

# *Wallenpaupack Area School District*

**COURSE:** Science

GRADE LEVEL: Second Grade

LENGTH OF COURSE: 36 Weeks/80 Minutes Per Week

TEXT: Scott Foresman Science – Second Grade

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**COURSE DESCRIPTION:**

This course is designed to create a basic understanding of science through use of the scientific method, hands-on activities, literature and cooperative activities.

**AREAS OF STUDY:**

Unifying Themes  
Inquiry and Design  
Biological Science  
Physical Science  
Earth Science  
Watersheds and Wetlands  
Renewable and Nonrenewable Resources  
Environmental Health  
Agriculture and Society  
Integrated Pest Management  
Ecosystems and their Interactions  
Threatened, Endangered and Extinct Species  
Humans and the Environment

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**DATE OF REVISION:**

2002

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Unifying Themes

**Grade Level:** Grade 2  
**PA Standard:** 3.1.4.A  
 3.1.4.B  
 3.1.4.C  
 3.1.4.E

<p><b>Topics:</b></p> <ul style="list-style-type: none"> <li>Systems</li> <li>Models</li> <li>Theories</li> <li>Patterns</li> <li>Prediction</li> <li>Change</li> <li>Relative motion</li> </ul>	<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Identify and describe what parts make up a system</li> <li>Identify system parts that are natural and human made</li> <li>Describe the purpose of analyzing systems</li> <li>Know that technologies include physical technology systems, informational systems, and bio-chemical related systems</li> <li>Identify different types of models</li> <li>Identify and apply models as tools for prediction and insight</li> <li>Apply appropriate simple modeling tools and techniques</li> <li>Identify theories that serve as models</li> <li>Identify observable patterns</li> <li>Use knowledge of natural patterns to predict next occurrences</li> <li>Recognize change as fundamental to science and technology concepts</li> <li>Examine and explain change by using time and measurement</li> <li>Describe relative motion</li> <li>Describe the change to objects caused by heat, cold, light, or chemicals</li> </ul>
<p><b>Activities:</b></p>	<p><b>Performance Assessments:</b></p> <ul style="list-style-type: none"> <li>Unifying Themes and Inquiry and Design are addressed throughout this curriculum as they are inherent to the teaching of science</li> </ul>

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Inquiry and Design

**Grade Level:** Grade 2  
**PA Standard:** 3.2.4.A  
 3.2.4.B  
 3.2.4.C  
 3.2.4.D

<p><b>Topics:</b></p> <p>Facts and beliefs          Scientific inquiry</p>	<p><b>Skills:</b></p> <p>Distinguish between a scientific fact and a belief          Provide clear explanations that account for observations and results          Relate how new information can change exiting perceptions          Recognize observational descriptors from each of the five senses          Use observations to develop a descriptive vocabulary          Generate questions about objects, organisms and/or events that can be answered through scientific investigations          Design an investigation          Conduct an experiment          State a conclusion that is consistent with the information          Recognize and explain basic problems          Identify possible solutions and their course of action          Try a solution          Describe the solution, identify its impacts and modify if necessary          Show the steps taken and the results</p>
<p><b>Activities:</b></p>	<p><b>Performance Assessments:</b></p> <p>Unifying Themes and Inquiry and Design are addressed throughout this curriculum as they are inherent to the teaching of science</p>

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Biological Science

**Grade Level:** Grade 2  
**PA Standard:** 3.3.4.A  
 3.3.4.B  
 3.3.4.C  
 3.3.4.D

<p><b>Topics:</b></p> <ul style="list-style-type: none"> <li>Life processes</li> <li>Habitat</li> <li>Plant and animal needs</li> <li>Organisms</li> <li>Animal and plant survival</li> <li>Learned and inherited characteristics</li> <li>Extinct life forms</li> </ul>	<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>Identify life processes of living things</li> <li>Know that some organisms have similar external characteristics and that similarities and differences are related to environmental habitat</li> <li>Describe basic needs of plants and animals</li> <li>Identify examples of unicellular and multi-cellular organisms</li> <li>Determine how different parts of a living thing work together to make the organism function</li> <li>Identify characteristics for animal and plant survival in different climates</li> <li>Distinguish between learned and inherited characteristics</li> <li>Identify physical characteristics that appear in both parents and offspring and differ between families, strains or species</li> <li>Compare extinct life forms with living organisms</li> </ul>
<p><b>Activities:</b></p> <ul style="list-style-type: none"> <li>Group plants and animals by their external characteristics</li> <li>Recognize the functions of the parts of a plant</li> <li>Classifying types of seeds</li> <li>Compare extinct life forms to living organisms</li> <li>Identify observable patterns</li> <li>Identify local trees and plants of the region</li> </ul>	<p><b>Performance Assessments:</b></p> <ul style="list-style-type: none"> <li>Teacher observation</li> <li>Experiments</li> <li>Rubrics</li> <li>Self-evaluation</li> <li>Data sheets</li> </ul>

