

COURSE: Science
Earth and the Environment

GRADE LEVEL: Fifth Grade

LENGTH OF COURSE: 36 Weeks/120 Minutes Per Week

TEXT: Scott Foresman Science

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COURSE DESCRIPTION:

The fifth grade program is designed to allow students the opportunity to investigate our earth and the environment. Students will actively participate in experiments, activities, and projects that will help them achieve a greater understanding of the interdependence of living and nonliving things. The students will take a closer look at cycles and systems of earth and nature, plant and animal interactions, the effects of time and forces on earth and nature and the human impact on earth, earth's resources, and the environment. Students will collect, interpret, and analyze data to help them make informed decisions and to become good stewards of the earth.

AREAS OF STUDY:

Earth and Earth Process
Resources
Agriculture
Life Science/Ecology
Wetlands and Watersheds

CURRICULUM WRITING TEAM:

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Wallenpaupack Area School District

Course: The Earth and The Environment
Unit: Earth and Earth Process

Grade Level: Grade 5
PA Standard: 3.5.7.A

Topics:	Skills:
<p>Land forms and processes</p>	<p>Describe major layers of the earth Describe the process involved in the creation of geologic features (e.g., folding, faulting, volcanism, sedimentation) and that these processes seen today are similar to those in the past Describe the processes that formed Pennsylvania geologic structures and resources including mountains, glacial formations, water gaps and ridges Explain how the rock cycle affected rock formation in the state of Pennsylvania Distinguish between examples of rapid surface changes and show surface changes (e.g., erosion, weathering) Identify living plants and animals that are similar to fossil forms Explain the processes involved in the formation of oil and coal in Pennsylvania</p>
Activities:	Performance Assessments:
<p>Construct models of the earth's features Conduct various experiments to see the effects of weathering and erosion Investigating Moving Continents (Science, Scott Foresman) Comparing Properties of Rocks (Discovery Works) Sort of Rocky (Discovery Works) Soil on the Run (Project Seasons, pg. 77) Rock collection</p>	<p>Teacher observation Class participation Tests and quizzes Rubrics used for projects, labs, models, and activities Completion of projects, labs, models and activities</p>

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Course: The Earth and The Environment
Unit: Renewable and Nonrenewable Resources

Grade Level: Grade 5
PA Standard: 3.5.7.B
 4.3.7.A
 4.2.7.B

Topics:	Skills:
Resources in Pennsylvania Availability Management Influential factors	Identify and locate significant earth resources in Pennsylvania Explain the value and uses of different earth resources (selected minerals, ores, etc.) Compare the locations of human settlements as related to available resources Identify resources used to provide humans with energy, food, housing, and water Explain how plants and animals may be classified as natural resources Compare means of growing or acquiring food Identify fiber and other raw materials used in clothing and shelter production Identify types of minerals and fossil fuels by humans Identify renewable resources and describe their uses Identify nonrenewable resources and describe their uses Compare the time spans of renewability for fossil fuels and alternative fuels Compare finished products to their original raw material Identify the waste derived from the use of renewable and nonrenewable resources Determine how consumption may impact the availability of resources
Activities:	Performance Assessments:
Variety of experiments and activities Exploring the Earth's Resources (Science, Scott Foresman) Renewable or Not? (Project Learning Tree, #14) A Few of My Favorite Things (Project Learning Tree, #15) Energy Sleuths (Project Learning Tree, #39) A Historical Look Back (Penn Kit) Putting Pen to Paper (Penn Kit) Forestland Land Use (Penn Kit) A "Resource" of Many Names (Penn Kit) A Forest of Many Uses (Penn Kit) Tree-Mendous (Penn Kit)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

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Activities: (continued)	
PA Christmas Trees (Penn Kit) From Oak to Oak Desk (STEEP Kit) Nail by Nail, Board by Board (STEEP Kit) Cows or Condos (STEEP Kit) Fires in PA (Penn Kit) Succession to Old Growth in PA (Penn Kit) Make Your Own Paper (Project Learning Tree, #51)	

