CollegeBoard AP

AP® Environmental Science

Your Course at a Glance

Plan

The Course at a Glance provides a useful visual organization of the AP Environmental Science curricular 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

SCIENCE PRACTICES

Science practices spiral throughout the course.

- 1 Concept Explanation
- 2 Visual Representations
- 3 Text Analysis
- 4 Scientific Experiments
- 5 Data Analysis
- 6 Mathematical Routines
- 7 Environmental Solutions

BIG IDEAS

Big ideas spiral across topics and units.

- ENG Energy Transfer
- ERT Interactions Between Earth Systems
- EIN Interactions Between Different Species and the Environment
- STB Sustainability

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 the Personal Progress Checks shows students the areas where they need to focus.

UNIT 1

The Living World: Ecosystems

~14–15 Class Periods | 6–8% AP Exam Weighting

- ERT 1 **1.1** Introduction to Ecosystems
- ERT 1 **1.2** Terrestrial Biomes
- ERT 1 **1.3** Aquatic Biomes
- ERT 2 **1.4** The Carbon Cycle
- ERT 2 **1.5** The Nitrogen Cycle
- ERT 2 **1.6** The Phosphorus Cycle
- ERT 2 **1.7** The Hydrologic (Water) Cycle
- ENG 1 **1.8** Primary Productivity
- ENG 1 **1.9** Trophic Levels
- ENG 6 **1.10** Energy Flow and the 10% Rule
- ENG 2 **1.11** Food Chains and Food Webs

Personal Progress Check 1
Multiple-choice: ~30 questions
Free-response: 1 question (partial)
- Analyze an environmental problem and propose a solution

UNIT 2

The Living World: Biodiversity

~11–12 Class Periods | 6–8% AP Exam Weighting

- ERT 1 **2.1** Introduction to Biodiversity
- ERT 1 **2.2** Ecosystem Services
- ERT 1 **2.3** Island Biogeography
- ERT 3 **2.4** Ecological Tolerance
- ERT 5 **2.5** Natural Disruptions to Ecosystems
- ERT 5 **2.6** Adaptations
- ERT 5 **2.7** Ecological Succession

Personal Progress Check 2
Multiple-choice: ~20 questions
Free-response: 1 question (partial)
- Design an investigation

UNIT 3

Populations

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

- ERT 1 **3.1** Generalist and Specialist Species
- ERT 5 **3.2** K-Selected r-Selected Species
- ERT 5 **3.3** Survivorship Curves
- ERT 6 **3.4** Carrying Capacity
- ERT 4 **3.5** Population Growth and Resource Availability
- EIN 5 **3.6** Age Structure Diagrams
- EIN 5 **3.7** Total Fertility Rate
- EIN 7 **3.8** Human Population Dynamics
- EIN 1 **3.9** Demographic Transition

Personal Progress Check 3
Multiple-choice: ~20 questions
Free-response: 1 question (partial)
- Analyze an environmental problem and propose a solution doing calculations

UNIT 4

Earth Systems and Resources

~11–12 Class Periods | 10–15% AP Exam Weighting

- ERT 2 **4.1** Plate Tectonics
- ERT 4 **4.2** Soil Formation and Erosion
- ERT 4 **4.3** Soil Composition and Properties
- ERT 2 **4.4** Earth's Atmosphere
- ERT 2 **4.5** Global Wind Patterns
- ERT 1 **4.6** Watersheds
- ENG 2 **4.7** Solar Radiation and Earth's Seasons
- ENG 2 **4.8** Earth's Geography and Climate
- ENG 7 **4.9** El Niño and La Niña

Personal Progress Check 4
Multiple-choice: ~25 questions
Free-response: 1 question
- Design an investigation

UNIT 5

Land and Water Use

~18–19 Class Periods | 10–15% AP Exam Weighting

- EIN 1 **5.1** The Tragedy of the Commons
- EIN 1 **5.2** Clearcutting
- EIN 3 **5.3** The Green Revolution
- EIN 1 **5.4** Impacts of Agricultural Practices
- EIN 7 **5.5** Irrigation Methods
- EIN 7 **5.6** Pest Control Methods
- EIN 5 **5.7** Meat Production Methods
- EIN 7 **5.8** Impacts of Overfishing
- EIN 7 **5.9** Impacts of Mining
- EIN 7 **5.10** Impacts of Urbanization
- EIN 5 **5.11** Ecological Footprints
- STB 5 **5.12** Introduction to Sustainability
- STB 4 **5.13** Methods to Reduce Urban Runoff
- STB 7 **5.14** Integrated Pest Management
- STB 7 **5.15** Sustainable Agriculture
- STB 7 **5.16** Aquaculture
- STB 7 **5.17** Sustainable Forestry

