

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

3.1.B.B4. -- Important BIOTECHNOLOGY -
Explain how genetic technologies have impacted the fields of medicine, forensics, and agriculture

3.1.12.C1. -- Unranked NATURAL SELECTION - Analyze how natural selection leads to speciation.

3.1.12.C3.b -- Unranked UNIFYING THEMES -
Evaluate survival of the fittest in terms of species that have remained unchanged over long periods of time.

4.1.12.A.a -- Unranked
Analyze the significance of biological diversity in an ecosystem.

4.1.12.A.b -- Unranked
Explain how species adapt to limiting factors in an ecosystem.

4.2.12.A. -- Unranked
Examine environmental laws related to land use management and its impact on the water quality and flow within a watershed.

4.2.12.B.a -- Unranked
Analyze the effects of policies and regulations at various governmental levels on wetlands and their surrounding environments.

Students should understand the diversity of Pennsylvania's environmental resources and the methods used to manage those resources.

4.1.12.A.c -- Unranked
Analyze the differences between natural causes and human causes of extinction.

4.1.12.A.d -- Unranked
Research wildlife management laws and their effects on biodiversity.

4.1.12.C.a -- Unranked
Research how humans affect energy flow within an ecosystem.

4.1.12.C.b -- Unranked
Describe the impact of industrial, agricultural, and commercial enterprises on an ecosystem.

4.1.12.E. -- Unranked
Research solutions addressing human impacts on ecosystems over time.

4.2.12.B.c -- Unranked
Investigate the intended and unintended effects of public policies and regulations relating to wetlands.

4.2.12.C.b -- Unranked
Assess the intended and unintended effects of public policies and regulations relating to water quality.

4.3.12.A.c -- Unranked
Evaluate the advantages and disadvantages of using renewable resources such as solar power, wind power, and biofuels.

4.3.12.B.a -- Unranked
Analyze factors that influence the local, regional, national, and global availability of natural resources.

4.3.12.B.b -- Unranked
Compare the use of natural resources in different countries.

4.3.12.D.a -- Unranked
Evaluate waste management practices.

Topic: Environmental Science

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Know:

Understand:

Do:

4.2.12.B.b – Unranked

Examine various public policies relating to wetlands.

4.2.12.C.a – Unranked

Analyze the effects of policies and regulations at various governmental levels on water quality.

4.3.12.B.c – Unranked

Analyze the social, economic, and political factors that affect the distribution of natural resources (e.g., wars, political systems, classism, racism).

4.3.12.D.b – Unranked

Analyze current solid waste regulations.

4.5.10.B. – Unranked

Describe the impact of integrated pest management practices on the environment.

4.5.12.C.d – Unranked

Explain mitigation and its role in maintaining environmental health.

4.5.12.D.b – Unranked

Evaluate the impact of laws and regulations on reducing the number of threatened and endangered species.

4.3.12.D.c – Unranked

Research the impact of new and emerging technologies in the use, reuse, recycling and disposal of materials.

4.3.12.D.d – Unranked

Evaluate ways that waste could be reduced during the production of specific product.

4.5.12.A.a – Unranked

Research how technology influences the sustainable use of natural resources.

4.5.12.A.b – Unranked

Analyze how consumer demands drive the development of technology enabling the sustainable use of natural resources.

4.5.12.C.a – Unranked

Analyze the costs and benefits of means to control pollution.

4.5.12.C.b – Unranked

Analyze the role of technology in the reduction of pollution.

4.5.12.C.c – Unranked

Research and analyze the local, state, and national laws that deal with point and non-point source pollution.

4.5.12.D.a – Unranked

Analyze the effects of new and emerging technologies on biodiversity in specific ecosystems.

4.5.12.E. – Unranked

Analyze how consumer demands promote the production of pollutants that affect human health.

