

**COURSE TITLE:** Advanced Placement (AP) Physics 1

Level of Difficulty	Estimated Homework	Prerequisites
Very Difficult	30-60 minutes	<b>District:</b> H Algebra II (B- or better) <b>Department Suggestion:</b> Algebra II (B- or better in honors; A- or better in CP) Math Analysis CP (concurrent enrollment) AP Precalculus (concurrent enrollment) Chemistry (B- or better in honors; A- or better in CP)

**Course Description:**

AP Physics 1 is a rigorous course that takes a conceptual and mathematical approach to the study of matter and energy. This is a first year physics course for students looking to challenge themselves beyond CP Physics. While there is a large math component to this class, and calculus concepts are discussed, no calculus will be done in this class. Only calculations using Algebra II concepts and vector math will be done.

Major topics studied first semester are those of mechanics, such as: motion in one dimension, projectiles/motion in two dimensions, Newton's laws, conservation of energy, conservation of momentum, and circular motion. Second semester studies rotational motion, oscillating systems, and non-mechanics topics such as circuits, waves, and sound.

The classroom environment is a combination of lecture, concept demonstrations, and laboratory experiments. Students will be expected to work collaboratively in groups in a laboratory setting several times per unit. Students will gain practice designing their own labs to test a given research question.

This course relies heavily on the use of algebraic manipulation, graphical analysis, unit conversions, data interpretation, word problems, and explanation of concepts. It is expected that students have a solid foundation in math and are comfortable solving both algebraic expressions and trigonometric functions on their own. Every problem is a word problem.

Along with a lot of math, there is also a heavy emphasis on explaining physical concepts and relationships in words, graphs, and coherent paragraphs in the class and on the AP test.

Homework in this class is estimated at 30-60 minutes as a nightly average. This is a very rough estimate for planning purposes. A student's ability level will affect actual study time needed to be successful in this class. Some projects will be assigned in this class that will require additional outside class time to complete. Common homework assignments include textbook reading, textbook problems, worksheets and lab reports.

**Grading:**

The grading system is based on weighted percentages. Each assignment will have a point value within the weighted category. Assessments and labs are weighted more heavily than homework. Individual teachers may make modifications on the weighted percentages.

**Syllabus:**

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**Supplemental Information:**

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