

**AP Environmental Science -  
SC5181 B**

**Scope and Sequence**

**Unit Lesson**

**Objectives**

**LAND AND WATER USE**

The Tragedy of the Commons

Explain the responsibilities and rights for the use of common, shared resources.

Wet Lab: The Tragedy of the Commons–Menhaden Fisheries

To learn about the tragedy of the commons and why it is important to manage shared resources in a sustainable manner.

Clearcutting and the Environment

Describe the effect of clearcutting on forests.

The Green Revolution and Global Agricultural Production

Describe changes in agricultural practices during the Green Revolution and how they relate to current global agricultural production.

Impacts of Agricultural Practices

Describe agricultural practices that cause environmental damage.

Virtual Lab: Genetically Modified Corn

To learn how genetically modified corn is created and how it compares in yield to natural corn.

Irrigation Methods

Describe the pros and cons of different types of irrigation systems. Explain how each type may have positive or negative impacts on the environment.

Pest Control Methods

**Unit Lesson**

**Objectives**

Describe 2–3 methods of pest control and explain how these affect other species in the environment.

Meat Production Methods

Describe the meat production process for poultry in the United States.

Using data from the USDA, explain how changes in these processes may decrease the environmental impact of these methods.

Impacts of Overfishing

Explain how a species of fish, such as the Pacific Salmon, is identified as overfished. Describe how this species population could be sustainable.

Impacts of Mining

Describe how mining impacts a local environment physically, biologically, and chemically.

Explain the costs to restore a mined site.

Impacts of Urbanization

Describe how the growth of a city's population and expansion of buildings affect the surrounding environment.

Ecological Footprints

Explain the variables measured to calculate the ecological footprint of your favorite meal.

Introduction to Sustainability

Explain how groundwater levels are monitored in rural and urban areas in the United States.

Discuss the major groundwater aquifers in the United States.

Methods to Reduce Urban  
Runoff

Describe urban runoff and the impacts on streams, rivers and other natural water bodies. Explain how stormwater can be managed to protect the environment.

Integrated Pest Management

Describe integrated pest management as a method to improve crop yields.

**Unit Lesson**

**Objectives**

Sustainable Agriculture

Identify the top crop and animals farmed in your home state. Describe how your state identifies and implements sustainable practices for these crops and farms.

Aquaculture

Describe the advantages and disadvantages of the Eastern Oyster Fisheries.

Sustainable Forestry

Describe how forests are protected, managed, and harvested in rural and urban areas.

Review: Land and Water Use

?Explain the responsibilities and rights for the use of common, shared resources.

Describe the effect of clearcutting on forests.

Describe changes in agricultural practices during the Green Revolution and how they relate to current global agricultural production.

Describe agricultural practices that cause environmental damage.

Describe the pros and cons of different types of irrigation systems.

Explain how each type may have positive or negative impacts on the environment.

Describe 2 -3 methods of pest control and explain how these affect other species in the environment.

Describe the meat production process for poultry in the United States.

Using data from the USDA, explain how changes in these processes may decrease the environmental impact of these methods.

Explain how a species of fish, such as the Pacific Salmon, is identified as overfished.

Describe how this species population could be sustainable.

Describe how mining impacts a local environment physically, biologically, and chemically.

Explain the costs to restore a mined site.

**Unit Lesson**

**Objectives**

Describe how the growth of a city's population and expansion of buildings affects the surrounding environment.

Explain the variables measured to calculate the ecological footprint of your favorite meal.

Explain how groundwater levels are monitored in rural and urban areas in the United States.

Discuss the major groundwater aquifers in the United States.

Describe urban runoff and the impacts on streams, rivers and other natural water bodies.

Explain how stormwater can be managed to protect the environment.

Describe integrated pest management as a method to improve crop yields.

Identify the top crop and animals farmed in your home state.

Describe how your state identifies and implements sustainable practices for these crops and farms.

Describe the advantages and disadvantages of the Eastern Oyster Fisheries.

Describe how forests are protected, managed, and harvested in rural and urban areas.

