the discretion of the teacher.

A. Explain and apply the steps of the scientific method.
B. Know and apply approved safety standards in laboratory situations.
C. Know and apply appropriate techniques when using classroom lab equipment.
D. Select and use appropriate metric measurement.
E. Explore careers in physical science and their impact on society.
F. Research individual or group topics using various reference tools, technology, and techniques.
G. Define, measure, or calculate various physical characteristics of substances, including mass, weight, length, area, volume, density, and temperature.
H. Identify and describe the four basic phases of matter and the role temperature plays in the change of phase.
I. Compare and contrast compounds and mixtures.
J. Know and apply an understanding of atomic structure and how it impacts formation of new substances.
K. Know and apply the periodic table to explain the properties and relationships between elements.
L. Classify various forms of matter in terms of energy and structure.
M. Identify people of scientific contribution in the area of physical science and how they advanced our understanding of chemistry and physics.
N. Know and apply the law of conservation of energy in all of its forms.
O. Know and apply Newton's Laws of Motion to everyday life.
P. Explore the physical nature of the earth, solar system, and the universe.

V. COURSE CONTENT OUTLINE:

A. Physical Science Basics
   1. Scientific method
   2. Safety
   3. Measurement
   4. Graphing
B. Nature of Matter
   1. Phase of matter
   2. Elements, compounds, and mixtures
   3. Atomic structure
   4. Periodic table and element properties
C. Interactions of Matter
   1. Chemical bonding and reactions
   2. Acids and bases
D. Motion
   1. Speed
   2. Velocity and acceleration--projectile motion
   3. Newton's laws
E. Weather
   1. Characteristics of fronts
   2. Clouds
F. Energy
G. Physical Nature of the Universe
H. People in Science
I. Student/Group Research Project

VI. STUDENT ACTIVITIES:

A. Class Participation
   1. Small group interaction
   2. Class discussion
   3. Notetaking
B. Laboratory Activities
   1. Laboratory experiments (individual/group)
   2. Independent/group lab reports
   3. Appropriate lab behavior
C. Homework and written class work--group/individual
D. Individual and/or group projects
E. Viewing of audio-visual materials
F. Viewing of teacher demonstrations
G. Use of computer lab for certain class projects/quizzes

VII. EVALUATION OF STUDENT LEARNING:

A. Tests and quizzes - 25%
B. Laboratory reports - 25%
C. Homework - 25%
D. Class projects - 25%

ld revised 7/02