

AP Environmental Science

Time : 137h 34m / Lessons : 147 / Activities : 432

Unit	Topic	Lesson	Lesson Objectives	Time
Introduction to AP* Environmental Science	Topic 1: Navigating the Course	The AP* Environmental Science Exam	1. Identify components of the AP* Environmental Science course	10m
		Resources to Use	1. Utilize the resources of the *AP Environmental Science course	30m
Unit 1: Scientific Method & Introduction to Environmental Science	Topic 1: Scientific Method	Scientific Inquiry	1. Describe the steps involved in scientific inquiry	1h 4m
			2. Differentiate between an observation and an inference	
			3. Explain the relationship between variables and controls in an experiment	
			4. Compare and contrast scientific theories and scientific laws	
		Laboratory Tools and Safety	1. Describe the use of various common laboratory tools	54m
			2. Differentiate between light, dissecting, and electron microscopes	
			3. Identify safety equipment found in a science lab	
			4. Explain the importance of following common lab rules and procedures	
		Scientific Measurement	1. Explain the purpose of utilizing the metric system in scientific measurement	1h 33m
			2. Identify the basic SI units utilized in scientific measurement	
			3. Calculate values utilizing the metric conversion process	
			4. Describe the use of significant figures and rounding in scientific measurement	
		Critical Thinking in Science	1. Identify components of critical thinking	47m
			2. Explain the importance of critical thinking to science	
3. Evaluate three everyday uses of critical thinking				
Environmental Scientists and Ecologists	1. Summarize the work of famous environmental scientists of the past	2h 19m		
	2. Examine the contributions of environmental scientists to today's environment			
	3. Skills Used: Making Predictions, Identifying Trends			
Careers in Environmental Science	1. Describe the job of an environmental scientist	49m		
	2. Explore additional careers in environmental science			
	3. Discuss possible future careers and fields in environmental science			
	4. Skills Used: Identifying Trends, Making Predictions, Compare and Contrast, Interpreting Observations			
Topic Test				40m
Topic 2: Introduction to Environmental Science	The Study of Environmental Science	1. Define the components of environmental science	1h 1m	
		2. Describe the interdependence of organisms in the environment		
		3. Discuss human impacts on the Earth		
		4. Skills Used: Making Logical Connections, Understanding Cause and Effect, Interpreting Observations		
	Governments and Business	1. Illustrate how conservation efforts have positively impacted ecosystems	41m	
		2. Compare the effects of government sanctioned activities on ecosystems		
		3. Assess the impact of government and business on energy efficiency		
		4. Skills used: Making logical connections, interpreting observations, supporting claims, making predictions, compare and contrast		
	Informed Policy	1. Describe the influence that scientific knowledge has on society	43m	
		2. Identify contributing factors to environmental policy decisions		
3. Evaluate the benefits of monitoring environmental parameters when making policy regarding resource use				
4. Skills used: Compare and contrast, making logical connections, supporting claims, understanding cause and effect				
Impact of Policy	1. Assess the potential environmental consequences of policies that address social problems	1h 3m		
	2. Evaluate the effects of policies on global and local ecosystems			
	3. Propose possible effects of policies regarding sustainable land use			
	4. Skills used: Supporting claims, plotting trends, making predictions, interpreting observations, compare and contrast			
Milestones and Turning Points	1. Illustrate the impact of major milestones in environmental science	42m		
	2. Predict possible milestones in environmental policy			
	3. Describe the efforts of various countries to reduce resource and ecological depletion			
	4. Skills used: Making valid criticisms, understanding cause and effect, researching with technology, making predictions, identifying trends			
Topic Test				40m
Ecology 101	1. Describe the levels of organization in the biosphere	1h 5m		
			2. Identify the major biomes found on Earth	
			3. Compare and contrast major ecosystems found on Earth	