Test

**ENERGY RESOURCES AND CONSUMPTION**

Renewable and  
Nonrenewable Resources

Identify examples of renewable and nonrenewable resources in your state.

Global Energy Consumption

Describe the trends in energy consumption in your state.

Describe the energy consumption trends in developed countries.

Describe the energy consumption trends in non developed countries.

Explain how these trends differ.

Fuel Types and Uses

**Unit Lesson**

**Objectives**

Identify types of fuels available globally and compare where and how these fuel types are used regionally across the globe.

Distribution of Natural Energy Resources

Identify where natural energy resources are available across the globe.

Explain how a region's geography determines or influences the types of natural energy resources available.

Fossil Fuels

Describe the process of converting each type of fossil fuel (natural gas, oil, petroleum, and coal) into usable energy.

Compare and contrast the combustion processes for each including the by-products produced.

Nuclear Power

Describe how nuclear energy is generated. Starting with the raw material, describe the steps in the process, the harnessing of the energy, the by-products produced, and how these by-products are managed, disposed of, or stored.

Energy from Biomass

Describe the pros and cons of using biomass to generate power.

Compare and contrast the pros and cons of each type of biomass resource.

Solar Energy

Describe how solar energy is generated.

Explain how solar energy is collected, converted, and stored.

Explain why solar energy is considered a "green" source of energy.

Describe how solar energy is collected and converted into usable energy.

Describe a solar photovoltaic system and how it works.

Discuss the limitations of solar energy.

Hydroelectric Power

**Unit Lesson**

**Objectives**

Compare and contrast hydroelectric power produced by dams and tidal turbines.

Geothermal Energy

Describe the process that captures and converts geothermal energy to generate power.

Explain the effects of this type of energy production on the local environment.

Hydrogen Fuel Cell

Explain how hydrogen fuel cells are made. Describe how this type of power generation works.

Compare and contrast the positive and negative effects of using this type of power production on the environment; including the material acquisition, production, use, and disposal of hydrogen fuels cells.

Wind Energy

Describe the process of power generation using the wind.

Explain the pros and cons of the construction of wind-energy technologies, their use, and disposal.

Energy Conservation

Describe the methods for conserving energy.

Review: Energy Resources  
and Consumption

Identify examples of renewable and nonrenewable resources in your state.

Describe the trends in energy consumption in your state.

Describe the energy consumption trends in developed countries.

Describe the energy consumption trends in non-developed countries.

Explain how these trends differ.

Identify where natural energy resources are available across the globe.

Explain how a region's geography determines or influences the types of natural energy resources available.

Identify types of fuels available globally and compare where and how these fuel types are used regionally across the

**Unit Lesson**

**Objectives**

globe.

Describe how nuclear energy is generated.

Describe the pros and cons of using biomass to generate power.

Compare and contrast the pros and cons of each type of biomass resource.

Describe how solar energy is generated.

Explain how solar energy is collected, converted, and stored.

Compare and contrast hydroelectric power produced by dams and tidal turbines.

Describe the process that captures and converts geothermal energy to generate power.

Explain the effects of this type of energy (geothermal) production on the local environment.

Consider the abiotic and biotic factors in the explanation.

Describe the process of power generation using the wind.

Explain the pros and cons of the construction of wind-energy technologies, their use, and disposal.

Explain how hydrogen fuel cells are made.

Describe how this type of power generation works.

Compare and contrast the positive and negative effects of using this type of power production on the environment; including the material acquisition, production, use, and disposal of hydrogen fuels cells.

Describe the methods for conserving energy.

Test

**ATMOSPHERIC POLLUTION**

Air Pollution Sources and  
Effects

Describe air pollution sources and their effects.

Interactive Simulation:

**Unit Lesson**

**Objectives**

Determining Sources of Air  
Pollution in an Industrialized  
Area

Describe different types of air pollution.

Describe the factors that increase and decrease the formation of air pollutants in an urban and rural setting.

Explain strategies that people can adopt to aid in the reduction of air pollutants in an urban and rural setting.

Photochemical Smog

Define photochemical smog and explain where and how it forms in the atmosphere.

Describe the factors that increase and decrease the formation of this pollutant.

