



Inside Room 1404



A NOTE FROM YOUR TEACHER

Dear Students,

Congratulations and Welcome to the start of a new school year. I trust that you had a good summer and we are going to have a great and innovative year. I look forward to working with each of you and watching you grow into inspiring young adults. Good Luck and remember that I have an open door policy, if you need help or have any problems, please feel free to share this information with me.

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<http://ttaylorsscienceclass.weebly.com/>

AP PHYSICS 1

Advanced Placement Physics 1 is designed to closely match an introductory college physics course. Students are expected to have sufficient Algebra and Trigonometry skills. Calculus may be introduced at times to verify certain physical concepts, but is not necessary to understand concepts. This course will emphasize the understanding and application of the mathematics to explain these concepts and theories that govern the world.

The AP Physics program is based on standards set forth by the College Board to include topics such as: Newtonian mechanics, energy, momentum, electric principals, and basic electric circuits (resistance, voltage and current). College Board requires 25% of class time spent doing appropriate Physics labs.

A college physics course differs significantly from the usual high school course in respect to the textbook used, the range and depth of topics covered, laboratory work and the amount of time required for the students to spent learning on their own. Physics can be a very demanding subject and students are expected to spend time outside of the classroom to learn concepts. Although much of the content will be presented in class, students will be expected and required to cover additional materials after school hours.



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SUPPLY LIST



- A ½ inch or 1 inch 3 ring binder for class notes, labs, returned papers and class handouts.
- Five dividers for the 3 ring binder.
- Scientific Calculator (graphing not necessary)
- Pen or pencil
- Notebook paper to be placed in the binder.
- Safety Glasses—You can bring your own or use the class set

GRADING



The purpose of the AP Physics course is to prepare for the national exam, calculation of grades will be predominantly based on exam performance.

Course grades will be based on the following items and percentages:

Tests	50%
Major Assignments (Quizzes & Labs)	40%
Minor Assignments (Class work & Homework)	10%

Tests

Test will cover one to two topics at a time. Tests will generally be cumulative. Tests are comprised of AP style multiple-choice and free-response questions. Students are allowed to use AP reference tables and calculators for the entire test. Cell phones will be

collected during test times and returned at the conclusion of the test. A midterm and a final cumulative exam will be given .

Quizzes

Typically a quiz and/or a test are generally given each week. Quizzes will cover information from the homework, the reading assignments, and example problems from class.

Homework

The purpose of homework will generally be to practice concepts learned in class. Homework assignments will be reviewed in class on the day they are due, therefore, except in the case of excused absence, late homework will not receive credit after 2 days. Strategies for problem-solving are stressed to enable students to be successful determining solutions to all problems they may encounter.

Class Mantra: Students are expected to strive to reach their highest potential while actively engaging in the learning process

Each lab will require:

- The formation of an hypothesis or hypotheses, based on in-class discussion of the presented problem or focus of each experiment
- Some labs are **open – ended** requiring design and description of an experiment
- A list of materials used
- A procedure describing how the experiment was conducted
- Collection of data and observations including graphs
- Calculations using the collected data
- Conclusions about the hypothesis
- Discussion of variance and error analysis

All of the above elements contained in a written report

LABS

As per requirements of the College Board, a minimum of 14 labs will be performed throughout this course, and at least 25% of class time will be dedicated to lab work. Labs are intended to provide hands-on examples of the material covered in class and to familiarize students with formal laboratory practices and procedures. Labs begin with the presentation of a question or problem. Students are led in a discussion to formulate a hypothesis to answer the question or solve the problem. They are then presented with an assortment of equipment and supplies and asked to design and carry out an experiment to test their hypothesis. They make observations, collect data, manipulate the data (if necessary) and then form conclusions.

Some of the free response questions on the AP exam will require the students to be familiar with lab design and analysis. Students must keep an organized portfolio of all labs and lab reports as this is a requirement to receive college credit in some cases. This portfolio should be kept in a safe place and accessible during the student's college application process, some colleges may need to see this portfolio for student placement. Active participation is part of the lab grade.

A separate section in the student's binder for labs is recommended, your university may need to see this for future for placement.