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Common Assessments on what students should know and do in this unit:

- Unit Worksheets-Forestry
- Unit Review-Forestry
- Unit Quiz-Forestry
- Forest Measurement Activity
- Unit Worksheets-Soils
- Unit Review-Soils
- Unit Quiz-Soils
- Soil Management Activity
- Unit Worksheets-Aquatics
- Unit Review-Aquatics
- Unit Quiz-Aquatics
- Aquatic Management Activity
- Unit Worksheets-Wildlife
- Unit Review-Wildlife
- Unit Quiz-Wildlife
- Wildlife Management Activity
- Unit Worksheets-Current Issue
- Unit Review-Current Issue
- Unit Quiz-Current Issue
- Current Issue Presentations

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 1

Short Description:

Unit Worksheets-Forestry

Long Description:

Students will complete worksheets in order to determine various forest measurement methods

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 2

Short Description:

Unit Review-Forestry

Long Description:

Students will complete a unit review in preparation for a unit test

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

2

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 3

Short Description:

Unit Quiz-Forestry

Long Description:

Students will complete a unit quiz focusing on forest management practices

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 4

Short Description:

Forest Measurement Activity

Long Description:

Students will complete a forest measurement activity

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 5

Short Description:

Unit Worksheets-Soils

Long Description:

Students will complete worksheets in order to evaluate soil properties and conditions

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 6

Short Description:

Unit Review-Soils

Long Description:

Students will complete a unit review in preparation for a unit test

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

2

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 7

Short Description:

Unit Quiz-Soils

Long Description:

Students will complete a unit quiz focusing on soil management practices

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 8

Short Description:

Soil Management Activity

Long Description:

Students will complete a soil management activity

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 9

Short Description:

Unit Worksheets-Aquatics

Long Description:

Students will complete worksheets in order to determine proper aquatic management techniques

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 10

Short Description:

Unit Review-Aquatics

Long Description:

Students will complete a unit review in preparation for a unit test

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

2

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 11

Short Description:

Unit Quiz-Aquatics

Long Description:

Students will complete a unit quiz focusing on aquatic management techniques

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 12

Short Description:

Aquatic Management Activity

Long Description:

Students will complete an aquatic management activity

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 13

Short Description:

Unit Worksheets-Wildlife

Long Description:

Students will complete worksheets in order to determine the best management practices for wildlife in given habitats

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 14

Short Description:

Unit Review-Wildlife

Long Description:

Students will complete an unit review in preparation for an unit test

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

2

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 15

Short Description:

Unit Quiz-Wildlife

Long Description:

Students will complete an unit quiz focusing on wildlife management techniques

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 16

Short Description:

Wildlife Management Activity

Long Description:

Students will complete a wildlife management activity

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 17

Short Description:

Unit Worksheets-Current Issue

Long Description:

Students will complete worksheets in order to determine the cause/effect and possible solutions to current environmental issues

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 18

Short Description:

Unit Review-Current Issue

Long Description:

Students will complete an unit review in preparation for an unit test

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 19

Short Description:

Unit Quiz-Current Issue

Long Description:

Students will complete an unit test focusing on current environmental issues

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

2. Assessments 20

Short Description:

Current Issue Presentations

Long Description:

Students will complete a current issue presentation

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

5

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Key Learning: Students should understand the diversity of Pennsylvania's environmental resources and the methods used to manage those resources.



Unit Essential Question(s):
How are the main areas of Pennsylvania's resources managed differently, however properly?

