

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

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 | |

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

~19-22 Class Periods

12-18% AP Exam Weighting

INT

+

1.1 Position, Velocity, and Acceleration

CHA

+

1.2 Representations of Motion

UNIT
2

Dynamics

~21-24 Class Periods

16-20% AP Exam Weighting

SYS

1

7

2.1 Systems

FLD

2

7

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

~8-10 Class Periods

6-8% 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

~22-25 Class Periods

20-28% 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

~14-17 Class Periods

12-18% 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

~4-7 Class Periods

4-6% 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

~14-19 Class Periods

12-18% 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 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