## AP<sup>®</sup> Physics 2

# Your Course at a Glance

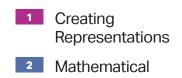
### Plan

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.



Routines

3 Scientific Questioning and Argumentation

## **Required Course**

Each topic contains required Learning Objectives and Essential Knowledge Statements that from 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 freeresponse questions. The feedback from these checks shows students the areas where they need to focus.

UNIT

## Thermodynamics

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

9.1 Kinetic Theory of Temperature and Pressure

9.2 The Ideal Gas Law

9.3 Thermal Energy Transfer and **Equilibrium** 

9.4 The First Law of **Thermodynamics** 

9.5 Specific Heat and Thermal

9.6 Entropy and the Second Law of Thermodynamics

UNIT

Electric Force, Field, and Potential

10.1 Electric Charge and Electric

1 10.2 Conservation of Electric

10.4 Electric Potential Energy

1 10.7 Conservation of Electric

10.3 Electric Fields

10.5 Electric Potential

1 10.6 Capacitor

Charge and the Process of

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

~12-20 Class Periods 15-18% AP Exam Weighting

UNIT

**Electric Circuits** 

1 11.1 Electric Current

1 11.2 Simple Circuits

11.3 Resistance, Resistivity, and Ohm's Law

11.4 Electric Power

11.5 Compound Direct Current (DC) Circuits

11.6 Kirchhoff's Loop Rule

1 11.7 Kirchhoff's Junction Rule

1 11.8 Resistor-Capacitor (RC) **Circuits** 

UNIT 12

Magnetism and Electromagnetism

~10-13 Class Periods 12-15% AP Exam Weighting

12.1 Magnetic Fields

12.2 Magnetism and Moving

12.3 Magnetism and Current-**Carrying Wires** 

12.4 Electromagnetic Induction and Faraday's Law

UNIT **13** 

Geometric **Optics** 

~8-12 Class Periods 12-15% AP Exam Weighting

13.1 Reflection

13.2 Images Formed by Mirrors

1 13.3 Refraction

1 13.4 Images Formed by Lenses

UNIT 14

Waves, Sound, and Physical Optics

~14-23 Class Periods 12-15% AP Exam Weighting

14.1 Properties of Wave Pulses and Waves

14.2 Periodic Waves

14.3 Boundary Behavior of Waves and Polarization

14.4 Electromagnetic Waves

14.5 The Doppler Effect

14.6 Wave Interference and **Standing Waves** 

1 14.7 Diffraction

1 14.8 Double-Slit Interference and **Diffraction Gratings** 

14.9 Thin-Film Interference

**Modern Physics** 

~14-22 Class Periods 12-15% AP Exam Weighting

UNIT

**15** 

1 15.1 Quantum Theory and Wave-Particle Duality

15.2 The Bohr Model of Atomic Structure

15.3 Emission and Absorption

15.4 Blackbody Radiation

15.5 The Photoelectric Effect

15.6 Compton Scattering

15.7 Fission, Fusion, and Nuclear Decay

1 15.8 Types of Radioactive Decay

#### 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

**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 **Progress Check 14** 

Multiple-choice: ~30 questions Free-response: 4 questions Mathematical Routines

Translation Between Representations

 Experimental Design and Analysis Qualitative/Quantitative Translation **Progress Check 15** 

Multiple-choice: ~24 questions Free-response: 4 questions

 Mathematical Routines Translation Between Representations

Experimental Design and Analysis

Qualitative/Quantitative Translation

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