			4. Skills Used: Create a Flow Chart, Compare and Contrast	
	1. Identify factors that can cause change within an ecosystem			

Unit 2: Life on Earth – Ecology and Habitats	Topic 1: Introduction to Ecology	Ecology 102	2. Evaluate the effects of different factors on ecosystem stability	59m
			3. Describe changes that can occur within an ecosystem	
			4. Skills Used: Understanding Cause and Effect, Making Logical Connections, Interpreting Observations	
		Trophic Levels and Food Webs	1. Explain how relationships between organisms in an ecosystem contribute to energy flow within a food chain	1h 32m
			2. Analyze the effects of changes in populations on food web dynamics	
			3. Differentiate between three types of energy pyramids	
	4. Analyze relationships between producers, consumers and decomposers in an ecosystem			
		5. Skills Used: Compare and Contrast, Create a Structure Diagram, Understanding Cause and Effect, Interpreting Observations		
	Adaptation	1. Describe the development of the theory of evolution	1h 17m	
		2. Explain the theory of evolution		
		3. Relate adaptations of organisms to resource competition		
		4. Skills Used: Create a Timeline, Making Logical Connections		
	Global Connection: Why Invasive Species Thrive	1. Relate the ability of invasive species to thrive in their new habitat to resource competition.	45m	
	Topic Test			40m
	Topic 2: Habitats	Organismal Relationships	1. Describe three types of interactions between organisms in an ecosystem	1h 11m
			2. Compare and contrast mutualism, parasitism, and commensalism	
			3. Explain the effects of competitive exclusion on an ecosystem	
			4. Skills Used: Compare and Contrast, Understanding Cause and Effect	
		Biodiversity	1. Analyze the effects of local evolution or migration on an ecosystem	1h 2m
			2. Predict the impact of removing or adding organisms on a food chain	
			3. Explain how changes in biodiversity impact an ecosystem	
			4. Skills Used: Making Predictions, Making Logical Connections	
		Land Habitats	1. Differentiate between biotic and abiotic factors in various ecosystems	52m
2. Explain the adaptations of indigenous species to their respective ecosystems				
3. Skills Used: Compare and Contrast				
Aquatic Habitats	1. Compare and contrast the components of marine and freshwater ecosystems	53m		
	2. Differentiate between terrestrial and aquatic energy pyramids			
	3. Skills Used: Compare and Contrast			
Topic Test			40m	
*AP Test Prep	*AP Review	Units 1 & 2	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m
Topic 1: Earth's Cycles	The Cycles of Matter	1. Describe various cycles of matter that take place on Earth	48m	
		2. Evaluate the role played by cycles in sustaining life		
		3. Explain the change in energy that occurs between each cycle in an ecosystem		
	Effects of Cycles on Ecosystems	1. Explain how fluctuations in abiotic cycles influence populations	46m	
		2. Describe the movement of carbon compounds through a food web		
		3. Describe the effects of abiotic cycles on local ecosystems		
	Energy Transformation	1. Discuss the main forms of energy in an ecosystem	1h 4m	
		2. Explain how energy is transformed and conserved as it changes from one form to another		
3. Describe the impact of energy transformations on ecosystems				
4. Skills used: Making logical connections, creating diagrams, compare and contrast				
Energy Transfer	1. Outline the flow of energy in an ecosystem	1h 8m		
	2. Describe how the amount of available energy changes between trophic levels in a food chain			
	3. Explain the relationship between entropy and usable energy in a food chain			
	4. Skills used: Making logical connections, creating a flow chart			
Succession	1. Identify various causes of succession in ecosystems	49m		
	2. Differentiate between primary and secondary succession in ecosystems			
	3. Explain the importance of succession in maintaining ecosystems			
Topic Test			40m	
Topic 2: Earth's Systems	Systems and Cycles	1. Establish the features of systems and cycles including open and closed systems, positive and negative feedback	1h 10m	
		2. Recognize the implications to an environment due to growth rate		
		3. Apply the Gaia hypothesis for solving future environmental issues		
		4. Relate the components of a cycle or system to consequences of improving the environment		
	Skills Lesson: Modeling Systems and Cycles	1. Identify a system or cycle to be modeled	39m	