Personal Progress Check 5
Multiple-choice: ~35 questions
Free-response: 1 question
- Analyze an environmental problem and propose a solution

UNIT 6

Energy Resources and Consumption

~16–17 Class Periods | 10–15% AP Exam Weighting

- ENG 1 **6.1** Renewable and Nonrenewable Resources
- ENG 6 **6.2** Global Energy Consumption
- ENG 1 **6.3** Fuel Types and Uses
- ENG 2 **6.4** Distribution of Natural Energy Resources
- ENG 7 **6.5** Fossil Fuels
- ENG 2 **6.6** Nuclear Power
- ENG 7 **6.7** Energy from Biomass
- ENG 5 **6.8** Solar Energy
- ENG 7 **6.9** Hydroelectric Power
- ENG 1 **6.10** Geothermal Energy
- ENG 1 **6.11** Hydrogen Fuel Cell
- ENG 7 **6.12** Wind Energy
- ENG 6 **6.13** Energy Conservation

Personal Progress Check 6
Multiple-choice: ~35 questions
Free-response: 1 question
- Analyze an environmental problem and propose a solution doing calculations

UNIT 7

Atmospheric Pollution

~11–12 Class Periods | 7–10% AP Exam Weighting

- STB 4 **7.1** Introduction to Air Pollution
- STB 5 **7.2** Photochemical Smog
- STB 2 **7.3** Thermal Inversion
- STB 4 **7.4** Atmospheric CO_2 and Particulates
- STB 5 **7.5** Indoor Air Pollutants
- STB 7 **7.6** Reduction of Air Pollutants
- STB 4 **7.7** Acid Rain
- STB 3 **7.8** Noise Pollution

Personal Progress Check 7
Multiple-choice: ~20 questions
Free-response: 1 question
- Design an investigation

UNIT 8

Aquatic and Terrestrial Pollution

~19–20 Class Periods | 7–10% AP Exam Weighting

- STB 1 **8.1** Sources of Pollution
- STB 6 **8.2** Human Impacts on Ecosystems
- STB 1 **8.3** Endocrine Disruptors
- STB 7 **8.4** Human Impacts on Wetlands and Mangroves
- STB 2 **8.5** Eutrophication
- STB 1 **8.6** Thermal Pollution
- STB 1 **8.7** Persistent Organic Pollutants (POPs)
- STB 4 **8.8** Bioaccumulation and Biomagnification
- STB 7 **8.9** Solid Waste Disposal
- STB 6 **8.10** Waste Reduction Methods
- STB 2 **8.11** Sewage Treatment
- EIN 6 **8.12** Lethal Dose 50% (LD_{50})
- EIN 5 **8.13** Dose Response Curve
- EIN 4 **8.14** Pollution and Human Health
- EIN 2 **8.15** Pathogens and Infectious Diseases

Personal Progress Check 8
Multiple-choice: ~35 questions
Free-response: 1 question
- Analyze an environmental problem and propose a solution doing calculations

UNIT 9

Global Change

~19–20 Class Periods | 15–20% AP Exam Weighting

- STB 1 **9.1** Stratospheric Ozone Depletion
- STB 7 **9.2** Reducing Ozone Depletion
- STB 1 **9.3** The Greenhouse Effect
- STB 2 **9.4** Increases in the Greenhouse Gases
- STB 6 **9.5** Global Climate Change
- STB 7 **9.6** Ocean Warming
- STB 1 **9.7** Ocean Acidification
- EIN 7 **9.8** Invasive Species
- EIN 7 **9.9** Endangered Species
- EIN 7 **9.10** Human Impacts on Biodiversity

Personal Progress Check 9
Multiple-choice: ~25 questions
Free-response: 1 question
- Analyze an environmental problem and propose a solution

NOTE: Partial versions of the free-response questions are provided to prepare students for more complex, full questions that they will encounter on the AP Exam.