

## **Advanced Placement Physics**

**Textbook:** *College Physics* 4th Edition by Randy Knight, Brian Jones, Stuart Field

**Recommended Review Book:** *5 Steps to a 5: AP Physics 1: Algebra-Based* 2023 1st Edition by Greg Jacobs (Author)

**Tutoring** 3:05 - 4:00 Monday or Tuesdays

If you need to schedule an appointment on another day, email me with the following information:

1. Include "AP Physics" and a brief description in the subject line.
2. Keep your message brief and direct. (Just a few sentences)

### **Materials:**

Pencils or erasable pen, graph paper, bound composition book and graphing calculator. (Non-graphing scientific calculators will be provided in class.) Graphing calculators that have storage are NOT allowed.

**The AP® Physics 1 Course Description** It is a stand-alone course, inquiry-based course that focuses on experimentation and also conceptual understanding. Lessons that are teacher oriented will include the derivation of equations, demonstrations of physical phenomena, vocabulary associated with the content, and addressing any questions from the students based upon the material covered. Reading the text and working through the practice problems is vitally important. The table that follows presents the science practices that students should develop during the AP Physics 1 course. These practices form the basis of many tasks on the AP Physics 1 Exam.

### **Practice 1**

#### ***Creating Representations 1***

Create representations that depict physical phenomena.

### **Practice 2**

#### ***Mathematical Routines 2***

Conduct analyses to derive, calculate, estimate, or predict.

### **Practice 3**

#### ***Scientific Questioning and Argumentation 3***

Describe experimental procedures, analyze data, and support claims.

## **SKILLS**

**1.A** Create diagrams, tables, charts, or schematics to represent physical situations.

**1.B** Create quantitative graphs with appropriate scales and units, including plotting data.

**1.C** Create qualitative sketches of graphs that represent features of a model or the behavior of a physical system.

**2.A** Derive a symbolic expression from known quantities by selecting and following a logical mathematical pathway.

**2.B** Calculate or estimate an unknown quantity with units from known quantities, by selecting and following a logical computational pathway.

**2.C** Compare physical quantities between two or more scenarios or at different times and locations in a single scenario.

**2.D** Predict new values or factors of change of physical quantities using functional dependence between variables.

**3.A** Create experimental procedures that are appropriate for a given scientific question.

**3.B** Apply an appropriate law, definition, theoretical relationship, or model to make a claim.

**3.C** Justify or support a claim using evidence from experimental data, physical representations, or physical principles or laws.

<u>Units</u>	<u>Topics/ Description</u>	<u>% of Exam</u>	<u>Number of Classes</u>
U1 Kinematics (1st 9 weeks)	1-D Kinematics, Vectors, and Projectile Motion (Includes building math skill, trigonometry, vector addition and dimensional analysis)	10 – 15%	35
U2 Forces and Dynamics (2nd 9 weeks)	Newton's Laws, Uniform Circular Motion	18 – 23%	35
U3 Energy (2nd and 3rd 9 weeks)	Energy, Work, and Power	18 – 23%	16
U4 Linear Momentum (3rd 9 weeks)	Momentum	10 – 15%	10
U5 Rotational Motion (3rd 9 weeks)	Torque and Rotational Dynamics	15 - 23%	15
U6 Energy of Rotating Systems (3rd 9 weeks)	Energy and Momentum of Rotating Systems	5 – 8%	5
U7 Simple Harmonic Motion (4th 9 weeks)	Simple Harmonic Motion	5 – 8%	9
U8 Fluids (4th 9 weeks)	Density, Pressure, Newton's Law and Conservation of Fluids	10 – 15%	10
AP Review (4th 9 weeks)	5 Steps to a 5 Review		12
May 6th	AP Physics 1 Exam 12:00 PM		

**Student Practice** Throughout each unit, practice comes from both the textbook and College Board *Topic Questions* to help students check understanding of difficult or foundational topics before moving on to new content or skills that build upon prior topics. Students will get rationales for each Topic Question that will help them understand why an answer is correct or incorrect, and their results will reveal misunderstandings to help them target the content and skills needed for additional practice. At the end of each unit or at key points within a unit.

**College Board Personal Progress Checks** provided in class or as homework assignments in AP Classroom. gives students a personal report with feedback on every topic, skill, and question that they can use to chart their progress, and their results will come with rationales that explain every question's answer. One to two class periods are set aside to re-teach skills based on the results of the Personal Progress Checks.

**Quiz** - A weekly quiz over student practice work, video notes and class notes.

**Labs Laboratory** investigations include short activities and online simulations, which occupy 25% of our class time. In the laboratory investigations students learn and master the usage of physical and scientific equipment. Students use different methods of measuring, charting, calculating, and error analysis while completing the investigations. These investigations can be used to either introduce a new topic or to reinforce material previously covered. Investigations are typically guided, with the variables needed to be measured and calculated identified for the students.

### Attendance & Daily Work

This class is taught synchronously to students in the physical classroom with no virtual option. However, students have access to College Board curriculum including the textbook, practice, videos and lectures. It is important to understand that we are on a tight schedule to meet our deadline for testing in May. If you are absent from class for any reason, it will then be your responsibility to review the material and stay on pace with the rest of the class. I am available for tutorials during the week, after school.

