AP Environmental Science

College Board Standards

Course Description:

The AP Environmental Science course is designed to engage students with the scientific principles, concepts, and methodologies required to understand the interrelationships within the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. Environmental science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry, and geography. The AP Environmental Science course is designed to be the equivalent of a one-semester, introductory college course in environmental science.

Scope and Sequence 2024-2025

| Semester One<br>August 14-December 19, 2024 |
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| **First 9 Weeks (40 Days)**<br>**August 14- October 11, 2024** |
| Unit 1 (CED pages 36-46)<br>The Living World Ecosystems:<br>1.1 Introduction to Ecosystems<br>1.2 Terrestrial Biomes<br>1.3 Aquatic Biomes<br>1.4 The Carbon Cycle<br>1.5 The Nitrogen Cycle<br>1.6 The Phosphorus Cycle<br>1.7 The Hydrologic (Water) Cycle<br>1.8 Primary Productivity<br>1.9 Trophic Levels<br>1.10 Energy Flow and the 10% rule<br>1.11 Food Chains and Food Webs<br><br>Unit 2 (CED pages 52-58)<br>The Living World Biodiversity:<br>2.1 Introduction to Biodiversity<br>2.2 Ecosystems and Services<br>2.3 Island Biogeography<br>2.4 Ecological Tolerances<br>2.5 Natural Disruptions to Ecosystems<br>2.6 Adaptations<br>2.7 Ecological Succession<br><br>Unit 3 (CED pages 64-73) |

Populations:
3.1 Generalist and Specialist Species
3.2 K-Selected r-Selected Species
3.3 Survivorship Curves
3.4 Carrying Capacity
3.5 Population Growth and Resource Availability
3.6 Age Structure Diagrams
3.7 Total Fertility Rate
3.8 Human Population Dynamics
3.9 Demographic Transition

**Second 9 Weeks (42 Days)**
**October 14-December 19, 2024**

Unit 3 continued (CED pages 64-73)
3.1 Generalist and Specialist Species
3.2 K-Selected r-Selected Species
3.3 Survivorship Curves
3.4 Carrying Capacity
3.5 Population Growth and Resource Availability
3.6 Age Structure Diagrams
3.7 Total Fertility Rate
3.8 Human Population Dynamics
3.9 Demographic Transition

Populations:
Unit 4 (CED pages 80-88)
Earth's Systems and Resources:
4.1 Plate Tectonics
4.2 Soil Formation and Erosion
4.3 Soil Composition and Properties
4.4 Earth's Atmosphere
4.5 Global Wind Patterns
4.6 Watersheds
4.7 Solar Radiation and Earth's Seasons
4.8 Earth's Geography and Climate
4.9 El Nino and La Nina

Unit 5 (CED pages 95-113)
Land and Water Use:
5.1 The Tragedy of the Commons
5.2 Clearcutting
5.3 The Green Revolution
5.4 Impacts of Agricultural Practices
5.5 Irrigation Methods
5.6 Pest Control Methods
5.7 Meat Production Methods
5.8 Impacts of Overfishing
5.9 Impacts of Mining
5.10 Impacts of urbanization

5.11 Ecological Footprints
5.12 Introduction to Sustainability
5.13 Methods to Reduce Urban Runoff
5.14 Integrated Pest Management
5.15 Sustainable Agriculture
5.16 Aquaculture
5.17 Sustainable Forestry

Midterm

Semester Two
January 8-May 21, 2025

**Third 9 Weeks (40 Days)**
**January 8-March 7, 2025**

Unit 5 **Continued** (CED pages 95-113)
Land and Water Use:
5.1 The Tragedy of the Commons
5.2 Clearcutting
5.3 The Green Revolution
5.4 Impacts of Agricultural Practices
5.5 Irrigation Methods
5.6 Pest Control Methods
5.7 Meat Production Methods
5.8 Impacts of Overfishing
5.9 Impacts of Mining
5.10 Impacts of urbanization
5.11 Ecological Footprints
5.12 Introduction to Sustainability
5.13 Methods to Reduce Urban Runoff
5.14 Integrated Pest Management
5.15 Sustainable Agriculture
5.16 Aquaculture
5.17 Sustainable Forestry

Unit 6 (CED pages 115-133)
Energy Resources and Consumption
6.1 Renewable and Nonrenewable Resources
6.2 Global Energy Consumption
6.3 Fuel Types and Uses
6.4 Distribution of Natural Energy Resources
6.5 Fossil Fuels
6.6 Nuclear Power
6.7 Energy from Biomass
6.8 Solar Energy
6.9 Hydroelectric Power
6.10 Geothermal Energy
6.11 Hydrogen Fuel Cell
6.12 Wind Energy
6.13 Energy Conservation

Unit 7 (CED pages 135-149)
Atmospheric Pollution
7.1 Introduction to Air Pollution
7.2 Photochemical Smog
7.3 Thermal Inversion
7.4 Atmospheric CO2 and Particulates
7.5 Indoor Air Pollutants
7.6 Reduction of Air Pollutants
7.7 Acid Rain
7.8 Noise Pollution

**Fourth 9 Weeks (46 Days)**
**March 18-May 21, 2025**

Unit 8 (CED Pages 151-176)
Aquatic and Terrestrial Pollution
8.1 Sources of Pollution
8.2 Human Impacts on Ecosystems
8.3 Endocrine Disruptors
8.4 Human Impacts on Wetlands and Mangroves
8.5 Eutrophication
8.6 Thermal Pollution
8.7 Persistent Organic Pollutants (POPs)
8.8 Bioaccumulation and Biomagnification
8.9 Solid Waste Disposal
8.10 Waste Reduction Methods
8.11 Sewage Treatment
8.12 Lethal Dose 50% (LD50)
8.13 Dose Response Curve
814 Pollution and Human Health
8.15 Pathogens and Infectious Diseases

Unit 9 (CED Pages 177-193)
Global Change
9.1 Stratospheric Ozone Depletion
9.2 Reducing Ozone Depletion
9.3 The Greenhouse Effect
9.4 Increase in the Greenhouse Gases
9.5 Global Climate Change
9.6 Ocean Warming
9.7 Ocean Acidification
9.8 Invasive Species
9.9 Endangered Species
9.10 Human Impacts on Biodiversity

AP Review and Exam: April/May