

Reflections

Written by *Heather Nisbett-Loewenstein*
January 2017 ©stonelionpuppettheatre

Teacher's Guide

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

Objectives and Goals

- Science objectives
 - Taking Action on Plastic Pollution
 - Protecting Our Water; A Precious, Limited Resource
 - Actions in one area can influence areas halfway across the world
 - Scientists are constantly learning more about the inhabitants of our world.
- 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
 - Mekong Delta Animals
 - Annamite Striped Rabbit Description
 - Article on Irrawaddy Dolphin
 - Pangolin Fact Sheet
 - Duoc Langur Fact Sheet
 - Local Stream Team Information
 - Kansas Stream Team Training Fact Sheet
 - Missouri Stream Team FAQs
 - Effects of Stream Pollution Classroom Demo
 - What Plastics Can Become
 - Watersheds and Drainage Basins from US Geological Service
 - Articles on Ocean Garbage Patches
 - North Atlantic Garbage Patch
 - Indian Ocean Garbage Patch
 - Great Pacific Garbage Patch
- Art Projects
 - Teacher's Guide for making masks from recycled materials
 - Cutouts to make a paper plate habitat of local fish

- Cutouts to make a paper plate habitat of Mekong Delta animals
- Student Sheets from StoneLion Puppet Theatre
 - Pangolin Coloring Sheet
 - Recycle Word Search
 - Recycle Crossword Puzzle
 - Handout on Ways to Keep Plastic Out of Our Waterways
 - Plastic Detox Idea Sheet
 - 10 Plastic Pollution Facts Handout
 - Storm Sewers are not trash cans
 - Clean up after your pet

Anticipatory Set

- Use the fact sheets on the Mekong Delta wildlife to illustrate that scientists are constantly learning and exploring our world.
- Discuss ways individuals can help to diminish plastics pollution
 - Use the Plastic Detox Handout to guide discussions of how we can use less plastic in our lives
 - Use the Kansas and Missouri Stream Team reference sheets to guide discussions of how students can help remove plastics from our environment.
- Explore how to work in a group to achieve a goal

Direct Instruction

- Discuss the effects of plastic pollution
 - Use the article on the Great Pacific Garbage Dump to discuss world-wide effects of plastic pollution
 - Use the Handout on 10 Plastic Pollution Facts to illustrate the buildup of plastic waste in the world
- Discuss Mekong Delta habitat and compare it to our river habitat.
 - What animals are similar
 - What animals are different

Guided Practice

- Work on the Pangolin Coloring Sheet from StoneLion Puppet Theatre
- Present the Recycle Word Search
- Have students solve the Recycle Crossword Puzzle
- Chose one of the art projects
 - Creating Masks from found (recyclable) materials
 - Making paper plate habitats
 - Local fish
 - Mekong Delta Animals
- Work with students to build the simple compost bin

Watch performance of **Reflections**

Closure

- How to apply lessons learned in our hometowns

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

IN: 1-C-K-b: Use observations to describe relationships and patterns and to make predictions to be tested

Grade 1 – Grade Level Expectations

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

IN: 1-C-1-b: Use observations to describe relationships and patterns and to make predictions to be tested

ST: 3-A-1-b: Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member

Grade 2 – Grade Level Expectations

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

IN: 1-A-2-b: Plan and conduct a simple investigation (fair test) to answer a question

IN: 1-C-2-b: Use observations to describe relationships and patterns and to make predictions to be tested

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

IN: 1-A-3-a: Pose questions about objects, materials, organisms and events in the environment

IN: 1-A-3-b: Plan and conduct a fair test to answer a question

IN: 1-C-3-a: Use quantitative and qualitative data as support for reasonable explanations

IN: 1-C-3-b: Use data as support for observed patterns and relationships, and to make predictions to be tested

IN: 1-C-3-c: Evaluate the reasonableness of an explanation

IN: 1-C-3-d: Analyze whether evidence supports proposed explanations

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

EC: 1-D-4-a: Identify examples in Missouri where human activity has had a beneficial or harmful effect on other organisms (e.g., feeding birds, littering vs picking up trash, etc)

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

IN: 1-C-4-a: Use quantitative and qualitative data as support for reasonable explanations

IN: 1-C-4-b: Use data as support for observed patterns and relationships, and to make predictions to be tested

IN: 1-C-4-c: Evaluate the reasonableness of an explanation

IN: 1-C-4-d: Analyze whether evidence supports proposed explanations

Grade 5 – Grade Level Expectations

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

IN: 1-C-5-a: Use quantitative and qualitative data as support for reasonable explanations

IN: 1-C-5-b: Use data as support for observed patterns and relationships, and to make predictions to be tested

IN: 1-C-5-c: Evaluate the reasonableness of an explanation

IN: 1-C-5-d: Analyze whether evidence supports proposed explanations

Kansas Science Standards Fulfilled

Kindergarten 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.

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

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.

Grade 3 Standards

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Grade 4 Standards

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Grade 5 Standards

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

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.