

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

+ Indicates 3 or more science practices 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 | CHA 4-Change |
| FLD 2-Fields | CON 5-Conservation |
| INT 3-Force Interactions | 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 |
| + | |



UNIT
2

Dynamics

~19–22 Class Periods

12–18% AP Exam Weighting

- | | |
|-----|--|
| SYS | 2.1 Systems |
| + | |
| FLD | 2.2 The Gravitational Field |
| + | |
| INT | 2.3 Contact Forces |
| + | |
| SYS | 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 1

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

Personal Progress Check 2

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

UNIT 3

Circular Motion and Gravitation

~7–9

Class Periods

4–6%

AP Exam Weighting

- FLD** 3.1 Vector Fields
- INT** 3.2 Fundamental Forces
- INT** 3.3 Gravitational and Electric Forces
- FLD** 3.4 Gravitational Field/Acceleration Due to Gravity on Different Planets
- SYS** 3.5 Inertial vs. Gravitational Mass
- CHA** 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** 4.1 Open and Closed Systems: Energy
- INT** 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** 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



**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**

**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**

**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**



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Personal Progress Check 6

Multiple-choice: ~20 questions

Free-response: 2 questions

- Experimental Design
- Short Answer

Personal Progress Check 7

Multiple-choice: ~40 questions

Free-response: 2 questions

- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer

Personal Progress Check 8

Multiple-choice: ~15 questions

Free-response: 2 questions

- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer

**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)****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 9****Multiple-choice: ~30 questions****Free-response: 2 questions**

- Experimental Design
- Short Answer

Personal Progress Check 10**Multiple-choice: ~30 questions****Free-response: 2 questions**

- Quantitative/Qualitative Translation
- Paragraph Argument Short Answer