<p>Concept: Forest Science 3.1.B.B4., 3.1.12.C1., 3.1.12.C3.b, 4.1.12.A.a, 4.1.12.A.b, 4.2.12.A, 4.2.12.B.a, 4.3.12.A.a, 4.3.12.A.b, 4.3.12.B.c, 4.5.10.B, 4.1.12.A.c, 4.1.12.C.b, 4.1.12.E., 4.2.12.C.b, 4.3.12.A.c, 4.3.12.B.a, 4.3.12.B.b, 4.3.12.D.c, 4.5.12.A.b, 4.5.12.D.a</p>	<p>Concept: Soil Science 4.1.12.A.b, 4.2.12.A., 4.2.12.B.a, 4.2.12.B.b, 4.3.12.A.a, 4.3.12.A.b, 4.3.12.B.c, 4.3.12.D.b, 4.5.12.C.d, 4.1.12.C.a, 4.1.12.C.b, 4.1.12.E., 4.3.12.B.b, 4.3.12.D.c</p>	<p>Concept: Aquatics 3.1.12.C1., 3.1.12.C3.b, 4.1.12.A.a, 4.1.12.A.b, 4.2.12.A., 4.2.12.B.a, 4.2.12.C.a, 4.3.12.A.a, 4.3.12.A.b, 4.3.12.B.c, 4.5.12.C.d, 4.5.12.D.b, 4.1.12.A.c, 4.1.12.A.d, 4.1.12.C.a, 4.2.12.B.c, 4.2.12.C.b, 4.3.12.A.c, 4.3.12.B.b, 4.5.12.C.c</p>
<p>Lesson Essential Question(s): Why are the proper management techniques used to establish and maintain a healthy and productive forest environment? Answer: Timber Stand Improvement (TSI), Wildlife Stand Improvement (WSI), Clearcut, Diameter Limit Cut, Seed Tree Cut, Salvage Cut and Firewood (A)</p>	<p>Lesson Essential Question(s): Why are the proper management techniques used to establish and maintain a healthy and productive soil environment? Answer: The use of soil testing, soil cultivation and soil nutrient management will aid in improving and enhancing a productive soil environment (A)</p>	<p>Lesson Essential Question(s): Why are the proper management techniques used to establish and maintain a healthy and productive water supply and environment? Answer: The use of water quality testing, reduction of pollution sources, controlled distribution of water and enforced water quality regulations (A)</p>
<p>Vocabulary: TSI, WSI, Clearcut, Seed Tree, Salvage Cut, Diameter Limit Cut, Firewood</p>	<p>Vocabulary: Soil, Soil Testing, Erosion, Nutrients, Profile, Horizons, Hue, Soil Survey, Microorganisms</p>	<p>Vocabulary: Biotic organisms, Abiotic, Nutrients, Stream Classification, Stream Order, Clarity, Turbidity</p>

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

<p>Concept: Wildlife Science 3.1.B.B4., 3.1.12.C1., 3.1.12.C3.b, 4.1.12.A.a, 4.1.12.A.b, 4.2.12.B.b, 4.3.12.A.a, 4.3.12.A.b, 4.3.12.B.c, 4.5.12.C.d, 4.5.12.D.b, 4.1.12.A.c, 4.1.12.A.d, 4.1.12.C.a, 4.1.12.C.b, 4.3.12.B.a, 4.5.12.D.a</p>	<p>Concept: Current Issues 3.1.B.B4., 4.1.12.A.a, 4.2.12.A., 4.2.12.B.a, 4.2.12.B.b, 4.2.12.C.a, 4.3.12.A.a, 4.3.12.B.c, 4.3.12.D.b, 4.5.10.B., 4.5.12.C.d, 4.5.12.D.b, 4.1.12.A.d, 4.1.12.C.b, 4.1.12.E., 4.2.12.B.c, 4.2.12.C.b, 4.3.12.A.c, 4.3.12.B.a, 4.3.12.B.b, 4.3.12.D.a, 4.3.12.D.c, 4.3.12.D.d, 4.5.12.A.a, 4.5.12.A.b, 4.5.12.C.b, 4.5.12.C.c, 4.5.12.E.</p>
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<p>Lesson Essential Question(s): Why are the proper management techniques used to manage wildlife both aquatic and terrestrial and the environment in which they exist? Answer: Need to establish an evaluation technique that measures the ecosystem's ability to provide sufficient food, cover, water and space for the present species as well as future generations (A)</p>	<p>Lesson Essential Question(s): Why are the current environmental issues affecting Pennsylvania's natural resources in a negative fashion? Answer: Some of the current environmental issues that affect Pennsylvania are: acid rain, gas drilling, resource mining, invasive species, water quality, flood management, water sedimentation, species disease, habitat loss, soil loss, pesticide contamination, soil erosion and environmental rules and regulations (A)</p>
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<p>Vocabulary: Aquatic, Terrestrial, Hunting, Fishing, Trapping, Invasive Species, Essentials, Diversity</p>	<p>Vocabulary: Acid Rain, Habitat, Erosion, Regulations, Mining, Drilling, Contamination, Sedimentation, Issues</p>
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Additional Information:

