

Little Red Hen

Written by *Heather Nisbett-Loewenstein*

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Teacher's Guide

Grade Level: PS-5
Subject Areas: Science (Kansas)
Science (Missouri)

Objectives and Goals

- Science objectives
 - Taking Action on Toxics and Chemical Safety
 - Composting
 - Companion Planting
 - Choosing proper materials for building (no plastics, non-treated wood)
 - Rather than pesticides, use natural controls
 - Insect roll in pollination
 - Protecting Our Water; A Precious, Limited Resource
 - The Water Cycle
 - Protecting Watersheds
- Life Skill objectives
 - Students will learn to analyze problems and apply solutions
 - Students will learn that working together will often help to solve problems.

Required Materials and Equipment

- Teacher reference sheets
 - Watersheds and Drainage Basins from USGS
 - Simplest Compost Bin
 - Companion Planting handout from Cornell University
- Student Sheets from StoneLion Puppet Theatre
 - How Watersheds Work
 - Three Sisters Coloring Sheet
 - Water Cycle Diagram
 - Foods Pollinated by Bees
 - Insect Pollination Word Search
 - Little Red Hen Puppet Handout

Suggested Curriculum



- **Project Wet**
- **Project Wild**
- EPA Pesticides Reduction document

Anticipatory Set

- Discuss the water cycle
- Discuss watersheds and drainage basins
 - Effects of runoff
 - Modifications to regulate runoff including raingardens
 - Direct pollution from humans (examples include putting trash into the storm runoff system, depositing animal feces into the drainage system)
- Discuss how to avoid toxins in gardens
 - Composting
 - Mulching
 - Companion planting
 - Use of natural insect predators
- Ask students how they would build a garden
- Ask students why they would build a garden
- Explore how to work in a group to achieve a goal

Direct Instruction

- Definition of the water cycle
- Definition of watershed
- Building the garden
 - Compost
 - Mulch
 - Pollinators
 - Companion planting
 - Benefits of the garden

Guided Practice

- Use the Water Cycle work sheet from StoneLion Puppet Theatre and Enchanted Learning to describe and define the water cycle
- Work on the '3 Sisters' coloring sheets from StoneLion Puppet Theatre
- Present the Insect Pollination Word Search
- Work with students to build the simple compost bin
- Give students the opportunity to build the puppet and garden using the sheets from StoneLion Puppets

Watch performance of ***Little Red Hen***

Closure



Standards Fulfilled

Missouri Science Standards Fulfilled

Kindergarten – Grade Level Expectations

IN: 1-A-K-a: Pose questions about objects, materials, organisms, and events in the environment

LO: 1-D-K-a: Observe and compare the structures and behaviors of different kinds of plants and animals

Grade 1 – Grade Level Expectations

EC: 1-A-1-a: Identify ways man depends on plants and animals for food, clothing and shelter

ES: 3-A-1-a: Observe and describe ways water, both as a solid and liquid, is used in everyday activities at different times of the year (e.g., bathe, drink, make ice cubes, build snowmen, cook, and swim)

Grade 2 – Grade Level Expectations

IN: 1-A-2-a: Pose questions about objects, materials, organisms and events in the environment

ES: 3-A-2-a: Observe and describe ways humans use Earth's materials (e.g. soil, rocks) in daily life

ST: 3-A-2-b: Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member

Grade 3 – Grade Level Expectations

EC: 2-A-3-a: Identify sunlight as the primary source of energy plants use to produce their own food

ES: 2-E-3-a: Describe clouds and precipitation as forms of water

IN: 1-A-2-a: Pose questions about objects, materials, organisms and events in the environment

LO: 1-A-3-a: Describe the basic needs of most plants (i.e. air, water, light, nutrients, temperature)

LO: 1-B-3-a: Describe and sequence the stages in the life cycle (for a plant) of seed germination, growth and development, reproduction and death (i.e. a flowering plant)

ST: 3-A-2-b: Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member

Grade 4 – Grade Level Expectations

EC: 1-A-4-a: Identify the ways a specific organism may interact with other organisms or with the environment (e.g. pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism)

ES: 2-A-4-b: Identify the major landforms/bodies of water on Earth

ES: 3-A-4-b: propose ways to solve simple environmental problems (e.g. recycling, composting, and ways to decrease soil erosion) that result from human activity

Grade 5 – Grade Level Expectations

ES: 2-E-5-a: Describe and trace the path of water as it cycles through the hydrosphere, geosphere, and atmosphere (i.e., the water cycle: evaporation, condensation, precipitation, surface run-off/groundwater flow)

ES: 2-E-5-b: Identify the different forms water can take (e.g., snow, rain, sleet, fog, clouds, dew) as it moves through the water cycle

ES: 3-A-5-b: Describe how human needs and activities (e.g., irrigation damming of rivers, waste management, sources of drinking water) have affected the quantity and quality of major bodies of fresh water

ES: 3-A-5-c: Propose solutions to problems related to water quality and availability that result from human activity

LO: 1-E-5-b: Distinguish between plants (which use sunlight to make their own food) and animals (which must consume energy-rich food) q

Kansas Science Standards Fulfilled

Kindergarten Standards

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Grade 1 Standards

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Grade 2 Standards

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow

- 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants
- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
- 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land

Grade 3 Standards

- 3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
- 3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment

Grade 4 Standards

- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation

Grade 5 Standards

- 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.
- 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
- 5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Iowa Science Standards Fulfilled

Kindergarten Standards

- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool

Grade 1 Standards

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool

Grade 2 Standards

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants

2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.

2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Grade 3 Standards

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change

3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Grade 4 Standards

4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.*

Grade 5 Standards

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment

Nebraska Science Standards Fulfilled

Kindergarten Standards

- SC2.3.1.b Identify the basic needs of living things (food, water, air, space, shelter)
- SC2.3.4.a Recognize seasonal changes in animals and plants
- SC2.4.2.a Describe Earth materials (sand, soil, rocks, water)
- SC2.4.2.b Recognize ways in which individuals and families can conserve Earth's resources by reducing, reusing, and recycling

Grade 1 Standards

- SC2.3.1.b Identify the basic needs of living things (food, water, air, space, shelter)
- SC2.3.4.a Recognize seasonal changes in animals and plants
- SC2.4.2.a Describe Earth materials (sand, soil, rocks, water)
- SC2.4.2.b Recognize ways in which individuals and families can conserve Earth's resources by reducing, reusing, and recycling

Grade 2 Standards

- SC2.3.1.b Identify the basic needs of living things (food, water, air, space, shelter)
- SC2.3.4.a Recognize seasonal changes in animals and plants
- SC2.4.2.a Describe Earth materials (sand, soil, rocks, water)
- SC2.4.2.b Recognize ways in which individuals and families can conserve Earth's resources by reducing, reusing, and recycling

Grade 3 Standards

- SC5.3.1.b Identify how parts of plants and animals function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water)
- SC5.3.3.d Recognize all organisms cause changes, some beneficial and some detrimental, in the environment where they live
- SC5.4.2.b Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface
- SC5.4.4.a Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface

Grade 4 Standards

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