2. Determine the main parts or processes of the system or cycle				
3. Organize the parts or processes sequentially				

Unit 3: Life on Earth - Cycles and Systems			4. Model the main parts or processes of the system or cycle		
		Systems of the Biosphere	1. Describe Earth's systems in terms of energy, matter, time and space 2. Explain the interactions between Earth's systems	47m	
		Patterns in Systems	1. Describe various patterns found in the Earth system 2. Identify methods of measuring constancy and change in a system	49m	
		Topic Test	Topic Test	40m	
	Topic 3: Shaping Earth		Life and Earth's Crust	1. Describe the composition of each layer of the Earth 2. Explain the structure and function of the Earth's crust 3. Evaluate the interdependence of Earth's crust and its organisms 4. Skills used: Create graph, map, chart	1h 1m
			Global Connection: Recycling on Earth	1. Compare human recycling techniques to similar cycles in nature	45m
			Plate Tectonics	1. Explain the theory of plate tectonics 2. Relate the movement of the continents to changes in weather patterns 3. Describe the impact of continental shifting on local environments 4. Skills used: Create graph, map, chart	1h 5m
			Locating, Identifying, and Mining the Resources in the Earth	1. Identify the factors responsible for mineral deposit distribution 2. Explain the controlling factors of mineral exploitation 3. Illustrate how waste generated from mineral resources affects the environment 4. Investigate the role of nonrenewable minerals in sustainability efforts	1h 10m
			Minerals and Mining	1. Identify uses of minerals 2. Compare and contrast various mineral extraction methods 3. Explain the impact of mining on local populations 4. Describe the long-term consequences of large scale mineral extraction to the Earth 5. Skills used: Determining the cause and predicting the effect	49m
			Weathering and Erosion	1. Compare and contrast weathering and erosion 2. Distinguish between chemical and physical weathering 3. Describe the effects of natural erosion on the environment 4. Explain the impact of artificial erosion on the environment 5. Skills used: Create graph, map, chart	1h 3m
		Topic Test	Topic Test	40m	
Topic 1: Arid and Semi-Arid Biomes			Characteristics of Biomes	1. Identify the characteristics used to define all biomes 2. Summarize the history of biomes on Earth 3. Describe the impact of humanity on Earth's biomes 4. Compare and contrast artificial and natural changes within a biome 5. Skills Used: Compare and Contrast, Understanding Cause and Effect, Identifying Trends	1h 7m
			Desert and Desert-Scrub Biomes	1. Identify the characteristics of desert and desert-scrub biomes 2. Evaluate ways organisms have adapted to desert and desert-scrub environments 3. Skills Used: Making Logical Connections, Compare and Contrast	44m
			The Chaparral	1. Identify the characteristics of chaparral biomes 2. Evaluate ways organisms have adapted to chaparral 3. Skills Used: Making Logical Connections	40m
		Alpine and Taiga Biome	1. Identify the characteristics of the alpine and taiga biomes 2. Evaluate ways organisms have adapted to the alpine and taiga biomes 3. Skills Used: Making Logical Connections, Compare and Contrast	48m	
		The Tundra	1. Identify the characteristics of the tundra 2. Evaluate ways organisms have adapted to the tundra 3. Skills Used: Making Logical Connections	42m	
		Topic Test	Topic Test	40m	
	Topic 2: Temperate, Wet, and Aquatic Biomes		Savanna and Grassland Biomes	1. Identify the characteristics of the savanna and grassland biomes 2. Evaluate ways organisms have adapted to the savanna and grasslands 3. Skills Used: Making Logical Connections, Compare and Contrast	47m
			Deciduous Forests	1. Identify the characteristics of deciduous forests 2. Evaluate ways organisms have adapted to deciduous forests 3. Skills Used: Making Logical Connections	1h 3m
				1. Identify the characteristics of the rainforest	

Unit 4: Life on Earth - Biomes and Ecosystems		The Rainforest	2. Evaluate ways organisms have adapted to the rainforest 3. Skills Used: Making Logical Connections	2h 15m	
		Topic Test	Topic Test	40m	