Explain the current methods used to counteract photochemical smog.

Explain strategies that everyday consumers can adopt to aid in the reduction of this pollutant.

Thermal Inversion and  
Pollution

Define thermal inversion and explain how it forms a gradient in atmospheric temperature.

Explain the impact of thermal inversion on air pollution.

Atmospheric CO<sub>2</sub> and  
Particulates

Describe the sources of naturally occurring CO<sub>2</sub> and particulate matter in the atmosphere.

Wet Lab: Airborne  
Particulates

Design and complete an experiment to learn how atmospheric particulates can affect our health and impact air quality.

Indoor Air Pollution

Define indoor air quality and explain how it is measured.

List and describe the factors that negatively impact indoor air quality.



**Unit Lesson**

**Objectives**

Define and explain the processes that improve indoor air quality.

Acid Rain—Causes and Effects

Describe the causes of acid deposition, and its effects on the environment.

Virtual Lab: Acid Rain and the  
Water Cycle

Learn about the impact of acid rain on the water cycle and the resulting effects on the environment.

Noise Pollution

Define how noise pollution is measured.

List the factors that contribute to noise pollution.

Explain how noise pollution negatively impacts the local environment and inhabitants (wildlife, human populations, and financial considerations).

Explain how noise pollution is regulated.

Discuss the process and policies (local, state, federal) of noise abatement.

Review: Atmospheric Pollution

Describe air pollution sources and their effects.

Define photochemical smog and explain where and how it forms in the atmosphere.

Describe the factors that increase and decrease the formation of this pollutant.

Explain the current methods used to counteract photochemical smog.

Explain strategies that everyday consumers can adopt to aid in the reduction of this pollutant.

Define thermal inversion and explain how it forms a gradient in atmospheric temperature.

Explain the impact of thermal inversion on air pollution.

Describe the sources of naturally occurring CO<sub>2</sub> and particulate matter in the atmosphere.

Define indoor air quality and explain how it is measured.

**Unit Lesson**

**Objectives**

List and describe the factors that negatively impact indoor air quality.

Define and explain the processes that improve indoor air quality.

Describe the causes of acid deposition, and its effects on the environment.

Define how noise pollution is measured.

List the factors that contribute to noise pollution.

Explain how noise pollution negatively impacts the local environment and inhabitants (wildlife, human populations, and financial considerations).

Explain how noise pollution is regulated.

Discuss the process and policies (local, state, federal) of noise abatement.

Test

**AQUATIC AND TERRESTRIAL POLLUTION**

Sources of Pollution

Define nonpoint source pollution. List examples of this type of pollutant.

Define point source pollution. List examples of this type of pollutant.

Compare and contrast these two types of pollutants as they occur in urban and rural areas, consider their causes, management, abatement, and prevention.

Interactive Simulation:  
Nonpoint and Point-Source  
Pollution Investigation

Learn how to differentiate between nonpoint and point-source pollution.

Human Impacts on  
Ecosystems

Describe the impacts of human activities on aquatic ecosystems.

Endocrine Disruptors

**Unit Lesson**

**Objectives**

Describe endocrine disruptors and their effects on ecosystems.

Human Impacts on Wetlands  
and Mangroves

Describe the impacts of human activity on wetlands and mangroves.

Eutrophication

Explain the environmental effects of excessive use of fertilizers and detergents on aquatic ecosystems.

Thermal Pollution

Describe the effects of thermal pollution on aquatic ecosystems.

Persistent Organic Pollutants  
(POPs)

Describe the effect of persistent organic pollutants (POPs) on ecosystems.

Impacts of Solid Waste  
Disposal in Aquatic  
Environments

Describe how aquatic organisms and humans are affected by bioaccumulation and biomagnification.

Wet Lab: Bioaccumulation  
and Biomagnification

Learn about how plastics in the ocean combine with persistent organic pollutants (POPs) and how they can be passed up through a food web.

Learn the difference between bioaccumulation and biomagnification, and the biological effects of POPs on wildlife and humans.

Waste Reduction Methods

Explain the current methods used to dispose of this type of waste.

List and explain the effects of this type of waste on the environment.