# Wallenpaupack Area School District

**Course:** Science  
**Unit:** Physical Science, Chemistry and Physics

**Grade Level:** Grade 2  
**PA Standard:** 3.4.4.A  
 3.4.4.B  
 3.4.4.C  
 3.4.4.D

<b>Topics:</b>	<b>Skills:</b>
Matter Characteristics of materials Energy terms Heat Light Motion Solar system	Describe properties of matter Know that combining two or more substances can make new materials with different properties Know different material characteristics (e.g., texture, state of matter, solubility) Identify energy forms and examples (e.g., sunlight, heat, stored, motion) Describe static electricity in terms of attraction, repulsion and sparks Know and demonstrate the basic properties of heat by producing it in a variety of ways Know the characteristics of light and use them to produce heat color or a virtual image Recognize forces that attract or repel other objects and demonstrate them Describe various types of motions Compare the relative movement of objects and describe types of motion that are evident Recognize earth's place in the solar system Explain and illustrate the causes of seasonal changes Identify planets in our solar system and their general characteristic Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify matter and its properties Describe matter in terms of mass and volume Classify a variety of common items as solids, liquids and gases Investigate physical and chemical changes Develop simple skills to measure, record, cut and fasten Identify energy forms Identify characteristics of light Identify properties of heat Recognize earth's place in the solar system Identify planets and their general characteristics	Teacher observation Experiments Rubrics Self-evaluation Data sheets

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Earth Science

**Grade Level:** Grade 2  
**PA Standard:** 3.5.4.B  
 3.5.4.C

<b>Topics:</b>	<b>Skills:</b>
Earth materials Weather patterns	Identify uses of various earth materials (e.g., building, highways, fuels, growing plants) Identify and sort earth materials according to a classification key (e.g., soil/rock types) Identify cloud types Identify weather patterns from data charts (including temperature, wind direction and speed precipitation) and graphs of the data Explain how the different seasons affect plants, animals, food availability and daily human life
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify basic earth structures through the use of models Identify basic weather elements Identify and describe different types of precipitation Identify weather information, sources (e.g., newspaper, radio, television, Internet) Interpret basic data from weather charts and graphs Identify the basic types of water on the earth's surface Know that approximately three quarters of the earth is covered by water Describe locations of fresh and salt water in or near the state of Pennsylvania Label different bodies of water on the earth	Teacher observation Experiments Rubrics Self-evaluation Data sheets

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Earth Science

**Grade Level:** Grade 2  
**PA Standard:** 4.1.4.A  
 4.1.4.B  
 4.1.4.C  
 4.1.4.D  
 4.1.4.E

<b>Topics:</b>	<b>Skills:</b>
Lotic and lentic systems Water movement Precipitation Fresh water plants Wetlands Watersheds	Identify the lotic system (e.g., creeks, rivers, streams) Identify the lentic system (e.g., ponds, lakes, swamps) Explain why water moves or does not move Identify types of precipitation Identify fish, insects and amphibians that are found in fresh water Identify plants found in fresh water Identify different kinds of wetlands Identify plants and animals found in wetlands Explain wetlands as habitats for plants and animals Explain the role of watersheds in everyday life Identify the role of watersheds and wetlands for plants and animals
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify different kinds of wetlands Identify plants found in wetlands Identify animals found in wetlands Explain watersheds and wetlands and their importance to plants and animals	Teacher observation Experiments Rubrics Self evaluation Data sheets

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Renewable and  
 Nonrenewable Resources

**Grade Level:** Grade 2  
**PA Standard:** 4.2.4.A  
 4.2.4.B  
 4.2.4.C  
 4.2.4.D

<b>Topics:</b>	<b>Skills:</b>
Natural resources Air, water, and nutrient cycles Trees Natural and man-made products Renewable and nonrenewable resources Conservation Waste system	Identify plants, animals, water, air, minerals and fossil fuels as natural resources Explain air, water and nutrient cycles Identify how the environment provides for the needs of people Identify products made from trees Identify by-products made from trees Identify the sources of man-made products (e.g., plastics, metal, aluminum, fabrics, cardboard) Identify renewable and nonrenewable resources used in the local community Identify various means of conserving natural resources Know that natural resources have varying life spans Understand the waste stream Identify those items that can be recycled and those that cannot Identify use of reusable products Identify the use of compost, landfills and incinerators
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify products made from trees Identify by-products made from trees Know that natural resources have life spans Identify renewable and non-renewable resources Understand the importance of conserving natural resources Identify the use of reusable products Explain the air, water, nutrient cycles	Teacher observation Experiments Rubrics Self-evaluation Data sheets