	Topic 3: Freshwater Ecosystems	Freshwater and Marine Biomes	1. Identify characteristics that are unique to each of the aquatic biomes	2. Compare and contrast the adaptations of organisms in the aquatic biomes to their respective environments 3. Explain how human understanding of aquatic ecosystems has changed throughout history 4. Skills Used: Compare and Contrast, Identifying Trends	54m
			2. Compare and contrast the characteristics of pools, ponds, and lakes		
			3. Describe the cause of eutrophication and its effects on the environment		
			4. Assess the relationships between organisms that live in pools, ponds, and lakes		
		Pools, Ponds and Lakes	1. Compare and contrast the characteristics of streams and rivers	2. Describe the impact of current and oxygen content on biodiversity in streams and rivers 3. Explain various ways humans impact rivers and streams 4. Assess the relationships between organisms that live in streams and rivers	53m
			2. Differentiate littoral and riparian areas		
	Streams and Rivers	1. Differentiate various types of wetlands	2. Distinguish between the main types of water found in wetlands 3. Assess the biodiversity of organisms found in wetlands 4. Explain how the wetlands filter and clean water	58m	
		2. Differentiate littoral and riparian areas			
		3. Describe the cause of eutrophication and its effects on the environment			
		4. Assess the relationships between organisms that live in pools, ponds, and lakes			
		Wetlands	1. Differentiate various types of wetlands 2. Distinguish between the main types of water found in wetlands 3. Assess the biodiversity of organisms found in wetlands 4. Explain how the wetlands filter and clean water	58m	
		Topic Test	Topic Test	40m	
	Topic 4: Marine Ecosystems	Ocean Exploration	1. Explore the relationship between technology and new developments in oceanography	2. Discuss possible applications of recent discoveries within the ocean 3. Examine how recent discoveries in abyssal zones have impacted scientific theories	43m
			2. Discuss possible applications of recent discoveries within the ocean		
			3. Examine how recent discoveries in abyssal zones have impacted scientific theories		
		Salt Marshes and Mangroves	1. Identify characteristics of salt marsh and mangrove habitats	2. Explain how utilization of mangrove and salt marshes has changed over time 3. Propose alternative ways to utilize resources in mangroves and salt marshes 4. Skills used: Forming a Valid Hypothesis	42m
			2. Explain how utilization of mangrove and salt marshes has changed over time		
			3. Propose alternative ways to utilize resources in mangroves and salt marshes		
			4. Skills used: Forming a Valid Hypothesis		
		Coral Reefs	1. Describe the characteristics of a coral reef	2. Explain the relationship between aquatic organisms and the coral reef 3. Examine causes of coral reef loss 4. Analyze the effectiveness of current efforts to preserve coral reefs 5. Skills used: Forming a Valid Hypothesis	50m
	2. Explain the relationship between aquatic organisms and the coral reef				
3. Examine causes of coral reef loss					
4. Analyze the effectiveness of current efforts to preserve coral reefs					
5. Skills used: Forming a Valid Hypothesis					
Issues Affecting Marine Ecosystems	1. Identify the impacts of floating refuse on marine ecosystems	2. Describe how fisheries and ocean bottom trawling impact marine ecosystems 3. Evaluate methods humans are using to reduce their impact on marine ecosystems	43m		
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	3. Evaluate methods humans are using to reduce their impact on marine ecosystems				
	Topic Test	Topic Test	40m		
*AP Test Prep	*AP Review	Units 3 & 4	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m	
Topic 1: Population Dynamics	Population Size	1. Identify biotic and abiotic factors that limit population growth	2. Evaluate the effect of various factors on population size 3. Analyze population patterns within ecosystems 4. Skills Used: Interpreting Data, Understanding Cause and Effect, Making Logical Connections	1h 29m	
		2. Evaluate the effect of various factors on population size			
		3. Analyze population patterns within ecosystems			
		4. Skills Used: Interpreting Data, Understanding Cause and Effect, Making Logical Connections			
	Population Genetics	1. Examine ways in which populations can be altered by genetic drift and the founder effect	2. Explain how a bottleneck event can affect the genetics of a population 3. Skills Used: Interpreting Data, Understanding Cause and Effect	2h 17m	
