AP® Physics C: Electricity & Magnetism

Course at a Glance

Plan

The Course at a Glance provides a useful visual organization for the AP Physics C: Electricity and Magnetism 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 and for 90-minute periods meeting daily for a single semester.
- Progression of topics within each unit.
- Spiraling of the science practices across units.

Teach

PRACTICES

Science Practices spiral throughout the course.

1. Creating Representations
2. Mathematical Routines
3. Scientific Questioning and Argumentation

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 8

Electric Charges, Fields, and Gauss's Law

~12–24 CLASS PERIODS
15–25% AP EXAM WEIGHTING

Skill	Topic
1 2 3	8.1 Electric Charge and Electric Force
1 2 3	8.2 Conservation of Electric Charge and the Process of Charging
1 2 3	8.3 Electric Fields
1 2 3	8.4 Electric Fields of Charge Distributions
1 2 3	8.5 Electric Flux
1 2 3	8.6 Gauss's Law

Progress Check 8

Multiple-choice: ~18 questions
Free-response: 4 questions
- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 9

Electric Potential

~10–20 CLASS PERIODS
10–20% AP EXAM WEIGHTING

Skill	Topic
1 2 3	9.1 Electric Potential Energy
1 2 3	9.2 Electric Potential
1 2 3	9.3 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

UNIT 10

Conductors and Capacitors

~8–16 CLASS PERIODS
10–15% AP EXAM WEIGHTING

Skill	Topic
1 2 3	10.1 Electrostatics with Conductors
1 2 3	10.2 Redistribution of Charge between Conductors
1 2 3	10.3 Capacitors
1 2 3	10.4 Dielectrics

Progress Check 10

Multiple-choice: ~18 questions
Free-response: 4 questions
- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 11

Electric Circuits

~12–24 CLASS PERIODS
15–25% AP EXAM WEIGHTING

Skill	Topic
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 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

Progress Check 11

Multiple-choice: ~24 questions
Free-response: 4 questions
- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 12

Magnetic Fields and Electromagnetism

~10–20 CLASS PERIODS
10–20% AP EXAM WEIGHTING

Skill	Topic
1 2 3	12.1 Magnetic Fields
1 2 3	12.2 Magnetism and Moving Charges
1 2 3	12.3 Magnetic Fields of Current-Carrying Wires and the Biot-Savart Law
1 2 3	12.4 Ampère's Law

Progress Check 12

Multiple-choice: ~18 questions
Free-response: 4 questions
- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation

UNIT 13

Electromagnetic Induction

~10–20 CLASS PERIODS
10–20% AP EXAM WEIGHTING

Skill	Topic
1 2 3	13.1 Magnetic Flux
1 2 3	13.2 Electromagnetic Induction
1 2 3	13.3 Induced Currents and Magnetic Forces
1 2 3	13.4 Inductance
1 2 3	13.5 Circuits with Resistors and Inductors (LR Circuits)
1 2 3	13.6 Circuits with Capacitors and Inductors (LC Circuits)

Progress Check 13

Multiple-choice: ~18 questions
Free-response: 4 questions
- Mathematical Routines
- Translation Between Representations
- Experimental Design and Analysis
- Qualitative/Quantitative Translation