AP Physics 1
2020-2021

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What is AP Physics?

AP Physics is a college level science course taught in high school. The text used in this course is the same as one that is used at many colleges and universities throughout the U.S. This course does require more time and effort that any science course you have taken, and you will have a larger volume of reading to complete.

AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of Physics through inquiry-based investigations as they explore topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits.

Text

Walker. James S. *Physics: Third Edition*. San Francisco, CA: Pearson Addison Wesley

Goals

1. Read, understand, and interpret physical information—verbal, mathematical, and graphical.
2. Describe and explain the sequence of steps in the analysis of a particular physical phenomenon or problem.
3. Use mathematical reasoning in a physical situation or problem.
4. Perform experiments and interpret the results of observations.

Required Materials:

- One 1-inch 3-ring binder (NO spiral notebooks or folders with brads)
- loose-leaf paper
- One ream of paper
- pencil or blue/black ink pen (a pencil is preferable)
- scientific calculator (You cannot use your phone in class)

Labs

Labs are a very important part of any science course. The laboratory portion of AP Physics 1 consists of college-level experiments that may be similar in nature to previous labs, but build on acquired knowledge and require the student to think critically and apply concepts learned in class to complete the lab. The labs begin open-ended with a problem stated. Using guided student inquiry, the students will develop a lab procedure for testing the problem and analyzing the results. A minimum of two labs will be completed each marking period. Time will be allotted in class to conduct the experiments and record data. The students will be required to analyze results and prepare the report outside of class. Each student will prepare a lab report following the steps of the scientific method. The student should prepare two complete copies of the lab report, one to turn in to the instructor and one to be kept in a 3-ring binder. Colleges are more likely to award credit for AP Physics 1 if the student can provide documentation of appropriate lab experiences. This notebook will serve as this documentation.

Labs to be completed (dry labs) (the number of days in parenthesis represents the allotted class time to complete data collection; all analysis and reporting will be done outside of schedule class and lab time):

General Labs
Measurements (1 day)
Vectors (1 day)
Velocity and Acceleration
Graphing Motion (1 day)
Measuring Velocity (1 day)
Two-Dimensional Motion
Projectile Motion (2 days)
Newton's Laws
Force and Acceleration (1 day)
Acceleration (1 day)
Coefficient of Friction (2 days)
Work, Momentum and Energy, Circular Motion
Conservation of Momentum in Explosions (1 day)
Work and the Inclined Plane (1 day)
Centripetal Force (2 days)
Forces, Simple Harmonic Motion
Torque (1 day)
Hooke's Law (1 day)
Simple Pendulum (1 day)
Heat
Specific Heat of a Metal (2 days)

Heat of Fusion/Heat of Vaporization (1 day)
Electricity
Ohm's Law (1 day)
Parallel Circuit (1 day)
Series Circuit (1 day)
Series and parallel Circuits (1 day)

Assessment Criteria

Quizzes/Classwork/Discussion: 35% Quizzes may be given several times each week, and will contain questions and problems from reading assignments, current and previously covered material, and homework questions. Classwork consists of in-class problems and exercises, as well as participation in class discussion and demonstrations.
Homework: 5% Homework problems and questions will be assigned from the textbook and from AP Released Exams.
Labs: 20% See "Lab" description above. Lab reports are due one week after completion of in-class data collection.
Tests/Projects: 40% Tests will be given at the end of each unit (approximately two or three each marking period). The format of the tests will follow the format of the AP exam.

1. Multiple-choice questions
2. Free-Response problems
3. Lab-based questions (based on completed labs or designing your own lab to test concepts)

Make-up Assignments:

Any time you miss any part of class, you are responsible for getting assignments and notes. You must have a written excuse to be able to make up assignments. You have 2 days after your absence you bring the excuse. You have 5 days from the time you return to make up the work. If you miss a lab, you must schedule a time with me to complete it. If you miss a test, you will be expected to take the test on the day that you return unless you make other arrangements with me. Please check my page on the school website to stay current on all assignments (http://westside.rcboe.org)

My Help:

If you need any help with any material we cover, please see me. The sooner you make me aware of any problems, the better. I am here to help you. **Do not wait until the day before the test to come and ask me questions**. I am available most every day after school until 3:45, and I will also be at WHS by 7:00 each morning. I strongly encourage you to take advantage of this time.

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Please have this syllabus signed within two days. If you have any questions or concerns, you may contact me at the school (868-4030 or GrantJo@boe.richmond.k12.ga.us).

My planning period is from 9:25a – 10:15a each day.

I have read the entire syllabus, and I understand what is expected of me in order to be successful in this course.

Student Name (Printed) _____

_____ _____

Student Signature Date

I have read the entire syllabus, and I understand what is expected of my student in order to be successful in this course.

Parent/Guardian Name (Printed) _____

_____ _____

Parent/Guardian Signature Date