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Course: The Earth and The Environment
Unit: Recycling and Waste Management

Grade Level: Grade 5

PA Standard: 4.2.7.D

Topics:	Skills:
Recycling	Identify materials that can be recycled in the community Explain the process of closing the loop in recycling Compare the decomposition rates of different organic materials Describe methods that could be used to reuse materials for new products Evaluate the costs and benefits of disposable products
Activities:	Performance Assessments:
Rotten Truth (Project Seasons, p. 79) Buried Treasure (Project Seasons, p. 83) Compost Cake (Project Seasons, p. 87) Reduce, Reuse, Recycle (Project Learning Tree, #83) A Peek at Packaging (Project Learning Tree, #84) Talking Trash, Not! (Project Learning Tree, #37)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

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Course: The Earth and The Environment
Unit: People and The Environment

Grade Level: Grade 5

PA Standard: 4.3.7.A
 4.3.7.B

Topics:	Skills:
Pollution Pest controls Alternate products Environmental health	Identify various examples of long-term pollution and explain their effects on environmental health Identify diseases that have been associated with poor environmental quality Describe different types of pest controls and their effects on the environment Identify alternative products that can be used in life to reduce pollution Identify land use practices and their relationship to environmental health Explain how natural disasters affect environmental health Identify residential and industrial sources of pollution and their effects on environmental health Explain the difference between point and non-point source pollution Explain how non-point source pollution can affect the water supply and air quality Explain how acid deposition can affect water, soil and air quality Explain the relationship between resource use, reuse, recycling and environmental health
Activities:	Performance Assessments:
Poison Pump (Project Wet, p. 93) The Pucker Effect (Project Wet, p. 338) Sum of the Parts (Project Wet, p. 267) Super Sleuths (Project Wet, p.107) Where are the Frogs (Project Wet, p. 279) Environmental Action Game (Earth Alert, Troll p. 72) Air Testing (Earth Alert, Troll, p. 83) Playing Lightly in PA's Forest (Penn Kit)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

Wallenpaupack Area School District

Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Agriculture

PA Standard: 4.4.7.A
4.4.7.B
4.4.7.C
4.4.7.D

Topics:	Skills:
<p>Society's needs Agricultural systems</p>	<p>Compare and contrast agriculture changes that have been made to meet society's needs Compare and contrast how animals and plants affect agricultural systems Compare several technological advancements and their effects on the historical growth of agriculture Compare different environmental conditions related agricultural production, cost and quality of the product Explain the importance of particle sizes in different soil types Determine how water has influenced the development of Pennsylvania soil types Investigate how soil types have influenced the plant types used on Pennsylvania farms Analyze how soil types and geographic regions have impacted the profitability of Pennsylvania farms Analyze the needs of plants and animals as they relate to climate and soil conditions Identify the plants and animals that can be raised in the area and explain why Identify natural resources necessary for agricultural system Compare the need for crop production to the need for animal production Define issues associated with food and fiber production Compare the technologies that have advanced agricultural production Explain how energy sources have changed to meet agricultural technology</p>
Activities:	Performance Assessments:
<p>Irrigation Interpretation (Projects Wet, p-254) In the God Old Days (Project Seasons, p-33) Farm Barnyard-Adapted (Project Seasons, p-35) Cow Relay (Project Seasons, p-41) Grass to Milk (Project Seasons, p-45) Soil Trek (Project Seasons, p-61) Soil Soakers (Project Seasons, p-67) Soil Shakes (Project Seasons, p-71)</p>	<p>Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities</p>

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Pest Management

PA Standard: 4.5.7.A
4.5.7.B
4.5.7.C

Topics:	Skills:
<p>Pests Pest management</p>	<p>Identify different examples of pests and explain the beneficial or harmful effects of each Identify several locations where pests can be found and compare the effects the pests have on each location Explain issues related to integrated pest management including biological technology, resistant varieties, chemical practices, medical technology, and monitoring techniques Describe how integrated pest management and related technology impact human activities Identify issues related to integrated pest management that affect the environment Compare and contrast integrated pest management monitoring methods utilized in different community settings Compare integrated pest management to past practices Compare and analyze the long term effects of using integrated pest management products</p>
Activities:	Performance Assessments:
<p>Lessons from Pesticide Labels (Penn Kit) Saga of the Gypsie Moth (Penn Kit)</p>	<p>Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities</p>

