



Southern Lehigh School District

High School Syllabus

Physics I 2013-2014

Course Description:

This laboratory subject emphasizes the basic concepts of PHYSICS I in the study of general mechanics (speed, acceleration, Newton's Laws, vectors, centripetal force, momentum, energy, basic machines); heat energy; wave transfer of energy (sound) and physical optics (color, lenses, reflection, refraction). A scientific calculator is required for this course.

Course Content:

Introductory Unit (using math in science, unit systems)
Linear Motion (velocity and acceleration, free fall)
Two-dimensional Motion (projectiles, vectors)
Force (Newton's Laws of Motion, friction)
Circular and Planetary Motion (centripetal force, Universal Gravitation, Kepler's Laws)
Momentum (impulse, conservation of momentum)
Energy and Work (kinetic and potential energy, conservation of energy, work and power)
Thermal Energy (thermodynamics, heat transfer, changes of temperature and state)
Periodic Motion and Waves (springs and pendula, wave characteristics, Snell's Law)
Optics (mirrors, lenses)
Electricity (circuits, Ohm's Law)

Required Textbooks and/or Other Reading/Research Materials

Include a note about the selections here.

Physics: Principles and Problems by Zitzewitz. Glencoe, 2013.

Course Requirements:

Students are expected to:

- apply physics principles and math to solve real world problems
- communicate scientific thoughts through speech and writing
- perform laboratory experiments to test hypotheses
- draw conclusions from scientific data
- design solutions to real world challenges using physics

Grade Components/Assessments:

To measure the multiple intelligences of our students, a wide variety of assessments will be used in Physics I. Quarter grades will be determined as follows:

- 40% - Assessments
- 35% - Labs
- 15% - Projects
- 10% - Homework/Classwork

Each marking period is worth 20% of a student's overall grade. The midterm and final exam are each worth 10% of a student's overall average:

Quarter 1	20%
Quarter 2	20%
Midterm	10%
Quarter 3	20%
Quarter 4	20%
Final	10%

Required Summer Reading/Assignments:

No Required Summer Reading