Calculate the amount of solid waste a typical person produces daily, weekly, monthly, annually, and over a life.

**Unit Lesson**

**Objectives**

Sewage Treatment

List current practices in place to reduce the amount of solid waste.

Compare and contrast the pros and cons of these practices.

Identify and explain changes to these practices that could contribute to the reduction of solid waste.

Lethal Dose 50% (LD50)

Define lethal dose 50 percent (LD50). Explain the impact of an LD50 on a given population.

Hypothesize a solution to prevent an LD50 contaminant for a given population.

Hypothesize a solution to remediate a population that has been exposed to an LD50.

Dose Response Curve

Define a dose response curve.

Explain the types of data these curves reveal.

Explain how a dose response curve can be used to assess an environmental issue.

Pollution and Human Health

List human health issues that are related and/or linked to pollution (e.g., lead in drinking water).

Identify the cause and effect of this pollution on the human population.

Cite two to three examples of human health issues linked to pollution locally, nationally, and internationally.

Detail how these links could be researched to determine care and possible prevention.

Pathogens and Infectious  
Disease

List 3-5 human pathogens that are directly related to the environment.

Explain how the pathogens infect the human population, including how the pathogens cycle through a given community, location, or environment.

Describe environments or populations where pathogenic infections are recurring.

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**Objectives**

Review: Aquatic and  
Terrestrial Pollution

Create a visual representation of how these infections occur to explain the process.

Define nonpoint source pollution; list examples of this type of pollutant.

Define point source pollution; list examples of this type of pollutant.

Compare and contrast these two types of pollutants as they occur in urban and rural areas, consider their causes, management, abatement, and prevention.

Describe the impacts of human activities on aquatic ecosystems. Include: Clean Water Act and Safe Drinking Water Act

Describe endocrine disruptors and their effects on ecosystems.

Describe the impacts of human activity on wetlands and mangroves.

Explain the environmental effects of excessive use of fertilizers and detergents on aquatic ecosystem.

Describe the effects of thermal pollution on aquatic ecosystems.

Describe the effect of persistent organic pollutants (POPs) on ecosystems.

Describe how aquatic organisms and humans are affected by bioaccumulation and biomagnification.

Explain the current methods used to dispose of this type of waste.

List and explain the effects of this type of waste on the environment.

Calculate the amount of solid waste a typical person produces daily, weekly, monthly, annually, and over a life.

List current practices in place to reduce the amount of solid waste.

Compare and contrast the pros and cons of these practices.

Identify and explain changes to these practices that could contribute to the reduction of solid waste.

Define lethal dose 50 percent (LD50); explain the impact of an LD50 on a given population.

Hypothesize a solution to prevent an LD50 contaminant for a given population.

Hypothesize a solution to remediate a population that has been exposed to an LD50.

**Unit Lesson**

**Objectives**

Define a dose curve response.

Explain the types of data these curves reveal.

Explain how a dose response curve can be used to assess an environmental issue.

List human health issues that are related and/or linked to pollution (example: lead in drinking water).

Identify the cause and effect of this pollution on the human population.

Cite two to three examples of human health issues linked to pollution locally, nationally, and internationally.

Detail how these links could be researched to determine care and possible prevention.

List three to five human pathogens that are directly related to the environment.

Explain how the pathogens infect the human population, including how the pathogens cycle through a given community, location, or environment.

Describe environments or populations where pathogenic infections are recurring.

Create a visual representation to explain the process of how these infections occur.

Test

**GLOBAL CHANGE**

Stratospheric Ozone  
Depletion

List the layers of Earth's atmosphere and identify the ozone layer.

Describe the function of ozone in the atmosphere.

Identify and explain the factors that affect the ozone layer.

Explain two to three effects of ozone depletion on humans.

Reducing Ozone Depletion

Define chlorofluorocarbons (CFC); explain how these affect the ozone layer.

Identify how the reduction of CFCs will affect the ozone layer.

**Unit Lesson**

**Objectives**

Identify CFC replacements that are also harmful to the ozone layer.

Interactive Simulation: Ozone Depleting Chemicals

Learn about the ozone cycle and how ozone depleting chemicals interfere with this process.

