

WORKING DRAFT

Science

Environment and Ecology



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4.1 Watersheds and Wetlands

Fourth Grade Standards:

- Identify various types of water environments
- Explain the differences between moving and still water

Content for Kindergarten	Examples	Supportive Practices
<p>A. Identify different bodies of water (e.g., creeks, rivers, streams, ponds, lakes, swamps, ocean)</p> <p>B. Begin to understand the differences between moving and still water</p>	<p>The learner will:</p> <ul style="list-style-type: none"> ▪ Describe the differences between bodies of water, such as ocean, river, lake, puddle ▪ Identify different bodies of water as seen in pictures and books. ▪ Participate in experiments to determine how water moves 	<p>The teacher will:</p> <ul style="list-style-type: none"> ▪ Read fiction and non-fiction books to describe different bodies of water. ▪ Provide photographs of different bodies of water. ▪ Take class on field trips, whenever possible, to experience first hand different bodies of water . ▪ Provide opportunities for learners to participate in experiments to understand the movement of water.

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4.2 Renewable and Nonrenewable Resources

Fourth Grade Standards:

- Identify needs of people (basic)
- Identify products derived from natural resources
- Know that some natural resources have limited life spans

Content for Kindergarten

Examples

The learner will:

A. Identify needs of people (basic)

- Distinguish between people's needs and wants. Describe people's basic needs such as sleep and food.

B. Identify products that come from nature

- Distinguish between something in its natural state and in its manufactured state.
- Listen to and discuss stories that describe where things come from, such as sheep's wool and sweater; milk and cheese; tree and paper/furniture; apples and applesauce.

C. Identify ways to conserve

- Generate ways to conserve water at home, in school.
- Create illustrations, posters, and/or murals showing ways to save water.
- Describe effects of pollution, such as cars' pollution on air, water pollution on fish).
- Sort objects into those things that can be recycled and those that cannot.

Supportive Practices

The teacher will:

- Facilitate class discussions to generate a listing of peoples' basic needs.
- Talking with children about the origin of where things come from.
- Read related fiction and non-fiction books.
- Facilitate discussions on the importance of water and ways to conserve it.
- Help learners understand what can be recycled and reused.
- Recycle materials in the classroom.
- Help learners understand the hows and whys of recycling.
- Take class on a field trip to visit a recycling center.
- Read related non-fiction and fiction books.
- Facilitate experiments that demonstrate the effects of pollution (oil spills, excessive noise).

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4.3 Environmental Health

Fourth Grade Standards:

- Know that plants, animals, and humans are dependent on air and water
- Identify how human actions affect environmental health

Content for Kindergarten

Examples

Supportive Practices

The learner will:

A. Know that all living things need air and water to survive

- Observe and describe plants growing in different experimental conditions.

The teacher will:

- Facilitate class discussions describing the need of all living things to have air and water.
- Provide opportunities for learners to observe and record the growth of plants with and without water and with and without air.
- Read related non-fiction and fiction books.

B. Identify litter and its effect on the environment

- Create a list of things that litter the local environment.
- Take a walk around the school or school grounds and pick-up any litter.
- Participate in a discussion about the effects of litter on the environment.

- Read related non-fiction and fiction books.
- Facilitate class discussions about litter and its effect on the environment.

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4.4 Agriculture and Society

Fourth Grade Standards

- Know the importance of agriculture to humans.
- Identify the role of the sciences in Pennsylvania agriculture.

Content for Kindergarten

Examples

The learner will:

- Make a picture of a farm and the animals that live there.
- Identify activities done on a farm, such as planting, milking, shearing.
- Identify products that come from a farm, such as wool, milk, eggs, corn
- Visit a local farm and see the animals.
- Use blocks and model animals to build a realistic farm.
- Create and label illustrations that show farm products.
- Interview a visiting farmer or master gardener about what they do.