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Pest Management

PA Standard: 3.5.7.D

Topics:	Skills:
Water cycle Salt and fresh water Ocean features	Explain the water cycle using the processes of evaporation and condensation Describe factors that affect evaporation and condensation Distinguish salt from fresh water (density, electrical conduction) Compare the effect of water type and the life contained in them Identify ocean and shoreline features (tidal marshes, spit bays, inlets)
Activities:	Performance Assessments:
The Incredible Journey (Project Wet, p. 161) Just Passing Through (Project Wet, p. 166) Cycle Demonstration (Ecology, p. 20) Salt Water to Fresh Water (Ecology, p. 22) Taking Water Out of the Air (Earth and Space, Steck-Vaughn, p. 59) Water Models (Project Wet, p. 201) Wet Vacation (Project Wet, p. 206)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Wetlands

PA Standard: 4.1.7.D

Topics:	Skills:
Wetlands	Identify specific characteristics of wetland plants and soil Recognize the common types of plants and animals Describe different types of wet lands Describe the different functions of wetlands
Activities:	Performance Assessments:
Life in the Fast Lane (Project Wet, p. 79) People of the Bog (Project Wet, p. 89) Salt Marsh Players (Project Wet, p. 99) Capture, Store, Release (Project Wet, p. 133) Wetland Soils in Living Color (Project Wet, p. 213) Watch on Wetlands (Project Learning Tree, #71) Wetland in a Pan (STEEP Kit)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Watershed

PA Standard: 4.1.7.A
4.1.7.B
4.1.7.C

<p>Topics:</p> <p>Water cycle Aquatic systems Organisms</p>	<p>Skills:</p> <p>Explain water cycle Explain the water cycle as it relates to a watershed Identify and explain what determines the boundaries of a watershed Explain factors that affect water quality and flow through a watershed Explain how water is necessary for all life Explain how the physical components of aquatic systems influence the organisms that live there in terms of size, shape, and physical adaptations Describe the life cycle of organisms that depend on water Identify organisms that have aquatic states of life and describe those stages</p>
<p>Activities:</p> <p>Cast of Thousands (Penn Kit) Branching Out (Project Wet, p. 129) Imagine (Project Wet, p. 157) Rainy Day Hike (Project Wet, p. 186) Color Me a Watershed (Project Wet, p. 223)</p>	<p>Performance Assessments:</p> <p>Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities</p>

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Watershed

PA Standard: 4.1.7.E

Topics:	Skills:
Flood control	Explain the impact of watersheds and wetlands in flood control, wildlife habitats, and pollution abatement Explain the influence of flooding on wet lands
Activities:	Performance Assessments:
Tough Choices in PA (Penn Kit)	Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities

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Course: The Earth and The Environment

Grade Level: Grade 5

Unit: Biomes

PA Standard: 3.3.7.A
3.3.7.B

Topics:	Skills:
<p>Structures of living things Adaptation</p>	<p>Describe how the structures of living things help them function in unique ways Explain how to use a dichotomous key to identify plants and animals Account for adaptations among organisms that live in a particular environment Identify the levels of organization from cell to organism Compare life processes at the organism level with life processes at the cell level Explain that cells and organisms have particular structures that underlie their functions Describe and distinguish among cell cycles, reproductive cycles, and life cycles</p>
Activities:	Performance Assessments:
<p>Observing Growth of Fungi (Science, Scott Foresman) Exploring Cells (Science, Scott Foresman) Investigate Life Cycle of Plant (Scott Foresman) Explore Protective Coloring (Science, Scott Foresman) Graph a Cell (Life Science, Steck-Vaughn) Looking at Cells (Life Science, Steck-Vaughn) Use Microscopes</p>	<p>Teacher observation/Class participation Teacher made tests and quizzes Book unit tests and quizzes Completion of labs, projects, models, and activities Rubrics used for projects, labs, models, and activities</p>