A Note about academic honesty:

Most in-class lab work will be done with a group, and students are encouraged to communicate and work within these groups to make sure everyone has the appropriate data and understands how to do the lab. **However: unless specifically assigned as a group project, all lab work is expected to be a student's own personal work. Copying or plagiarizing another student's graphs, calculations, and/or written responses is prohibited and will be considered academic dishonesty which will be addressed according to the student handbook. This includes "sharing" excel graphs and/or calculations typed in a word processing program. Each student should be making their own graphs and typing out their own calculations from scratch. The only "copy/pasting" allowed is for raw data.**



APPROXIMATE COURSE OUTLINE

A. Kinematics 12 days

1. Motion in one dimension without acceleration p. 36
2. Motion in one dimension with acceleration p. 45
3. Graphing motion p. 77
4. Vectors p. 101
5. Motion in two dimensions, including projectile motion p. 115

B. Dynamics and Newton's laws of motion 12 days

1. One dimensional force problems and Static equilibrium p. 146
2. Defining systems in physics p. 148
3. Tension, normal force, and Atwood Machine p. 159
4. Two-dimensional forces including incline planes p. 169
5. Friction p. 194

C. Work, energy, power 5 days

1. Basic kinetic and potential energy problems p. 264
2. Work and work–energy theorem and conservation of energy p. 268
3. Springs and Hooke's Law p. 279
3. Non-conservative forces p. 284
4. Power p. 293

D. Systems of particles, linear momentum 5 days

1. One dimensional momentum p. 318
2. Impulse p. 321
3. Collisions and conservation of momentum p. 325
4. Two dimensional momentum p. 337

E. Circular motion and Gravitation 5 days

1. Circular Kinematics p. 393
2. Centripetal acceleration and forces (uniform and non-uniform) p. 226
3. Newton's law of gravitation p. 237
4. Center of gravity p. 366



F. Torque and Rotational Motion 12 days

1. Torque and Statics p. 360
2. Dynamics p. 393
3. Angular acceleration and kinematics p. 397
4. Rotational energy and work p. 407
5. Angular momentum p. 414

G. Oscillations, Simple Harmonic Motion, Waves, and Sound 10 days

1. Hooke's Law revisited p. 679
2. Oscillations and simple harmonic motion p. 683
3. Pendulums p. 690
4. Speed of sound and Doppler Effect p. 728
5. Interference, resonance, and standing waves p. 744

H. Electrostatics 5 days

1. Static Electricity and conservation of charge p. 780
2. Coulomb's law p. 793

I. DC Circuits 5 days

1. Current and Ohm's Law p. 872
2. Resistance and resistivity p. 881
3. Electric power and energy p. 887
4. Resistors in series and parallel p. 918

Course Pacing

Students are to be actively responsible for their learning and to advocate their needs. We will meet approximately 225 hours per week.

TEXT-BOOK



Online

1. Openstax College. (2016). College Physics for AP Courses. Houston, TX: OpenStax CNX. Retrieved from <http://cnx.org/content/col11844/latest/>

2. Fullerton, D. (2014). AP physics 1 essentials: an APlusPhysics guide. Webster, NY: Silly Beagle Productions.

ON-LINE RESOURCES

- College Board website: apcentral.collegeboard.com – find; course requirements, sample test questions and answers

- Online Simulations: phet.colorado.edu

Online tutorials and simulations:

www.physicsclassroom.com,
www.aplusphysics.com

Online tutorial

www.educator.com, there is a fee to use this resource.

There are many more tutorials offered at this location.



LAB SAFETY

Safety in the science classroom is of the utmost importance. Students will be required to read and sign a safety contract before participating in lab activities. Students that do not turn in this agreement will not be allowed to perform labs. Students not following this contract will be subject to disciplinary action and may be removed from the activity.

General Information and Structure of the AP Physics 1 Test:

Website to sign up for AP Exam: <http://apcentral.collegeboard.com/home>

Registration Deadline: 4/11/18

Test Date: 5/8/18 @ 12:00PM

(50 multiple choice questions) 90 minutes – 45 single answer/5 multi-select problems

(5 free response questions) 90 minutes – 1 experimental design/1 qualitative or quantitative translation/3 short answer

Time for exam: 3 hours

Calculators are allowed on the entire exam – Calculator memories are not erased during the exam

Website for equations: <https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-physics-1-equations-table.pdf>

Tests – AP Style

In order to prepare for the AP test, all tests will be given in the “AP format” as much as possible which includes a timed multiple-choice section followed by a timed free-response section. Tests will be mainly focused on recently covered information but may contain questions from previous sections. Most questions on the AP test require the use of concepts from several different physics topics in order to complete the question.

ally, a score of 3 or higher on the AP exam is viewed as “competent” for colleges looking at AP scores. For the tests in this class, a scale similar to recent AP testing data will be used with 1-5 corresponding to letter grades F-A. Because of the depth of information covered on the exam and the difficult nature of the problems, scoring is much different from a traditional percentage-based scale.