Attached Document(s):

Vocab Report for Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Forest Science

TSI - A cut that is made to improve the overall health of the woodlot

WSI - A cut that is made to improve the wildlife habitat

Clearcut - A cut that is made that removes all trees regardless of size

Seed Tree - A cut that is made to enhance the seed trees that exist on the site

Salvage Cut - A cut that is made to recover any tree/wood that has been damaged

Diameter Limit Cut - A cut that is made that removes only a certain size tree

Firewood - A cut that is made to remove any and all firewood that can be used as a energy source

Concept: Soil Science

Soil - The upper layer of the Earth's crust which aids in human food production

Soil Testing - Testing that is completed to ensure proper nutrient management in soil

Erosion - The wearing away of soil by time, wind, water and humans

Nutrients - Items contained in the soil that make it productive

Profile - A 3-D look of a particular soil type

Horizons - The different layers of soil that exist in an area

Hue - The color of a particular soil type

Soil Survey - A device used to determine the productive potential and uses of a soil type

Microorganisms - Microscopic organisms that exist in soil that can both aid and hinder soil productivity

Concept: Aquatics

Biotic organisms - Organisms that are living within a water ecosystem

Abiotic - The nonliving factors that affect water quality

Nutrients - Elements that can appear in water that can have both a positive and negative effect on a water ecosystem

Stream Classification - A set of rules used to classify a stream, river, creek, etc.

Stream Order - A set of rules used to categorize streams, rivers, creeks, etc.

Clarity - How clear a water resource is to the naked eye

Turbidity - The amount of sediment present in a water source

Concept: Wildlife Science

Aquatic - Species that spend most of their time in and around water

Terrestrial - Species that spend most of their time on land

Hunting - A means in which to control animal populations

Fishing - A means used to control animal populations

Trapping - A means used to control animal populations

Invasive Species - Species that are not native/common to an ecosystem

Essentials - Items needed by all animals in order to survive

Diversity - The ability to contain many different species within a similar area/ecosystem

Concept: Current Issues

Vocab Report for Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Acid Rain - Precipitation that is created in the Ohio Valley and is deposited in Pennsylvania that contains a high level of acidity

Habitat - An ecosystem in which an animal lives

Erosion - The wearing away of soil by wind, water and humans

Regulations - Rules that are set forth for people to follow to insure a safe and healthy living environment

Mining - The removal of a valuable mineral from the earth's crust via a stripping/digging into the upper crust

Drilling - The placement of a hole into the ground for the removal of a valuable mineral, gas or water

Contamination - The polluting of air, water, soil, etc. by human activities

Sedimentation - The placement of particles into water or air

Issues - Items or activities that create a negative affect on the environment

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

5. Launch Activity 1

How are you going to get students engaged?

Develop student interest and link their prior knowledge.
Start the Student Learning Map of the unit with students.
Preview key vocabulary with students.:

Short Description:

Career Exploration-Forestry

Long Description:

Students will become familiar with the different careers associated with the forest science industry via listing the different careers on selected graphic organizers

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

5. Launch Activity 2

How are you going to get students engaged?