		2. Explain how a bottleneck event can affect the genetics of a population			
		3. Skills Used: Interpreting Data, Understanding Cause and Effect			
Determining Population Size	1. Compare and contrast various methods of determining population size	2. Distinguish between major population growth models 3. Calculate population density 4. Skills Used: Interpreting Data, Compare and Contrast, Calculating Data	1h 4m		
	2. Distinguish between major population growth models				
	3. Calculate population density				
	4. Skills Used: Interpreting Data, Compare and Contrast, Calculating Data				
Measuring Populations	1. Compare and contrast various types of population distribution	2. Differentiate between stabilizing, disruptive and directional selection utilizing a graph 3. Illustrate the structure of a given population demographic 4. Skills Used: Compare and Contrast, Create a Structure Diagram, Interpreting Data	49m		
	2. Differentiate between stabilizing, disruptive and directional selection utilizing a graph				
	3. Illustrate the structure of a given population demographic				
	4. Skills Used: Compare and Contrast, Create a Structure Diagram, Interpreting Data				
	Topic Test	Topic Test	40m		
	Urban Growth	1. Compare and contrast various urban and suburban migration patterns seen on the Earth	2. Describe the effects of upward growth on local environments	46m	
		2. Describe the effects of upward growth on local environments			

Unit 5: Human Population & Urban Environments	Topic 2: Human Populations and Urban Environments	Urban Sprawl	3. Describe the effects of urban sprawl on local environments	40m
			4. Skills used: Determine the cause and predict the effect	
		Limiting Factors and Humans	1. Identify the influences of environment on behavior	47m
			2. Explain the impact of limiting factors on human society	
			3. Describe factors that can impact the stability of a society	
		Sustainability	4. Skills used: Making logical connections, supporting claims, understanding cause and effect, making valid criticisms	1h 8m
	1. Compare and contrast the impact of differing human lifestyles on sustainability			
	2. Describe future sustainability utilizing graphs and current data			
	Humans and the Energy Cycle	3. Skills used: Making predictions, identifying trends, understanding cause and effect, compare and contrast, graphing projections	44m	
		1. Describe the relationship between energy consumption and quality of living		
	Societal Consequences	2. Explain the impact of energy flow and cycles of matter on society	43m	
		3. Skills used: Creating a flow chart, making predictions, making logical connections, identifying trends and patterns		
	Topic Test	1. Determine the impact of biotechnology on society and the environment	40m	
		2. Explain the benefits and disadvantages of scientific and medical advancements to society		
	Topic 3: The Environmental Impact of Humans and Technology	Human Events and the Environment	3. Skills used: Supporting claims, researching with technology, making valid criticisms, understanding cause and effect	44m
			1. Evaluate the impact of different agricultural techniques on the environment	
			2. Describe the effects of large-scale environmental catastrophes	
Natural Events and the Environment		3. Skills used: Making predictions, identifying trends, understanding cause and effect, graphing projections, compare and contrast, making valid criticisms, supporting	55m	
		1. Explain how human activities impact the effects of natural disasters		
		2. Describe the impact of natural disasters on local populations		
Effects of Technology		3. Skills used: Understanding cause and effect, graphing projections, making logical connections, supporting claims	45m	
		1. Describe the impact of energy producing technologies on the environment and the acquisition of natural resources		
Success Stories	2. Explain how energy producing technologies impact land fertility and aquatic viability	1h 2m		
	3. Skills used: Making predictions, identifying trends, researching with technology, understanding cause and effect, interpreting observations, evaluating explanations,			
Global Connection: Changing Migratory Patterns	1. Describe various ways communities are attempting to restore and protect ecosystems	45m		
