

West Linn–Wilsonville School District
Science Department – Course Statement

Course Title: Advanced Placement (AP) Physics

Length of Course: Year
Number of Credits: 2
Grade Level: 11, 12
Prerequisites: Completed/currently enrolled in Trigonometry; Physics with a grade of A or B, or completed/currently enrolled in Calculus; and consent of instructor based on application
CIM Work Samples Offered in Course: At least one writing or math problem-solving work sample

Date of Description/Revision: 2002

Course Overview

The AP Physics course provides a systematic introduction to the main principles of physics and emphasizes the development of problem-solving ability. It is assumed that the student is familiar with algebra and trigonometry; calculus is seldom used, although some theoretical developments may use basic concepts of calculus. In most colleges, this is a one-year course with a laboratory component.

Essential Questions

Concepts providing focus for student learning

- How do things work?
- What are the basic laws of nature and how do they affect us?
- How can these laws be used to make predictions?
- How do we become better thinkers?
- How to prepare for the AP Physics exam?

Proficiency Statements

- Upon completion of course, students will be able to:
- Read, understand, and interpret physical information—verbal, mathematical, and graphical.
 - Describe and explain the sequence of steps in the analysis of a particular physical phenomenon or problem; that is,
 - a. describe the idealized model to be used in the analysis, including simplifying assumptions where necessary,
 - b. state the principles or definitions that are applicable,
 - c. specify relevant limitations on applications of these principles,
 - d. carry out and describe the steps of the analysis, verbally or mathematically, and
 - e. interpret the results or conclusions, including discussion of particular cases of special interest.
 - Use basic mathematical reasoning—arithmetic, algebraic, geometric, or trigonometric—in physical situation or problem.

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<ul style="list-style-type: none">• Perform experiments and interpret the results of observations.	
General Course Topics/Units & Timeframes	
<ul style="list-style-type: none">A. Newtonian MechanicsB. Fluid Mechanics and Thermal PhysicsC. Electricity and MagnetismD. Waves and OpticsE. Atomic and Nuclear Physics	
Resources	
<ul style="list-style-type: none">• Text: <i>Physics, 5th Ed.</i>, Cutnell & Johnson, John Wiley and Sons, 2001• Other: Laboratory equipment, films	