Develop student interest and link their prior knowledge.
Start the Student Learning Map of the unit with students.
Preview key vocabulary with students.:

Short Description:

Career Exploration-Soils

Long Description:

Students will become familiar with the different careers associated with the soil science industry via listing the different careers on selected graphic organizers

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

5. Launch Activity 3

How are you going to get students engaged?

Develop student interest and link their prior knowledge.
Start the Student Learning Map of the unit with students.
Preview key vocabulary with students.:

Short Description:

Career Exploration-Aquatics

Long Description:

Students will become familiar with the different careers associated with the aquatic industry via listing the different careers on selected graphic organizers

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

5. Launch Activity 4

How are you going to get students engaged?

Develop student interest and link their prior knowledge.
Start the Student Learning Map of the unit with students.
Preview key vocabulary with students.:

Short Description:

Career Exploration-Wildlife

Long Description:

Students will become familiar with the different careers associated with the wildlife science industry via listing the different careers on selected graphic organizers

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

5. Launch Activity 5

How are you going to get students engaged?

Develop student interest and link their prior knowledge.
Start the Student Learning Map of the unit with students.
Preview key vocabulary with students.:

Short Description:

Current Issues

Long Description:

Students will identify the different current issues that affect Pennsylvania's environment

Differentiation:

Modifications will be made based upon the student's abilities

Time (in days):

1

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Forest Science

5. Acquisition Lesson

Plan for the Concept, Topic, or Skill -- Not for the Day

Lesson Essential Question:

Why are the proper management techniques used to establish and maintain a healthy and productive forest environment?

Answer: Timber Stand Improvement (TSI), Wildlife Stand Improvement (WSI), Clearcut, Diameter Limit Cut, Seed Tree Cut, Salvage Cut and Firewood

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt 1: Why is forest management important in Pennsylvania?

Activating Strategy:

Brainstorm Web

Key vocabulary to preview:

Word Wall

Teaching Strategies:

Graphic Organizer:

Cause and Effect

Instruction:

AP: Why is forest management important in Pennsylvania?

Teacher will conduct lectures and activities on management practices

Assignment and/or Assessment:

Students will complete assignments designed to highlight management practices in Pennsylvania

Summarizing Strategy:

Ticket Out the Door

Differentiation:

Modifications will be made based upon the student's abilities

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Forest Science

5. Acquisition Lesson

Review / Revise:

Teacher led Discussion

Resources and Materials:

Textbook: Pennsylvania Environment and Ecology

Time (in days):

40

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Soil Science

5. Acquisition Lesson

Plan for the Concept, Topic, or Skill -- Not for the Day

Lesson Essential Question:

Why are the proper management techniques used to establish and maintain a healthy and productive soil environment?

Answer: The use of soil testing, soil cultivation and soil nutrient management will aid in improving and enhancing a productive soil environment

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt 1: Why is soil management important in Pennsylvania?

Activating Strategy:

Fayer Model

Key vocabulary to preview:

Word Wall

Teaching Strategies:

Graphic Organizer:

Describing an Event

Instruction:

AP: Why is soil management important in Pennsylvania?

Teacher will conduct lectures and activities on management practices

Assignment and/or Assessment:

Students will complete assignments and activities designed to highlight management practices in Pennsylvania

Summarizing Strategy:

3-2-1

Differentiation:

Modifications will be made based upon the student's abilities

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Soil Science

5. Acquisition Lesson

Review / Revise:

Teacher led Discussion

Resources and Materials:

Textbook: Pennsylvania Environment and Ecology

Time (in days):

40

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Aquatics

5. Acquisition Lesson

Plan for the Concept, Topic, or Skill -- Not for the Day

Lesson Essential Question:

Why are the proper management techniques used to establish and maintain a healthy and productive water supply and environment?

Answer: The use of water quality testing, reduction of pollution sources, controlled distribution of water and enforced water quality regulations

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt 1: Why is water management important in Pennsylvania?

Activating Strategy:

KWL

Key vocabulary to preview:

Word Wall

Teaching Strategies:

Instruction:

AP: Why is water management important in Pennsylvania?