	2. Give examples of emerging efforts designed to successfully address environmental issues			
Topic Test			40m	
Cumulative Exam				1h 15m
Unit 6: Soil, Food & Agriculture	Topic 1: Soil	What is Soil?	1. Describe the composition of soil	2h 20m
			2. Characterize the major horizons in soil	
			3. Compare processes of soil formation in various environments	
			4. Skills used: Selecting Valid Resources	
		Soil Formation	1. Identify the properties of soil	1h 2m
	2. Explain the relationship between microorganisms, humus, and soil health			
	3. Assess the role of microorganisms in soil			
	4. Skills used: Selecting Valid Resources			
	Soil Around the World	1. Explain the relationships between organisms and soil of different ecosystems	44m	
		2. Compare and contrast the soil composition of different ecosystems		
		3. Describe ways in which humans impact soil		
Disposal and Management of Waste	1. Classify types of solid waste management	50m		
	2. Survey the laws governing waste management			
	3. Compare alternate methods of managing waste			
	4. Discern the implications of managing hazardous waste			
Topic Test			40m	
Topic 2: Food and Agriculture	Soil and Agriculture	1. Compare and contrast various agricultural practices around the world	48m	
		2. Evaluate various methods used in agriculture to minimize soil depletion and erosion		
		3. Skills used: Selecting Valid Resources		
	Food Production Practices	1. Illustrate the factors which affect food distribution and food production	1h 10m	
		2. Identify the effects of genetically engineered crops		
Farming Practices	3. Analyze the process and effectiveness of alternative agricultural methods	50m		
	1. Establish the causes of desertification			
2. Show how agriculture can lead to soil erosion				

			3. Correlate over-use of water, pesticides, and fertilizers to the effect on soil fertility		
		Global Connection: Microflora and Microfauna	1. Evaluate how agricultural practices affect microflora and microfauna	45m	
		Topic Test		40m	
*AP Test Prep	*AP Review	Units 5 & 6	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m	
Unit 7: Wildlife and Land Management	Topic 1: Wildlife Management	Wildlife Management Through Land Sustainability	1. Classify major forestry issues	50m	
			2. Examine practices used to manage of parks, nature preserves, and wilderness areas		
			3. Assess current management issues and conflicts in wildlife management		
		Global Connection: Deforestation in Haiti	1. Assess how deforestation in Haiti impacts the environment	45m	
		Species Conservation	1. Predict possible outcomes of failing to conserve species diversity	1h 10m	
			2. Relate habitat and ecosystem management to species conservation		
	3. Plan steps to achieve sustainable populations				
	Global Connection: Newfoundland Cod Fishery Collapse	1. Assess the societal and environmental consequences of government policy	45m		
			Topic Test		40m
	Topic 2: Land Use	The Importance of Trees	1. Explain the impact of trees on air quality	53m	
			2. Identify methods in which trees are utilized by humans		
			3. Describe the relationship between trees and other organisms		
			4. Analyze the consequences of human use of trees		
			5. Skills used: Constructing valid criticism		
		Rainforest Loss	1. Identify the locations of the world's rainforests	46m	
			2. Explain how rainforest resources are utilized throughout the globe		
			3. Evaluate the impact of rainforest loss over the last 100 years		
			4. Compare and contrast the effectiveness of current rainforest conservation efforts		
			5. Skills used: Constructing valid criticism		
		Modern Forestry	1. Describe the main roles of a forester	49m	
2. Compare and contrast current methods of forest management					
3. Analyze the role of forests as carbon sinks					
4. Skills used: Constructing valid criticism					
Fire and Nature	1. Evaluate ways that wildfire benefits ecosystems	44m			
	2. Analyze methods of fire utilization within various environments				
	3. Predict how fire can be used to further benefit the environment				
	4. Skills used: Constructing valid criticism				
Human Use of Land	1. Assess the effects of human land usage on ecosystems	48m			
	2. Compare and contrast ways humans are working to reduce the impact of land use on the environment				
	3. Describe possible future consequences of land use to the environment				