Supportive Practices

The teacher will:

- Provide concrete experiences and examples of how and where food comes from.
- Take class on a trip to visit a local farm, dairy, and/or grocery store to see where food comes from.
- Invite a guest farmer and/or master gardener to visit the classroom to share what they do.
- Provide photographs of Pennsylvania farms.
- Read related non-fiction and fiction books to expand and deepen background knowledge.
- Show a video about farm animals.

A. Understand the importance of agriculture

B. Identify the components of the farming system, (farmer's role, animals, buildings, land).

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4.6 Ecosystems and their Interactions

Fourth Grade Standards:

- Understand that living things are dependent on nonliving things in the environment for survival
- Understand the concept of cycles

Content for Kindergarten

A. Identify and categorize living and nonliving things

B. Begin to understand the concept of cycles

Examples

The learner will:

- Sort living and non-living things.
- Create a list of living and nonliving things.
- Describe ways in which living things are dependent on nonliving things for survival.
- Illustrate and/or describe the cycle of day and night.

Supportive Practices

The teacher will:

- Help learners understand what is living and what is nonliving.
- Facilitate conversations about the survival needs of living things- those that are living and those that are nonliving.
- Display living and non-living items, such as rocks, plants, pets, shells, insects.
- Read related non-fiction and fiction books.

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4.7 Threatened, Endangered and Extinct Species

Fourth Grade Standards:

- Identify differences in living things
- Know that adaptations are important for survival

Content for Kindergarten

Examples

The learner will:

A. Identify differences in plants and animals

- Describe ways in which living things are alike and how they are different.
- Recognize and describe the differences between plants and animals.

Supportive Practices

The teacher will:

- Provide many opportunities for learners to observe, describe and compare animals and plants.
- Provide a variety of opportunities to classify, match, sort, and graph plants and animals.
- Read non-fiction to expand and deepen background knowledge.

B. Explain how specific adaptations can help a living organism to survive

- Describe how different animals and people adapt to the seasonal temperature changes.
- Describe the way in which the body structure of certain animals helps them survive in their environment (e.g., web feet, long neck of the giraffe, beaks).

- Help students understand how living things adapt in order to manage change in their environment and for their own survival.
- Help students understand the adaptive body structures of certain animals to their environment.
- Read non-fiction books to expand and deepen background knowledge.

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4.8 Humans and the Environment

Fourth Grade Standards:

- Identify the biological requirements of humans
- Explain how human activities may change the environment

Content for Kindergarten

The learner will:

The teacher will:

A. Explain how humans can change their environment or their behavior to live

The learner will:

- Describe how peoples' clothing and specific activities change according to the different seasons.
- Draw and describe ways in which peoples' behaviors are different during the night and day.
- Describe safety precautions which are used in the dark.
- Describe protective clothing and shelter.

The teacher will:

- Facilitate class discussions about the range of opportunities humans have to alter their environment and/or behavior.
- Read literature to expand and deepen background knowledge.

B. Identify human activities that affect the environment

- Take care of a garden, plant flowers or trees, put up a bird house, start a compost pile, and/or begin a recycling effort in the school, etc. And describe the impact it has on the environment.

- Support learners in looking for and finding community improvement activities.
- Facilitate class discussions describing ongoing environmental changes.

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4.9 Environmental Laws and Regulations

Fourth Grade Standards

- Know that there are laws and regulations for the environment

The learner will:	Examples	Supportive Practices
<p>The learner will:</p> <ul style="list-style-type: none"> A. Understand how laws and regulations can protect the environment 	<p>The learner will:</p> <ul style="list-style-type: none"> Discuss the importance of following rules. Describe ways in which the environmental laws and regulations are helpful. Discuss good environmental practice Describe how polluting waterways or air will impact natural resources (fish, crops, air). 	<p>The teacher will:</p> <ul style="list-style-type: none"> Facilitate class discussions about the importance of having laws and regulations to ensure the well being of all. Facilitate class discussions specific to environmental laws and regulations. Invite people who hold jobs dealing with the environment (e.g., recycling and waste reduction) into the classroom to describe what they do and why it is important.