Teacher will conduct lectures and activities on management practices

Assignment and/or Assessment:

Students will complete assignments designed to highlight management practices in Pennsylvania

Summarizing Strategy:

Reflection Questions

Differentiation:

Modifications will be made based upon the student's abilities

Review / Revise:

Teacher led Discussion

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Aquatics

5. Acquisition Lesson

Resources and Materials:

Textbook: Pennsylvania Environment and Ecology

Time (in days):

40

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Wildlife Science

5. Acquisition Lesson

Plan for the Concept, Topic, or Skill -- Not for the Day

Lesson Essential Question:

Why are the proper management techniques used to manage wildlife both aquatic and terrestrial and the environment in which they exist?

Answer: Need to establish an evaluation technique that measures the ecosystem's ability to provide sufficient food, cover, water and space for the present species as well as future generations

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt 1: Why is wildlife management important in Pennsylvania?

Activating Strategy:

Word Splash

Key vocabulary to preview:

Word Wall

Teaching Strategies:

Graphic Organizer:

DETAIL

Instruction:

AP: Why is wildlife management important in Pennsylvania?

Teacher will conduct lectures and activities on management practices

Assignment and/or Assessment:

Students will complete assignments designed to highlight management practices in Pennsylvania

Summarizing Strategy:

Study Cards

Differentiation:

Modifications will be made based upon the student's abilities

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Wildlife Science

5. Acquisition Lesson

Review / Revise:

Teacher led Discussion

Resources and Materials:

Textbook: Pennsylvania Environment and Ecology

Time (in days):

40

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

Concept: Current Issues

5. Acquisition Lesson

Plan for the Concept, Topic, or Skill -- Not for the Day

Lesson Essential Question:

Why are the current environmental issues affecting Pennsylvania's natural resources in a negative fashion?

Answer: Some of the current environmental issues that affect Pennsylvania are: acid rain, gas drilling, resource mining, invasive species, water quality, flood management, water sedimentation, species disease, habitat loss, soil loss, pesticide contamination, soil erosion and environmental rules and regulations

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt 1: Why should Pennsylvania be concerned about the affect on the current environment issues that exist?

Activating Strategy:

Frayer Diagram

Key vocabulary to preview:

Word Wall

Teaching Strategies:

Graphic Organizer:

Cause and Effect

Instruction:

AP: Why should Pennsylvania be concerned about the affect on the current environmental issues that exist?

Teacher will lead identification and discussion of environmental current issues and then students will conduct research and presentation information on their chosen environmental topic.

Assignment and/or Assessment:

Students will complete assignments designed to highlight management practices in Pennsylvania

Summarizing Strategy:

The Important Thing

Differentiation:

Modifications will be made based upon the student's abilities

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5. Acquisition Lesson

Review / Revise:

Teacher led Discussion

Resources and Materials:

Textbook: Pennsylvania Environment and Ecology

Time (in days):

20

Topic: Environmental Science

Days: 180

Subject(s): Science

Grade(s): 10th, 11th, 12th

8. Differentiating the Unit

What accommodations will you make in order to meet the varied interest, learning styles, and ability levels of all students?

Differentiation Associated with the Unit:

Modifications will be made based upon the student's abilities

Differentiation Associated with Lessons and Activities:

Student Assessment 1: Unit Worksheets-Forestry :

Modifications will be made based upon the student's abilities

Student Assessment 2: Unit Review-Forestry :

Modifications will be made based upon the student's abilities

Student Assessment 3: Unit Quiz-Forestry :

Modifications will be made based upon the student's abilities

Student Assessment 4: Forest Measurement Activity :

Modifications will be made based upon the student's abilities

Student Assessment 5: Unit Worksheets-Soils :

Modifications will be made based upon the student's abilities

Student Assessment 6: Unit Review-Soils :