	4. Skills used: Determine the cause and predict the effect				
Land Management and Planning	1. Describe differences in the use of public land and private land	43m			
	2. Describe large-scale land management methods implemented by governments and corporations				
	3. Determine possible impacts of land management methods on the environment				
	4. Skills used: Determine the cause and predict the effect				
		Topic Test		40m	
Unit 8: Human, Risk and Toxicology	Topic 1: Human Health	Environmental Health	1. Categorize environmental pollutants by source and effect	50m	
			2. Assess hazards associated with each category of pollutant		
			3. Provide examples of the general effects of pollutants on populations		
	Other Influences on Personal Health	1. Describe the relationship between heredity and personal health	47m		
		2. Compare and contrast the impact of genetic and environmental factors on individual and public health			
		3. Skills used: Compare and contrast, understanding cause and effect, making predictions			
			Topic Test		40m
	Topic 2: Environmental Hazards	The Environment and the Individual	1. Describe the relationship between the environment and personal health	1h 1m	
2. Identify synthetic environmental health hazards					
3. Skills used: Making logical connections, interpreting observations, understanding cause and effect, compare and contrast					
Natural Disasters and Hazards		1. Differentiate between hazards, disasters, and	50m		
	2. Relate natural disasters and human catastrophes				
	3. Construct strategies to predict and mitigate natural disasters				
		Topic Test		40m	
*AP Test Prep	*AP Review	Units 7 & 8	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m	

Unit 9: Energy Resources and Energy Use	Topic 1: Energy Resources	Energy Resources	1. Describe the basic principles of energy and energy efficiency 2. Examine energy sources and related energy consumption 3. Investigate energy choices by interpreting energy policies	50m	
		What are Natural Resources?	1. Explain how natural resources are produced 2. Explain how fossil fuels are formed 3. Explain how resource availability is limited by rates of use and renewal 4. Skills used: Making predictions, compare and contrast, researching with technology, making logical connections	44m	
		Nuclear Power	1. Compare and contrast the processes of nuclear fission and nuclear fusion 2. Describe uses of nuclear energy 3. Examine possible consequences of using nuclear energy 4. Skills used: Researching with technology, modeling systems, compare and contrast, making logical connections	1h 7m	
		Global Connection: Nuclear Fuel	1. Evaluate the environmental impact of using nuclear fuel	45m	
		Fossil Fuels	1. Illustrate how natural gas, oil, and coal form 2. Evaluate the environmental impacts on fossil fuel production 3. Formulate evidence to support the need to move away from fossil fuels to alternative energy	2h 20m	
		Topic Test			40m
		Topic 2: Renewable Energy Sources	Renewable and Alternative Energy	1. Determine the advantages and disadvantages of each type of alternative energy 2. Compare passive, active, and photovoltaic solar energy systems 3. Predict the possibility of replacing fossil fuel with biofuels in the future	50m
	Resource Conservation		1. Assess the availability and allocation of resources 2. Discuss problems associated with the use of non-local resources 3. Compare and contrast uses of renewable and nonrenewable resources 4. Propose alternatives to using nonrenewable resources 5. Skills used: Compare and contrast, proposing alternative solutions, researching with technology	59m	
	The Social Costs of Resource Use		1. Compare and contrast the costs and benefits of using renewable and nonrenewable resources 2. Evaluate the consequences of world dependence on fuels 3. Explain how technology can be utilized in resource conservation efforts 4. Skills used: Making logical connections, evaluating explanations, compare and contrast	1h 3m	
	Topic Test			40m	
	Unit 10: Water Resources and Water Pollution	Topic 1: Water Resources	The Water We Use	1. Identify sources of potable and non-potable water 2. Describe the availability of water across the globe 3. Assess the impact of water consumption and diminishing supplies on human activities	1h 24m