**Homework problems** will be assigned for every unit. Questions from the homework may appear on quizzes and exams. All homework for a unit is prerequisite for unit exams. This means that homework **MUST** be completed before attempting unit exams. Homework assignments will account for 60% of your overall grade, as per the **LDISD grading policy**.

Homework questions come in several different types, such as multiple choice, essay, and upload lab report or analysis. File upload questions are assigned for questions involving math equations and drawings. **When you take a picture of your work, make sure your name is written legibly in the top right-hand corner of the page.** No name, no credit (this is to discourage cheating where one person does all the work and sends the picture to everyone else). Please resist the temptation to copy another student's work. If you need help, please come see me.

**Reading** In addition to College Board homework assignments, you also have a virtual textbook.

Preparation for the upcoming lesson is required. You are expected to read through the sections in the pages listed, following along with the text examples **BEFORE** class. I am aware that the reading assignments do not follow the pattern in the college board. It's important that students understand we will be moving around a lot in the book in order to follow the CED (Course and Exam Description) Unit Guidelines outlined by College Board.

**Exams & Quizzes** Exams are administered following each unit (see the schedule below). Exam reviews are provided one week before the scheduled exam, and consists of last year's AP exam. Exams account for 40% of your overall grade, as per the LDISD grading policy. 9 week progress checks will also be given each 9 weeks, which will also be for a grade. Quizzes are administered at least once a week based on the lesson, reading and practice problems covered in class.

Physical attendees take the exam/quiz during class on the scheduled date, **no exceptions**. Exams will have a time limit for all test takers to better prepare for the actual exam in May. Exam reviews are available on Canvas one week prior to the exam. Exam reviews are not to be graded or taken for any extra credit; their sole purpose is to help prepare you for the exam. The review answers will be available in class or during tutoring.. Exam retakes are not a best practice for AP classes and are not offered.

**Midterm** A comprehensive midterm exam accounts for 15% of your first semester grade, as per LDISD grading policy. I do not offer exemptions for the midterm exam as it is preparation for the AP Exam.

**Final Exam /AP Exam** The AP Exam is optional. However, any student who takes the AP Exam in the spring is exempt from the final exam. For students not taking the AP Exam, the Final Exam is a project and presentation in my class instead of taking a fully comprehensive final exam. This final grade accounts for 15% of your second semester grade, as per the LDISD grading policy. Students exempt from the Final Exam Presentation still have to turn in the project, but not have to present. Students choose the project at the beginning of the spring semester.

**Academic Dishonesty** Cheating undermines both the cheater and class morale. Avoid doing yourself this disservice: it carries heavy consequences. Please see the Student Handbook to find more information about academic dishonesty.

**Extra Credit/Exam Corrections** There are opportunities for extra credit. Exam corrections are allowed to earn more credit, but must be completed during tutorials. Students can receive half of the lost points, which is then averaged into the final grade. Students who make a 69% and below have to retake the exam. See tutorial schedule.

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## AP Class Expectations

1. **Arrive on Time to Class.**
  2. **Take notes by hand.** There are several studies that prove note-taking by hand results in better retention of class material. Students keep a notebook portfolio during the year that could be worth lab credit at some universities. You are encouraged to take notes over the reading material and can use the notes on the quiz.
  3. **Stay organized.** You receive notes and exercises in many different forms (your text, online videos, lecture notes, etc.). A notebook is a great way to keep these many different forms of learning collected and organized.
  4. **Be prepared by doing your homework, review notes and your reading.** Practice, Practice, Practice. I can't stress this enough.
  5. **Form a study group.** I highly encourage a collaborative and student-centered environment during class. Working with a study group helps strengthen your understanding. Take advantage of your opportunity to both challenge and assist your peers by studying with them outside of class via Zoom or an active Google Doc.
  6. **Use electronic resources.** As the school year progresses, I suggest apps and other electronic resources to assist you in preparing for your AP exam. However, Google provides a wealth of extra practice problems *once you have exhausted those in your textbook* – Don't be afraid to google!
  7. **Class Resources.** Take advantage of the class resources button on your homepage and College Board.
  8. **No Cell Phones.** Cell Phones are to be on Silence and Stored in backpacks during class, unless the teacher gives permission.
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**PLEASE RETURN THIS SHEET SIGNED, VERIFYING YOU HAVE READ THE AP 1 PHYSICS SYLLABUS  
AND UNDERSTAND THE OUTLINE OF THE CLASS AND EXPECTATION  
FOR 2025-2026 SCHOOL YEAR .**

**Name Student (print):** \_\_\_\_\_

**Class Period:** \_\_\_\_\_

**We are very proud of our school. In an effort to maintain the safety and quality of the lab and classroom, horseplay, vandalism, equipment abuse or tampering with emergency equipment is not tolerated. This also includes any tampering with school computers or ChromeBooks. Science equipment or materials are not allowed outside of the classroom without the permission of the teacher. A fee or full replacement of damaged, broken, or missing equipment may result along with a discipline referral.**

**By signing this document I am agreeing that I have received either a paper or electronic copy of the syllabus and understand the requirements outlined in the document.**

**I HAVE READ AND UNDERSTAND THE SYLLABUS.**

**Student Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Parent/Guardian Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_