Tests will be graded similarly to the AP exam. The AP test gives a grade of 1-5 which is based on national testing statistics. Gener-

ENLOE GRADING SCALE AND AP TEST GRADING SCALE

AP Score	Percent*	Grade	Enloe High
5	69-100%	A	90-100
4	55-68%	B	80-89
3	33-54%	C	70-79
2	22-32%	D	60-69
1	0-21%	F	0-59



*This scale may be modified to meet College Board Testing Scores

Classroom Expectations

- Participate in class activities – lecture/discussions, labs, group work etc. (no sleeping! – no using phone or laptops unless directed to do so.)
- Come to class prepared to actively learn
- Advocate for your needs (see me if you need help or if you have been absent)
- Be respectful of the classroom and everyone in it.
- Follow the rules as set forth in the Enloe student handbook

Class Wish List

- * Batteries (AA, AAA, C,D)
- * Sanitizing wipes
- * Hand sanitizer
- * Hand wash
- * Tissue
- * Paper Towels

Are you up to P.A.R.?

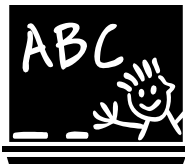
Show your Professionalism, Positive Attitude and Responsibility by following class and school rules!

This will produce an effective domain conducive of learning. Whether you plan to enroll in higher education or enter the workplace these skills are transferable and beneficial to you!

ABSENCE

Late work is strongly discouraged. This class will be very fast paced at times and failure to stay even with assignments can be a detriment to success. Any work received later than 2 days of the due date will not receive credit. Excused absence will follow policy listed Student Handbook

EXTRA HELP

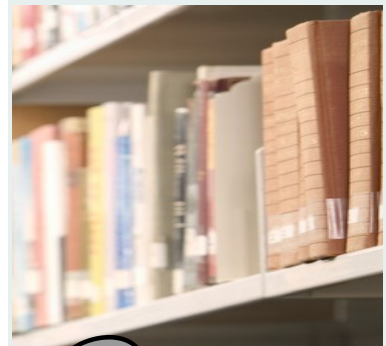


Physics is a challenging rigorous subject which builds upon itself. Therefore, students are encouraged to seek outside help from other students, online resources or the instructor if they do not understand a concept covered. Students are also encouraged to work together on problem-solving exercises, which means helping each other to UN-

DERSTAND the problem. Copying another student's work will not help to learn the subject and is considered academic dishonesty.

FIRE DRILLS

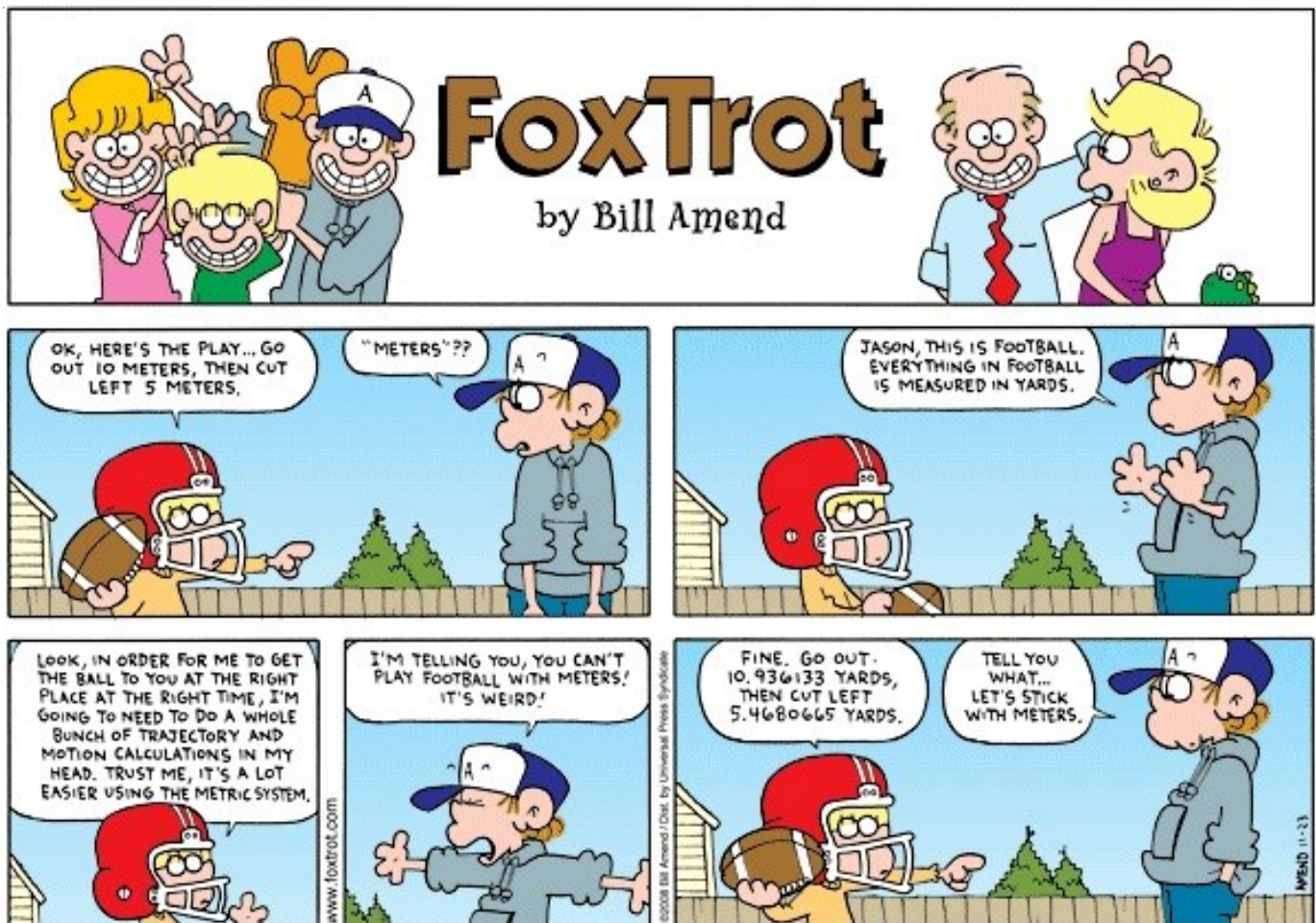
Class must remain together, orderly and quickly exit the building through nearest exit. Students must locate teacher at meeting location for attendance.



