

Course at a Glance

Plan

The Course at a Glance provides a useful visual organization for the AP Physics 2 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 science practices across units.

Teach

PRACTICES

Science Practices spiral throughout the course.

- | | |
|-----------------------------------|---|
| 1 Creating Representations | 3 Scientific Questioning and Argumentation |
| 2 Mathematical Routines | |

Required Course Content

Each topic contains required Learning Objectives and Essential Knowledge statements that form the basis of the assessment on the AP Exam.

Assess

Assign the Progress Checks—either as homework or in class—for each unit. Each 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 9

Thermodynamics

~10–16 Class Periods 15–18% AP Exam Weighting

1
2
3

9.1 Kinetic Theory of Temperature and Pressure

1
2
3

9.2 The Ideal Gas Law

1
2
3

9.3 Thermal Energy Transfer and Equilibrium

1
2
3

9.4 The First Law of Thermodynamics

1
2
3

9.5 Specific Heat and Thermal Conductivity

1
2
3

9.6 Entropy and the Second Law of Thermodynamics

UNIT 10

Electric Force, Field, and Potential

~14–21 Class Periods 15–18% AP Exam Weighting

1
2
3

10.1 Electric Charge and Electric Force

1
2
3

10.2 Conservation of Electric Charge and the Process of Charging

1
2
3

10.3 Electric Fields

1
2
3

10.4 Electric Potential Energy

1
2
3

10.5 Electric Potential

1
2
3

10.6 Capacitors

1
2
3

10.7 Conservation of Electric Energy

Progress Check 9

Multiple-choice: ~18 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

Progress Check 10

Multiple-choice: ~24 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 11

Electric Circuits

~12–20 Class Periods **15–18%** AP Exam Weighting

1
2
3

11.1 Electric Current

1
2
3

11.2 Simple Circuits

1
2
3

11.3 Resistance, Resistivity, and Ohm's Law

1
2
3

11.4 Electric Power

1
2
3

11.5 Compound Direct Current (DC) Circuits

1
2
3

11.6 Kirchhoff's Loop Rule

1
2
3

11.7 Kirchhoff's Junction Rule

1
2
3

11.8 Resistor-Capacitor (RC) Circuits

UNIT 12

Magnetism and Electromagnetism

~10–13 Class Periods **12–15%** AP Exam Weighting

1
2
3

12.1 Magnetic Fields

1
2
3

12.2 Magnetism and Moving Charges

1
2
3

12.3 Magnetism and Current-Carrying Wires

1
2
3

12.4 Electromagnetic Induction and Faraday's Law

UNIT 13

Geometric Optics

~8–12 Class Periods **12–15%** AP Exam Weighting

1
2
3

13.1 Reflection

1
2
3

13.2 Images Formed by Mirrors

1
2
3

13.3 Refraction

1
2
3

13.4 Images Formed by Lenses

Progress Check 11

Multiple-choice: ~24 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

Progress Check 12

Multiple-choice: ~18 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

Progress Check 13

Multiple-choice: ~18 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 14

Waves, Sound, and Physical Optics

~14–23 Class Periods **12–15%** AP Exam Weighting

- 1
2
3

14.1 Properties of Wave Pulses and Waves

1
2
3

14.2 Periodic Waves

1
2
3

14.3 Boundary Behavior of Waves and Polarization

1
2
3

14.4 Electromagnetic Waves

1
2
3

14.5 The Doppler Effect

1
2
3

14.6 Wave Interference and Standing Waves

1
2
3

14.7 Diffraction

1
2
3

14.8 Double-Slit Interference and Diffraction Gratings

1
2
3

14.9 Thin-Film Interference

Progress Check 14

Multiple-choice: ~30 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 15

Modern Physics

~14–22 Class Periods **12–15%** AP Exam Weighting

- 1
2
3

15.1 Quantum Theory and Wave-Particle Duality

1
2
3

15.2 The Bohr Model of Atomic Structure

1
2
3

15.3 Emission and Absorption Spectra

1
2
3

15.4 Blackbody Radiation

1
2
3

15.5 The Photoelectric Effect

1
2
3

15.6 Compton Scattering

1
2
3

15.7 Fission, Fusion, and Nuclear Decay

1
2
3

15.8 Types of Radioactive Decay

Progress Check 15

Multiple-choice: ~24 questions

Free-response: 4 questions

- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation