AP Physics 1: Algebra-Based

Course Syllabus

the42ndperiod.com

Two Trimesters · 11 Weeks Each · 60-Minute Classes · Mr. Iserloth

May (TBD) AP Exam | **2 × 11 weeks** Trimesters | **60 minutes** Class Length | **8** Total Units | **See AP CED** Exam Weighting

HOW YOUR GRADE IS BUILT

80% of your grade splits between Summative and Formative work — 72% and 8% respectively. The remaining 20% is the trimester Final Exam, scored separately on top of everything else. The Final Exam mirrors AP exam format and timing.

72% — Summative	Unit tests, AP FRQs, and AP Classroom Progress Checks.
8% — Formative	Exit checks and practice sets. Low-stakes, revisable.
20% — Final Exam	AP-style cumulative exam at the end of each trimester.

Formative — 8%

Exit checks and practice sets. Graded on effort and completion. Revisable before the unit closes. This is where you are allowed to be wrong on the way to understanding.

Summative — 72%

Unit tests, AP FRQs, and Progress Checks. Graded to AP standards. These are the moments where you demonstrate what you actually walked away with.

HOW POINTS WORK

An Exit Check is the baseline point value. Everything else is set relative to it:

Assignment	Type	Weight	What it means
Exit Check	Formative	**1×**	Baseline unit. Completion + effort. Revisable before unit closes.
Practice Set	Formative	**1×**	Aligned to the deep dive. Same value as Exit Check — low stakes.
Unit Test	Summative	**2×**	AP-style MC and FRQ for the unit. Mirrors exam format and rigor.
AP FRQ	Summative	**3×**	Scored on College Board rubrics. Highest weight — this is the AP skill.

Progress Check	Summative	2×	AP Classroom official assessment. Must be completed individually.

> AP FRQs carry the most weight because they are scored exactly as the College Board scores them — and because writing a coherent, justified physics argument is the highest-order skill in this course.

COURSE STRUCTURE — 2 TRIMESTERS, 8 UNITS

The course follows the College Board AP Physics 1: Algebra-Based CED. Units 1–3 are covered in Trimester 1. Units 4–8 plus AP review are covered in Trimester 2. Each trimester ends with an AP-style comprehensive final exam.

Trimester 1 — Foundation — the language of motion, force, and energy

Unit	Title	AP Weight	When	Topics
U1	**Kinematics**	10-15%	Weeks 1-3	Displacement, velocity, acceleration. Three kinematic equations. Free fall. Projectile motion.
U2	**Forces and Translational Dynamics**	18-23%	Weeks 3-6	Newton's three laws. Free-body diagrams. Friction. Normal force. Circular motion and gravity.
U3	**Work, Energy, and Power**	18-23%	Weeks 6-9	Work-energy theorem. Conservative forces. Conservation of mechanical energy. Power.
Review	Review and Trimester 1 Final Exam		Weeks 10-11	AP-style cumulative exam covering Units 1-3. FRQ practice. Progress Check review.

Trimester 2 — Momentum, rotation, oscillation, and fluids

Unit	Title	AP Weight	When	Topics
U4	**Linear Momentum**	10-15%	Weeks 1-2	Impulse-momentum theorem. Conservation of momentum. Elastic and inelastic collisions.
U5	**Torque and Rotational Dynamics**	10-15%	Weeks 2-5	Rotational kinematics. Torque. Rotational inertia. Newton's Second Law for rotation. Equilibrium.
U6	**Energy and Momentum of Rotating Systems**	5-8%	Weeks 5-7	Rotational KE. Torque and work. Angular momentum and impulse. Conservation. Rolling. Orbits.
U7	**Oscillations**	5-8%	Weeks 7-8	Simple harmonic motion. Period and frequency. SHM graphs. Energy of oscillators.
U8	**Fluids**	10-15%	Weeks 8-10	Density and pressure. Pressure with depth. Buoyancy. Archimedes. Continuity. Bernoulli.
Review	Review and AP Exam Prep		Week 11	Full-course AP practice exam. FRQ scoring workshop. Formula sheet fluency.

AI USE AND ACADEMIC INTEGRITY

Using AI in This Course — Read This Carefully

I use AI. I used it to build this website, generate lesson images, produce the AI podcast for each lesson, and format content consistently across all eight units. So I would be naive to think you won't use it on your own work — and I'm not going to pretend otherwise.

But here is the line: using AI to help you understand something is smart. Using AI to produce work that you submit as your own understanding — without actually developing that understanding — is plagiarism. That line holds whether the source is ChatGPT, a classmate, or a textbook solution manual.

The practical test is simple: **can you explain it?** If you submit something and cannot walk me through your reasoning when I ask — out loud, in your own words — that is evidence the work is not yours. It will be treated as academic dishonesty and handled according to school policy.

This is fine

- Using AI to explain a concept a different way
- Asking AI to check your reasoning or catch errors
- Using the AI podcast and video tools built into this course
- Asking AI to generate practice problems for you to work
- Using AI to help you understand a worked example

This is plagiarism

- Submitting AI-generated solutions as your own
- Copying AI explanations verbatim into your written work
- Using AI during a Progress Check or unit test
- Having AI complete a free-response question for you
- Submitting work you cannot explain when asked

Bottom line: I can tell. Train the AI to teach you — not to do the work for you. Use it the way a smart student uses a tutor: to understand, not to shortcut. That is the standard I hold myself to, and it is the standard I hold you to. — Mr. I

COURSE POLICIES

■ **Revision Policy**	Exit checks and practice sets can be revised and resubmitted before the unit closes. Unit tests and FRQs may not be retaken, but written justification of errors can recover partial credit — see Mr. Iserloth for details.
■ **Late Work**	Work submitted within one week of a deadline is accepted for full credit. After one week, a 10% deduction applies per additional week late. Work not submitted before the unit closes receives no credit.
■ **AP Classroom**	AP Classroom Progress Checks are graded summatively and must be completed individually without assistance — they are College Board assessments. Collaboration on a Progress Check is academic dishonesty.
■ **Lab and Safety**	Any session involving equipment, data collection, or physical materials is governed by the lab safety agreement on file. Violations result in removal from the activity and a zero for that session.

ABOUT THE AP EXAM

The AP Physics 1 Exam is administered in May. It consists of multiple-choice questions and four free-response questions: Mathematical Routines, Translation Between Representations, Experimental Design and Analysis, and Qualitative/Quantitative Translation. The exam is 3 hours long.

A formula sheet is provided on the exam — the same one on the course website. You are not expected to memorize equations. You **are** expected to understand what every variable means, when each equation applies, and how to derive relationships under exam conditions.

Units 1-2	Units 3-4	Units 5-6	Units 7-8
28-38% Kinematics + Forces	20-30% Energy + Momentum	15-23% Rotation	15-23% Oscillations + Fluids