Course at a Glance

Plan

The Course at a Glance provides a useful visual organization of the AP Physics 1 course components, including:

- Sequence of units, along with approximate weighting and suggested pacing. Please note, pacing is based on 45-minute class periods, meeting five days each week for a full academic year.
- Progression of topics within each unit.
- Spiraling of the big ideas and science practices across units.

Teach

PRACTICES/SKILL CATEGORIES

Science practices spiral throughout the course.

1 Modeling
2 Mathematical Routines
3 Scientific Questioning
4 Experimental Methods
5 Data Analysis
6 Argumentation
7 Making Connections

+ Indicates 3 or more science pratices for a given topic. The individual topic page will show all the science practices.

BIG IDEAS

Big ideas spiral across topics and units.

SYS 1-Systems
FLD 2-Fields
INT 3-Force Interactions
CHA 4-Change
CON 5-Conservation
WAV 6-Waves

Assess

Assign the Personal Progress Checks—either as homework or in class—for each unit. Each Personal Progress Check contains formative multiple-choice and free-response questions. The feedback from these checks shows students the areas where they need to focus.

UNIT 1 Kinematics

~16–19 Class Periods | 10–16% AP Exam Weighting

INT + **1.1 Position, Velocity, and Acceleration**

CHA + **1.2 Representations of Motion**

Personal Progress Check 1

Multiple-choice: ~15 questions
Free-response: 2 questions
- Experimental Design
- Paragraph Argument Short Answer

UNIT 2 Dynamics

~19–22 Class Periods | 12–18% AP Exam Weighting

SYS 1 7 **2.1 Systems**

FLD 2 7 **2.2 The Gravitational Field**

INT 6 **2.3 Contact Forces**

SYS 4 **2.4 Newton's First Law**

INT + **2.5 Newton's Third Law and Free-Body Diagrams**

INT + **2.6 Newton's Second Law**

CHA + **2.7 Applications of Newton's Second Law**

Personal Progress Check 2

Multiple-choice: ~40 questions
Free-response: 2 questions
- Quantitative/Qualitative Translation
- Short Answer

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UNIT 3 Circular Motion and Gravitation

~7–9 Class Periods | **4–6%** AP Exam Weighting

- FLD — 3.1 Vector Fields
- INT 7 — 3.2 Fundamental Forces
- INT 2 7 — 3.3 Gravitational and Electric Forces
- FLD 2 7 — 3.4 Gravitational Field/ Acceleration Due to Gravity on Different Planets
- SYS 4 — 3.5 Inertial vs. Gravitational Mass
- CHA 5 — 3.6 Centripetal Acceleration and Centripetal Force
- INT + — 3.7 Free-Body Diagrams for Objects in Uniform Circular Motion
- INT + — 3.8 Applications of Circular Motion and Gravitation

Personal Progress Check 3

Multiple-choice: ~40 questions
Free-response: 2 questions
- Experimental Design
- Paragraph Argument Short Answer

UNIT 4 Energy

~19–22 Class Periods | **16–24%** AP Exam Weighting

- CON 6 7 — 4.1 Open and Closed Systems: Energy
- INT CHA + — 4.2 Work and Mechanical Energy
- CON + — 4.3 Conservation of Energy, the Work-Energy Principle, and Power

Personal Progress Check 4

Multiple-choice: ~30 questions
Free-response: 2 questions
- Quantitative/Qualitative Translation
- Short Answer

UNIT 5 Momentum

~12–15 Class Periods | **10–16%** AP Exam Weighting

- INT + — 5.1 Momentum and Impulse
- CHA + — 5.2 Representations of Changes in Momentum
- CON 6 7 — 5.3 Open and Closed Systems: Momentum
- CON + — 5.4 Conservation of Linear Momentum

Personal Progress Check 5

Multiple-choice: ~35 questions
Free-response: 2 questions
- Experimental Design
- Paragraph Argument Short Answer

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UNIT 6 Simple Harmonic Motion

~2–5 Class Periods | 2–4% AP Exam Weighting

- INT + — 6.1 Period of Simple Harmonic Oscillators
- CON + — 6.2 Energy of a Simple Harmonic Oscillator

Personal Progress Check 6

Multiple-choice: ~20 questions
Free-response: 2 questions
- Experimental Design
- Short Answer

UNIT 7 Torque and Rotational Motion

~12–17 Class Periods | 10–16% AP Exam Weighting

- INT 1 2 — 7.1 Rotational Kinematics
- INT + — 7.2 Torque and Angular Acceleration
- CHA + — 7.3 Angular Momentum and Torque
- CHA + — 7.4 Conservation of Angular Momentum

Personal Progress Check 7

Multiple-choice: ~40 questions
Free-response: 2 questions
- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer

UNIT 8 Electric Charge and Electric Force

~3–5 Class Periods | 4–6% AP Exam Weighting

- CON 6 7 — 8.1 Conservation of Charge
- SYS + — 8.2 Electric Charge
- INT + — 8.3 Electric Force

Personal Progress Check 8

Multiple-choice: ~15 questions
Free-response: 2 questions
- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer

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UNIT 9 DC Circuits

~9–12 Class Periods | 6–8% AP Exam Weighting

- SYS 6 7 — 9.1 Definition of a Circuit
- SYS 4 — 9.2 Resistivity
- CON + — 9.3 Ohm's Law, Kirchhoff's Loop Rule (Resistors in Series and Parallel)
- CON + — 9.4 Kirchhoff's Junction Rule, Ohm's Law (Resistors in Series and Parallel)

Personal Progress Check 9

Multiple-choice: ~30 questions
Free-response: 2 questions
- Experimental Design
- Short Answer

UNIT 10 Mechanical Waves and Sound

~11–14 Class Periods | 12–16% AP Exam Weighting

- WAV + — 10.1 Properties of Waves
- WAV + — 10.2 Periodic Waves
- WAV + — 10.3 Interference and Superposition (Waves in Tubes and on Strings)

Personal Progress Check 10

Multiple-choice: ~30 questions
Free-response: 2 questions
- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer

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