			Groundwater	1. Describe the location and importance of the water table 2. Assess the consequences of overuse and contamination of groundwater 3. Explain how human use of groundwater has changed over time 4. Skills used: Determining Independent and Dependent Variables	1h 4m
			Changing Waterways	1. Describe naturally occurring changes to waterways 2. Evaluate ways humans impact waterways 3. Propose alternative practices to reduce human impact on waterways	49m
Topic Test			40m		
Topic 2: Water Pollution		Water Policy	1. Identify laws and regulations in the United States that address water use and management 2. Propose possible consequences of failing to conserve water 3. Compare and contrast the processes of water reclamation, greywater use, and desalination	2h 19m	
		Nonnative Species in Aquatic Ecosystems	1. Describe how invasive species impact an aquatic ecosystem 2. Identify ways that invasive species are introduced into an aquatic ecosystem 3. Examine various methods of addressing environmental problems that were traditionally solved by utilizing nonnative species	46m	
		Water Pollution	1. Identify sources of water pollution 2. Describe the effects of water pollution on local populations 3. Explain ways that humans can reduce water pollution	1h 9m	
		Global Connection: Water Management and Katrina	1. Analyze the effect of canals and levees on wetlands	45m	
		Topic Test			40m
*AP Test Prep		*AP Review	Units 9 & 10	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m
		Skills Lesson: Evaluating Explanations	1. Identify a given explanation for an event or process 2. Research data relating to the explanation 3. Categorize researched information as being factual or biased	24m	

Unit 11: Atmospheric Dynamics, Climate Change, and Air Pollution	Topic 1: The Climate of the Earth	The Earth's Atmosphere	4. Evaluate the given explanation based on researched data	50m
			1. Relate atmospheric structure to the processes that determine climate	
			2. Model the role of greenhouse gases in the greenhouse effect on climate	
			3. Predict environmental changes as a result of global warming and propose solutions	
		Climate and Change in Ecosystems	1. Identify various effects of climate changes on an ecosystem	1h 26m
			2. Describe environmental factors that can cause changes in ecosystems	
			3. Compare and contrast the benefits and disadvantages of natural change to ecosystems	
		Global Change	1. Predict future changes in the global climate	45m
			2. Assess current theories regarding global climate change	
			3. Analyze environment changes and their connection to global warming	
	4. Skills used: Making predictions based on data			
	A History of Global Climate Change	1. Compare current and past global climate trends	1h 1m	
		2. Explain how long-term global climate shifts impact Earth's ecosystems		
		3. Describe the effects of greenhouse gases on the atmosphere		
		4. Analyze various theories related to global warming		
		5. Skills used: Compare and contrast support and opposition		
		Topic Test	40m	
Topic 2: Air Pollution	Air Quality	1. Identify various causes of air pollution	2h 13m	
		2. Explain the impact of air pollution on the environment		
		3. Assess the methods that can be utilized to improve air quality		
		4. Propose alternative methods of improving air quality		
		5. Skills used: Compare and Contrast Support and Opposition		
	Atmospheric Pollution	1. Overview the composition and function of each layer of the atmosphere	1h 7m	
		2. Identify various common atmospheric pollutants		
		3. Differentiate between primary and secondary pollutants		
		4. Examine the effects of pollution on health		
		5. Skills used: Evaluate the validity of an explanation		
Ozone	1. Explain how the ozone layer is formed	44m		
	2. Analyze the importance of the ozone layer in sustaining life			
	3. Compare and contrast various factors that cause ozone depletion			
	4. Relate fluctuations in ozone to human health and the environment			
Indoor Air Pollution	1. Relate health problems to their source of indoor air pollutant	50m		
	2. Establish the links between indoor pollutants such as carbon dioxide, environmental tobacco smoke, and radon to their impact on human health			
	3. Provide strategies to reduce indoor air pollution			
	Topic Test	40m		
*AP Test Prep	*AP Review	Unit 11	1. Practice test taking skills that may be utilized on *AP Environmental Science exam	1h 10m
Cumulative Exam				1h 15m