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Course: The Earth and The Environment

Unit: Chains and Webs

Grade Level: Grade 5

PA Standard: 4.3.7.C
4.6.7.A
4.6.7.C
4.7.7.A
4.6.7.B

Topics:	Skills:
<p>Ecosystem Diversity Adaptations Food Web Biomes</p>	<p>Explain the complex interactive relationships among members of an ecosystem Explain how diversity affects ecological integrity of the natural resources Identify and explain the characteristics of biotic and abiotic Describe and explain the adaptations of plants and animals to their environment Demonstrate the dependency of living components in the ecosystem on the nonliving components Explain energy flow through a food web Explain the importance of the predator/prey relationship and how it maintains the balances within ecosystems Understand limiting factors and predict their effects on an organism Identify niches for producers, consumers, and decomposers within an ecosystem Compare and contrast the major ecosystems of Pennsylvania Identify the major characteristics of a biome Compare and contrast different biomes and their characteristics Identify the relationship of abiotic and biotic components and explain their interaction in an Ecosystem Explain how different soil types determine the characteristics of ecosystems Explain how ecosystems change Identify the succession stages of a given ecosystem Explain how specific organisms may change in an ecosystem Explain a change in an ecosystem that relates to humans Select an ecosystem and describe different plants and animals that live there Identify adaptations in plants and animals</p>

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	<p>Skills: (continued)</p> <p>Recognize that adaptations are developed over long periods of time and are passed on from one generation to the next</p> <p>Understand levels of ecosystems organization (individuals, populations and species)</p> <p>Identify and explain cycles within an ecosystem</p> <p>Analyze the role of different cycles within an ecosystem</p>
<p>Activities:</p> <p>Food Chain Game</p> <p>Know Your Niche (Windows on Science)</p> <p>Run For the Sun (Project Seasons, p. 55)</p> <p>How Many Bears Can Live in the Forest (Penn Kit)</p> <p>Dissect Owl Pellets</p> <p>Recognize Biodiversity (STEEP Kit)</p> <p>Timber-R-R (Pen Kit)</p> <p>Who's Invading (Penn Kit)</p> <p>Be Trees to Your School (Penn Kit)</p> <p>Checks and Balances (Penn Kit)</p> <p>A Historical Look Back: The Human Influence and Pennsylvania's Forest (Penn Kit)</p> <p>Soil Experiments (FAST Program)</p>	<p>Performance Assessments:</p> <p>Teacher observation/Class participation</p> <p>Teacher made tests and quizzes</p> <p>Book unit tests and quizzes</p> <p>Completion of labs, projects, models, and activities</p> <p>Rubrics used for projects, labs, models, and activities</p>

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RESOURCES

Windows on Science Volume 1 Earth Science Optical Data Corporation, 1994.

Windows on Science Volume 1 Life Science Optical Data Corporation, 1994.

Life Science Steck-Vaughn Science Series Steck-Vaughn Company, 1999.

Earth and Space Science Steck-Vaughn Science Series Steck-Vaughn Company, 1999.

Project Wet Curriculum and Activity Guide The Watercourse and Western Regional Environmental Education Council, 1995.

Project Wild The Western Regional Environmental Education Council, 1992.

Project Learning Tree Environmental Education Activity Guide, The American Forest Foundation, 1994.

Project Seasons Shelburne Farms, 1995.

Science and Technology and Environment and Ecology Classroom Connections Kit

Sustaining Penn's Woods Kit

Ecology Hands-on experiments for grades 4-8 Creative Teaching Press, Inc., 1995.

101 Science Projects Troll Associates, Inc., 1994.

Earth Alert Environmental Studies for Grades 4-6 Troll Communications L.L.C., 1996.