The Greenhouse Effect

List the main greenhouse gases.

Rank these gases according to their negative contribution to global climate change.

Explain how each of these gases affects global climate change.

Increases in Greenhouse Gasses

List the threats to specific environments caused by greenhouse gases.

Explain how we can take steps to reduce greenhouse gas emissions (Kyoto Protocol).

Create a graphic organizer that demonstrates how greenhouse gas–environmental interactions affect the health of humans.

Global Climate Change

List short-term changes in climate and the direct impact they have on ecosystems.

List long-term changes in climate and the direct impact they have on ecosystems.

Research data for one short-term and one long-term impact on an environment.

Analyze the data and hypothesize positive changes implemented in the short term that improve the change over time.

Ocean Warming

Define ocean warming; list the factors involved in global warming.

Define and explain coral bleaching; explain how this process over time impacts local species and local habitats.

Ocean Acidification

**Unit Lesson**

**Objectives**

Define ocean acidification.

Explain how atmospheric CO<sub>2</sub> affects the pH of the ocean.

Describe the relationship between atmospheric CO<sub>2</sub> levels and ocean pH.

Explain the factors that contribute to this issue.

Invasive Species

Define invasive species and give three examples.

Describe how some invasive species may be beneficial and others harmful to an environment.

Define r-selected species and how they impact the environment.

Explain methods to control invasive species once they have been identified.

Endangered Species

List the factors that lead to a species being identified as threatened or extinct.

Define “selective pressures” and how these improve the survival of a threatened species.

Human Impacts on  
Biodiversity

Define HIPPCO.

Define how habitat fragmentation occurs and list the causes.

Explain the relationship between a species and the scale of the fragmentation.

Wet Lab: Climate Change  
Inquiry

Learn about climate change by performing three experiments investigating indicators of climate change, which include: melting ice and sea level rise, CO<sub>2</sub> and impacts on air temperature, and sea ice and its effect on water temperature.

Review: Global Change

List the layers of the Earth's atmosphere and identify the ozone layer.



**Unit Lesson**

**Objectives**

Describe the function of ozone in the atmosphere.

Identify and explain the factors that affect the ozone layer.

Explain effects of ozone depletion on humans.

Define chlorofluorocarbons (CFC); explain how these affect the ozone layer.

Identify how the reduction of CFCs will affect the ozone layer.

Identify CFC replacements that are also harmful to the ozone layer.

List the main greenhouse gases.

Rank these gases according to their negative contribution to global climate change.

Explain how each of these gases affects global climate change.

List the threats to specific environments caused by greenhouse gasses.

Explain how we can take steps to reduce greenhouse gas emissions (Kyoto Protocol)

Create a graphic organizer that demonstrates how greenhouse gas–environmental interactions affect the health of humans.

List short-term changes in climate and the direct impact they have on ecosystems.

List long-term changes in climate and the direct impact they have on ecosystems.

Research data for one short-term and one long-term impact on an environment.

Analyze the data and hypothesize positive changes implemented in the short term that improve the change over time.

Define ocean warming; list the factors involved in global warming.

Define and explain coral bleaching; explain how this process over time impacts local species and local habitats.

Define ocean acidification.

Explain how atmospheric CO<sub>2</sub> affects the pH of the ocean.

Describe the relationship between atmospheric CO<sub>2</sub> levels and ocean pH.

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**Objectives**

Explain the factors that contribute to this issue.

Define invasive species and give three examples.

Describe how some invasive species may be beneficial and others harmful to an environment.

Define r-selected species and how they impact the environment.

Explain methods to control invasive species once they have been identified.

List the factors that lead to a species being identified as threatened or extinct.

Define "selective pressures" and how these improve the survival of a threatened species.

Define HIPPCO.

Define how habitat fragmentation occurs and list the causes.

Explain the relationship between a species and the scale of the fragmentation.

Test

**SEMESTER REVIEW AND EXAM**

Semester Review

Explain the responsibilities and rights for the use of common, shared resources.

Describe the effect of clearcutting on forests.

