



Southern Lehigh School District

High School Syllabus

Physics I 2014-2015

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); heat energy; periodic motion; optics and simple electrical circuits. 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)
- Optics (reflection, refraction, Snell's Law)
- 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 final is worth 20% of a student's overall average:

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

Required Summer Reading/Assignments:

No Required Summer Reading