Am I Blue?

Student work will only be accepted when written in pencil, blue or black ink.

Students are responsible for their own learning and to advocate their needs.



HOW TO BE SUCCESSFUL IN AP PHYSICS 1

Study Tips:

1. A physics textbook cannot be read the way you would read a novel. Begin by pre-reading the chapter; glance at the section headings, charts and tables in order to organize the material in your mind and stimulate your curiosity. This will make it easier to read the chapter and extract more information from it.
2. Be an active, not passive reader, by stopping frequently (at least every section) and consider what you have just read. What is the concept being discussed? Put it in your own words (out loud or by writing it down); by doing so you are reprocessing and using the information presented in the text. Place a few key notes in your notebook; make sure these notes include new terms and illustrative examples.
3. Become a note taker and not a note copier! Simply writing down what is written on the board is passive learning (it's a start, but is not as effective as it could be). To get the most out of taking lecture notes, do it in a systematic manner. Before class read the textbook material to be covered in lecture. You will then use class time more efficiently because you will learn more from the lecture, and you will be able to take better notes having been introduced to many of the concepts in the text. During lecture do not attempt to write down every word that is said; that approach is unnecessary. Instead, focus on the major ideas.
4. Practice concepts by making your own practice problems which will allow you to rehearse and test yourself on the material. Rework classwork and text example problems.
5. Relate new information to other, related information.

Study with a friend! Take turns explaining the material to each other and working together on practice problems. Set up ongoing study groups and meet with other online or at other locations.

Note: while working together on problems is encouraged, each student should work through every problem ON THEIR OWN before handing in an assignment. In fact, a good way to check work is to work through problems separately, then compare answers to see if they deviate. This is also a good way to see a different approach to solving a problem, frequently in physics there are more than one way to solve the problem.

7. There is too much new material in a physics class to be able to learn two weeks' worth of material the night before an exam. Review your text material and lecture notes daily so that you can avoid cramming at test time. Daily studying and practice helps problem-solving come naturally.
8. Make the most of your time in lab by arriving fully prepared. AP Physics labs are too long and involved to try to perform without having thoroughly read over them the day before.

Do not panic, stick with it.

Statement of Understanding

I HAVE READ MRS. TAYLOR'S NEWSLETTER 'INSIDE ROOM 1404' CONTAINING GRADING CRITERIA, CLASS RULES, REQUIREMENTS AND POLICIES.

IF I HAVE ANY QUESTIONS I WILL NOT HESITATE TO CONTACT YOU.

Print and Sign Student Signature

Parent Signature

Phone Number

Best time to call

Parent email