Describe changes in agricultural practices during the Green Revolution and how they relate to current global agricultural production.

Describe agricultural practices that cause environmental damage.

Describe the pros and cons of different types of irrigation systems. Explain how each type may have positive or negative impacts on the environment.

Describe 2 -3 methods of pest control and explain how these affect other species in the environment.

Describe the meat production process for poultry in the United States.

Using data from the USDA, explain how changes in these processes may decrease the environmental impact of these

**Unit Lesson**

**Objectives**

methods.

Explain how a species of fish, such as the Pacific Salmon, is identified as overfished. Describe how this species population could be sustainable.

Describe how mining impacts a local environment physically, biologically, and chemically.

Explain the costs to restore a mined site.

Describe how the growth of a city's population and expansion of buildings affects the surrounding environment.

Explain the variables measured to calculate the ecological footprint of your favorite meal.

Explain how groundwater levels are monitored in rural and urban areas in the United States.

Discuss the major groundwater aquifers in the United States.

Describe urban runoff and the impacts on streams, rivers, and other natural water bodies. Explain how stormwater can be managed to protect the environment.

Describe integrated pest management as a method to improve crop yields.

Identify the top crop and animals farmed in your home state. Describe how your state identifies and implements sustainable practices for these crops and farms.

Describe the advantages and disadvantages of the Eastern Oyster Fisheries.

Describe how forests are protected, managed, and harvested in rural and urban areas.

Identify examples of renewable and nonrenewable resources in your state.

Describe the trends in energy consumption in your state.

Describe the energy consumption trends in developed countries.

Describe the energy consumption trends in non-developed countries.

Explain how these trends differ.

Identify where natural energy resources are available across the globe. Explain how a region's geography determines or influences the types of natural energy resources available.

Identify types of fuels available globally and compare where and how these fuel types are used regionally across the

**Unit Lesson**

**Objectives**

globe.

Describe how nuclear energy is generated. Starting with the raw material, describe the steps in the process, the harnessing of the energy, the by-products produced, and how these by-products are managed, disposed of, or stored.

Describe the pros and cons of using biomass to generate power.

Compare and contrast the pros and cons of each type of biomass resource.

Describe how solar energy is generated.

Explain how solar energy is collected, converted, and stored.

Compare and contrast hydroelectric power produced by dams and tidal turbines. Consider a region that has the opportunity to build either type. Using the information you have researched and compared, make a proposal that supports either dam or tidal turbine power generation and justify your proposal with your findings.

Describe the process that captures and converts geothermal energy to generate power.

Explain the effects of this type of energy (geothermal) production on the local environment. Consider the abiotic and biotic factors in the explanation.

Describe the process of power generation using the wind.

Explain the pros and cons of the construction of wind-energy technologies, their use, and disposal.

Explain how hydrogen fuel cells are made. Describe how this type of power generation works.

Compare and contrast the positive and negative effects of using this type of power production on the environment; including the material acquisition, production, use, and disposal of hydrogen fuels cells.

Describe the methods for conserving energy.

Describe air pollution sources and their effects.

Define photochemical smog and explain where and how it forms in the atmosphere.

Describe the factors that increase and decrease the formation of this pollutant.

Explain the current methods used to counteract photochemical smog.

Explain strategies that everyday consumers can adopt to aid in the reduction of this pollutant.

**Unit Lesson**

**Objectives**

Define thermal inversion and explain how it forms a gradient in atmospheric temperature.

Explain the impact of thermal inversion on air pollution.

Describe the sources of naturally occurring CO<sub>2</sub> and particulate matter in the atmosphere.

Define indoor air quality and explain how it is measured.

List and describe the factors that negatively impact indoor air quality.

Define and explain the processes that improve indoor air quality.

Describe the causes of acid deposition and its effects on the environment.

Define how noise pollution is measured.

List the factors that contribute to noise pollution.

Explain how noise pollution negatively impacts the local environment and inhabitants (wildlife, human populations, and financial considerations).

Explain how noise pollution is regulated.

Discuss the process and policies (local, state, federal) of noise abatement.

Define nonpoint-source pollution. List examples of this type of pollutant.