# *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Environmental Health

**Grade Level:** Grade 2  
**PA Standard:** 4.3.4.A  
 4.3.4.B  
 4.3.4.C

<b>Topics:</b>	<b>Skills:</b>
Pest controls Pollutants Environment	Know that all living things need air and water to survive Describe potentially dangerous pest controls used in the home Identify things that cause sickness when put into the air, water or soil d. Identify different areas where health can be affected by air, water or land pollution Identify actions that can prevent or reduce waste pollution Identify pollutants Identify sources of pollution Identify litter and its effect on the environment Describe how people can reduce pollution Identify some of the organisms that live together in an ecosystem Understand that the components of a system all play a part in a healthy natural system Identify the effects of a healthy environment on the ecosystem
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify actions that can prevent or reduce waste pollution Describe pest controls used in the home Identify litter and its effect on the environment	Teacher observation Experiments Rubrics Self-evaluation Data sheets

# Wallenpaupack Area School District

**Course:** Science  
**Unit:** Agriculture and Society

**Grade Level:** Grade 2  
**PA Standard:** 4.4.4.C

<b>Topics:</b>	<b>Skills:</b>
Food and fiber Regional agriculture	Define and identify food and fiber Identify what plants and animals need to grow Identify agricultural products that are local regional
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify agricultural products in the area Define and identify food Define and identify fiber	Teacher observation Data sheets

# Wallenpaupack Area School District

**Course:** Science  
**Unit:** Integrated Pest Management

**Grade Level:** Grade 2  
**PA Standard:** 4.5.4.A

<b>Topics:</b>	<b>Skills:</b>
Pests	Identify classifications of pests Identify and categorize pests Know how pests fit into a food chain
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify pests in the food chain Identify pests Classify different pests	Teacher observation Experiments Data sheets

## *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Ecosystems and Their Interactions

**Grade Level:** Grade 2  
**PA Standard:** 4.6.4.A  
 4.6.4.B

<b>Topics:</b>	<b>Skills:</b>
Living and nonliving things Plant and animal habitats and food sources Food chain Water cycle Photosynthesis	Identify and categorize living and nonliving things Describe the basic needs of an organism Identify basic needs of a plant and an animal and explain how their needs are met Identify plants and animals with their habitat and food sources Identify environmental variables that affect plant growth Understand the components of a food chain Identify animals that live underground Explain the water cycle Explain the carbon dioxide/oxygen cycle (photosynthesis)
<b>Activities:</b>	<b>Performance Assessments:</b>
Explain the water cycle Explain photosynthesis Understand the components of the food chain	Teacher observation Experiments Data sheets

## *Wallenpaupack Area School District*

**Course:** Science  
**Unit:** Threatened, Endangered and Extinct Species

**Grade Level:** Grade 2  
**PA Standard:** 4.7.4.A  
 4.7.4.B  
 4.7.4.C

<b>Topics:</b>	<b>Skills:</b>
Plant survival Habitats Adaptations Local plants and animals Extinction	Explain why plants and animals are different colors, shapes and sizes and how these different colors, shapes and sizes and how these differences relate to their survival Explain why each of the four elements in a habitat is essential for survival Identify local plants or animals and describe their habitat Explain how specific adaptations can help a living organism to survive Explain what happens to a living thing when its food, water, shelter or space is changed Identify plants and animals that are extinct Explain why some plants and animals are extinct
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify plants that are extinct Identify animals that are extinct Identify local plants Identify local animals	Teacher observation Rubrics Data sheets Experiments

# Wallenpaupack Area School District

**Course:** Science  
**Unit:** Humans and the Environment

**Grade Level:** Grade 2  
**PA Standard:** 4.8.4.B  
4.8.4.C  
4.8.4.D

<b>Topics:</b>	<b>Skills:</b>
Climate Human activities and the environment Conservation	Explain the influence of climate on how and where people live Identify examples of how human activities within a community affect the natural environment Identify items used in daily life that come from natural resources Identify ways to conserve our natural resources
<b>Activities:</b>	<b>Performance Assessments:</b>
Identify ways to conserve natural resources Explain climate and how it affects people	Teacher observation Data sheets