Modifications will be made based upon the student's abilities

Student Assessment 7: Unit Quiz-Soils :

Modifications will be made based upon the student's abilities

Student Assessment 8: Soil Management Activity :

Modifications will be made based upon the student's abilities

Student Assessment 9: Unit Worksheets-Aquatics :

Modifications will be made based upon the student's abilities

Student Assessment 10: Unit Review-Aquatics :

Modifications will be made based upon the student's abilities

Student Assessment 11: Unit Quiz-Aquatics :

Modifications will be made based upon the student's abilities

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Student Assessment 12: Aquatic Management Activity :

Modifications will be made based upon the student's abilities

Student Assessment 13: Unit Worksheets-Wildlife :

Modifications will be made based upon the student's abilities

Student Assessment 14: Unit Review-Wildlife :

Modifications will be made based upon the student's abilities

Student Assessment 15: Unit Quiz-Wildlife :

Modifications will be made based upon the student's abilities

Student Assessment 16: Wildlife Management Activity :

Modifications will be made based upon the student's abilities

Student Assessment 17: Unit Worksheets-Current Issue :

Modifications will be made based upon the student's abilities

Student Assessment 18: Unit Review-Current Issue :

Modifications will be made based upon the student's abilities

Student Assessment 19: Unit Quiz-Current Issue :

Modifications will be made based upon the student's abilities

Student Assessment 20: Current Issue Presentations :

Modifications will be made based upon the student's abilities

Launch Activity 1: Career Exploration-Forestry :

Modifications will be made based upon the student's abilities

Launch Activity 2: Career Exploration-Soils :

Modifications will be made based upon the student's abilities

Launch Activity 3: Career Exploration-Aquatics :

Modifications will be made based upon the student's abilities

Launch Activity 4: Career Exploration-Wildlife :

Modifications will be made based upon the student's abilities

Launch Activity 5: Current Issues :

Modifications will be made based upon the student's abilities

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Acquisition Lesson 1::

Why are the proper management techniques used to establish and maintain a healthy and productive forest environment?

Answer: Timber Stand Improvement (TSI), Wildlife Stand Improvement (WSI), Clearcut, Diameter Limit Cut, Seed Tree Cut, Salvage Cut and Firewood

Modifications will be made based upon the student's abilities

Acquisition Lesson 2::

Why are the proper management techniques used to establish and maintain a healthy and productive soil environment?

Answer: The use of soil testing, soil cultivation and soil nutrient management will aid in improving and enhancing a productive soil environment

Modifications will be made based upon the student's abilities

Acquisition Lesson 3::

Why are the proper management techniques used to establish and maintain a healthy and productive water supply and environment?

Answer: The use of water quality testing, reduction of pollution sources, controlled distribution of water and enforced water quality regulations

Modifications will be made based upon the student's abilities

Acquisition Lesson 4::

Why are the proper management techniques used to manage wildlife both aquatic and terrestrial and the environment in which they exist?

Answer: Need to establish an evaluation technique that measures the ecosystem's ability to provide sufficient food, cover, water and space for the present species as well as future generations

Modifications will be made based upon the student's abilities

Acquisition Lesson 5::

Why are the current environmental issues affecting Pennsylvania's natural resources in a negative fashion?

Answer: Some of the current environmental issues that affect Pennsylvania are: acid rain, gas drilling, resource mining, invasive species, water quality, flood management, water sedimentation, species disease, habitat loss, soil loss, pesticide contamination, soil erosion and environmental rules and regulations

Modifications will be made based upon the student's abilities

Curriculum: CCSD CURRICULUM
Course: Environmental Science (04/14/14)
Teacher / Team Name: Brown/Seesholtz

PENNSYLVANIA
Date: April 13, 2014 ET

Topic: Environmental Science
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What resources and materials do you need for this unit, the lessons, and the activities?

Resources Associated with the Unit:

Pennsylvania Environment and Ecology Textbook

Resources Associated with Lessons and Activities:
