

# Advanced Environmental Science Syllabus, Pacing Guide and Daily Lesson Plans Table of Contents

The detailed syllabus, pacing guide and daily lesson plans are designed for the teacher. The outline syllabus, with less detail, should be provided to the student with the student activity book. The pacing guide gives a quick overview of the major topics for each 45-60 minute period meeting 5 times per week. Schools with floating days and block schedules will have to combine days. In many units, an optional review day has been included that may be omitted if teaching time has been shortened.

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# *Advanced Environmental Science Syllabus*

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To the Teacher: The course materials are aligned to the Advanced Placement seven required content areas topics. Below is a list of the class notes as PowerPoint Presentations and labs included in the Student Lab Manual. The Pacing Guide and Lesson Plans give directions on the timing and use of these content areas.

## **Unit 1: Environmental Studies and Biomes**

- Class Notes 1.1 History of Environmental Movement
- Lab 1:1 Environmental Literacy Journal
- Class Notes 1.2 Economic Influences
- Class Notes 1.3 Quantitative Skills
- Lab 1:2 Quantitative Skills Review
- Class Notes 1.4 Scientific Methods
- Class Notes 1.5 Writing Advanced Placement Essays
- Lab 1:3 Scientific Inquiry and Experimental Design
- Class Notes 1.6 Development of Biomes
- Class Notes 1.7 Forest Biomes
- Class Notes 1.8 Forestry Management
- Class Notes 1.9 Mountain and Desert Biomes
- Class Notes 1.10 Grassland Biomes
- Lab 1:4 Characteristics of Biomes

## **Unit 2: Earth Systems**

- Class Notes 2.1 Formation of Earth
- Lab 2:5 Geographic Information and Phenology
- Class Notes 2.2 Basic Geography
- Lab 2:6 Orienteering, GPS and GIS
- Class Notes 2.3 Biogeochemical Cycles
- Lab 2:7 Contour Maps and Topographic Profiles
- Class Notes 2.4 Plate Tectonics
- Lab 2:8 Plate Tectonics
- Class Notes 2.5 Earth's Atmosphere
- Class Notes 2.6 Air Circulation
- Class Notes 2.7 Ocean Circulation

### **Unit 3: Ecosystems and Ecology**

- Class Notes 3.1 Species Interactions
- Lab 3:9 Species Census and Biodiversity
- Class Notes 3.2 Limiting Factors
- Class Notes 3.3 Natural Selection
- Lab 3:10 Ecological Roles
- Class Notes 3.4 Ecosystem Changes
- Lab 3:11 Natural Selection in Leopard Frogs
- Class Notes 3.5 Endangered Species
- Class Notes 3.6 Energy Flow
- Class Notes 3.7 Food Webs
- Lab 3:12 Biological Energy Transfer
- Class Notes 3.8 Species Movement
- Class Notes 3.9 Ecological Succession

### **Unit 4 Population Dynamics**

- Class Notes 4.1 Population Dynamics
- Lab 4:13 Correlational Studies with Lemna
- Lab 4:14 Oh Deer: Growth Rate Assessment
- Class Notes 4.2 Wildlife Management
- Class Notes 4.3 Species Interactions
- Class Notes 4.4 Human Populations
- Class Notes 4.5 Demography
- Lab 4:15 Human Population Demographics
- Class Notes 4.6 Urbanization
- Class Notes 4.7 Diseases
- Lab 4:16 Graveyard Smash: Human Survivorship

### **Unit 5 Energy**

- Class Notes 5.1 Energy Concepts
- Lab 5:17 Carrying Capacity
- Class Notes 5.2 Agriculture and Green Revolution
- Class Notes 5.3 Renewable Energy
- Lab 5:18 Energy Consumption
- Class Notes 5.4 Non-Renewable and Nuclear Energy
- Lab 5:19 Alternative Energy
- Lab 5:20 Effects of Radiation

## **Unit 6 The Land Environment**

Class Notes 6.1 Earth Structures  
Lab 6:21 Rock Cycle, Weathering and Sediments  
Class Notes 6.2 Minerals and Mining  
Class notes 6.3 Soil  
Lab 6:22 Soil Quality Testing  
Class Notes 6.4 Land Use and Green Consumerism  
Class Notes 6.5 Ethnobotany  
Lab 6:23 Conducting Field Research  
Class Notes 6.6 Solid and Hazardous Wastes  
Lab 6:24 Solid Waste Measurement and the Four R's

## **Unit 7 The Air Environment**

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Lab 7:25 Meteorological Survey  
Class Notes 7.2 Air Pollution  
Class Notes 7.3 The Greenhouse Effect  
Lab 7:26 Testing for Air Quality  
Class Notes 7.4 Global Temperature Change  
Lab 7:27 Acid Precipitation Toxicity  
Class Notes 7.5 Air Quality Toxicology  
Lab 7:28 Modeling Climate Change

## **Unit 8 The Water Environment**

Class Notes 8.1 Properties of Water  
Class Notes 8.2 The Hydrologic Cycle  
Lab 8:29 Freshwater Stream Field Study  
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Lab 8:32 Dissolved Oxygen and Primary Productivity