Define point-source pollution. List examples of this type of pollutant.

Compare and contrast these two types of pollutants as they occur in urban and rural areas, consider their causes, management, abatement, and prevention.

Describe the impacts of human activities on aquatic ecosystems. Include Clean Water Act. Include: Safe Drinking Water Act

Describe endocrine disruptors and their effects on ecosystems.

Describe the impacts of human activity on wetlands and mangroves.

Explain the environmental effects of excessive use of fertilizers and detergents on aquatic ecosystems.

Describe the effects of thermal pollution on aquatic ecosystems.

**Unit Lesson**

**Objectives**

Describe the effect of persistent organic pollutants (POPs) on ecosystems.

Describe how aquatic organisms and humans are affected by bioaccumulation and biomagnification.

Explain the current methods used to dispose of this type of waste.

List and explain the effects of this type of waste on the environment.

Calculate the amount of solid waste a typical person produces daily, weekly, monthly, annually, and over a life.

List current practices in place to reduce the amount of solid waste.

Compare and contrast the pros and cons of these practices.

Identify and explain changes to these practices that could contribute to the reduction of solid waste.

Define lethal dose 50 percent (LD50). Explain the impact of an LD50 on a given population.

Hypothesize a solution to prevent an LD50 contaminant for a given population. Hypothesize a solution to remediate a population that has been exposed to an LD50.

Define a dose-response curve.

Explain the types of data these curves reveal.

Explain how a dose-response curve can be used to assess an environmental issue.

List human health issues that are related and/or linked to pollution (ex. lead in drinking water).

Identify the cause and effect of this pollution on the human population.

Cite 2-3 examples of human health issues linked to pollution locally, nationally, and internationally.

Detail how these links could be researched to determine care and possible prevention.

List 3-5 human pathogens that are directly related to the environment.

Explain how the pathogens infect the human population, including how the pathogens cycle through a given community, location, or environment.

Describe environments or populations where pathogenic infections are recurring.

Create a visual representation of how these infections occur to explain the process.

**Unit Lesson**

**Objectives**

List the layers of the Earth's atmosphere and identify the ozone layer.

Describe the function of ozone in the atmosphere.

Identify and explain the factors that affect the ozone layer.

Explain 2-3 effects of ozone depletion on humans.

Define chlorofluorocarbons (CFC). Explain how these affect the ozone layer.

Identify how the reduction of CFCs will affect the ozone layer.

Identify CFC replacements that are also harmful to the ozone layer.

List the main greenhouse gases.

Rank these gases according to their negative contribution to global climate change.

Explain how each of these gases affects global climate change.

List the threats to specific environments caused by greenhouse gases.

Explain how we can take steps to reduce greenhouse gas emissions (Kyoto Protocol).

Create a graphic organizer that demonstrates how greenhouse gas–environmental interactions affect the health of humans.

List short-term changes in climate and the direct impact they have on ecosystems.

List long-term changes in climate and the direct impact they have on ecosystems.

Research data for one short-term and one long-term impact on an environment.

Analyze and data and hypothesize positive changes implemented in the short term that improve the change over time.

Define ocean warming. List the factors involved in global warming.

Define and explain coral bleaching. Explain how this process over time impacts local species and local habitats.

Define ocean acidification.

Explain how atmospheric CO<sub>2</sub> affects the pH of the ocean.

**Unit Lesson**

**Objectives**

Describe the relationship between atmospheric CO<sub>2</sub> levels and ocean pH.

Explain the factors that contribute to this issue.

Define invasive species and give three examples.

Describe how some invasive species may be beneficial and others harmful to an environment.

Define r-selected species and how they impact the environment.

Explain methods to control invasive species once they have been identified.

List the factors that lead to a species being identified as threatened or extinct.

Define "selective pressures" and how these improve the survival of a threatened species.

Define HIPPCO.

Define how habitat fragmentation occurs and list the causes.

Explain the relationship between a species and the scale of the fragmentation.

Semester Exam

**AP EVS PRACTICE EXAMS**

AP EVS Review

AP EVS Practice Exam

Alternate AP EVS Practice  
Exam