Course Title: Physics **Board Approval Date: June, 2010**
Credit / Hours: 1 credit

Course Description:

This course focuses on mastery of the PA Academic Standards for Science and Technology. As students progress through this course they will participate in a systematic study of physics that includes topics in measurements in time and space, motion, forces, momentum, energy, fluids and an introduction to sound, light, heat and thermodynamics, electricity, and nuclear physics.

Learning Activities / Modes of Assessment:

CLASSES:

1. Each class will begin with a brief question and/or problem from previous discussions or activities.
2. Introduction and discussion of topics and concepts. Problem solving and review.
3. Real-life applications.
4. Applicable laboratory activities and/or projects.

PROBLEM ASSIGNMENTS:

1. Assigned questions and problems will come from the textbook and teacher constructed questions and problems.
2. A problem solving process will be emphasized to help find solution to problems that are encountered.

LABS:

1. Three types of labs will be conducted:
    a. Inquiry labs (Single concept)
    b. Application and methods labs
    c. Formal labs. Includes open-ended labs and special projects.
2. Data for many of the labs is collected, by using Vernier sensors, including: motion detectors, force probes, temperature probes, light sensors, photo gates, etc.

EVALUATIONS:

1. A quiz or test will be given at the end of each unit and at the end of the marking period.
2. Each quiz or test will include questions and problems from class work and applications.
3. Labs and reports.
4. Class participation, homework, projects and activities.

Instructional Resources:

Primary**:** *Holt PHYSICS*; Serway, Raymond A.; & Faughn, Jerry S.; Holt, Rinehart and Winston; 2009.

Laboratory Manuals: *PHYSICS 211, Classical and Modern Physics, LABORATORY MANUAL*; Fall 2005; Bucknell University Physics Department; 2005

Course Pacing Guide

Course: Physics

Course Units and Topics	Length of Instruction
1. Fundamentals of Values, Measurements, and Vectors	4 periods
2. 1-Dimensional Linear Kinematics (Motion) and Falling Objects (Vertical velocity and acceleration)	10 periods
3. Projectile Motion (Two Dimensional Motion)	3 periods
4. Forces, Force Vectors, and Equilibrium	5 periods
5. Newton's Laws of Motion and Everyday Forces	8 periods
6. Newton's Universal Law of Gravity & Einstein's General Theory of Relativity	2 periods
7. Work, Power, Energy, and Machines	8 periods
8. Momentum and Collisions	5 periods
9. Rotational equilibrium and dynamics	5 periods
10. Simple Harmonic Motion	3 periods
11. Properties of Waves, Wave Interactions and Sound	8 periods
12. Light, Reflection, Refraction, Interference and Diffraction	8 periods

13. Heat and Thermodynamics 3 periods

14. Fluid Mechanics 3 periods

15. Electric Forces, Current and Resistance, Circuits, and Magnetism 2 periods

16. Nuclear Physics and Subatomic Physics 2 periods