

HBHS Science Curriculum Trajectory

Course:

AP Physics II

Course Description:

This is an in-depth mathematically rigorous, second course in physics equivalent to a second-semester college course in algebra-based physics. This highly challenging course provides students with an understanding of the concepts and principles required in preparation for the AP Physics II exam. The course is designed to prepare students for future study in core science areas (biology, chemistry or physics), mathematics, or other professional fields such as pre-med, pre-dental, veterinary study or engineering. It is also designed for all science majors and other students wishing to demonstrate their ability to meet the challenge of an AP course. The course covers fluid mechanics; thermodynamics; electricity and magnetism; optics; and atomic and nuclear physics. Projects and lab work play an important role in this course.

Units of study:

Electricity & Magnetism; Light & Optics; Fluids, Thermodynamics & Kinetic Theory of Gase;
Modern Physics

Course Standards: Students will be able to:

- demonstrate the 4th C standards (creativity, communication, critical thinking, and collaboration)
- use the scientific method, engineering practices and inquiry based learning and describe those findings in a lab report
- compare and contrast electric fields and electric forces.
- distinguish among series circuits, parallel circuits, and series-parallel combinations and solve problems involving them
- explain the wave nature of light and related phenomena
- compare and contrast properties of lenses and the images they form
- apply Pascal's; Archimedes'; and Bernoulli's principles to varying degrees conceptually or mathematically to situations in everyday life
- calculate heat transfer and the absorption of thermal energy
- explain that small particles of matter behave like waves and are subject to diffraction and interference
- compare and contrast a variety modern theories in physics