Unit 3- Habitats & Biodiversity

Content Area: **Science**
Course(s): **Science 2**
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Lesson 1: Anchoring Phenomenon- Where can we observe plants and animals?

- Phenomenon- Animals and plants can be found in many different places.
    - Share experiences of where plants and animals live in our communities.
    - Make observations of plants and animals in our schoolyard and places that look different from where we live.
    - Ask questions about places, plants, and animals.
    - Identify what we could investigate to help us answer our questions about what plants and animals live where.

Lesson 2: Investigation- What is the land like in places where plants and animals live?

- Phenomenon- The land where plants and animals live looks different.
    - Share about the land and water where we can find plants and animals in our communities.
    - Gather information in research teams about land in different national parks.
    - Compare observations of land to identify patterns.

Lesson 3: Investigation- Where is water found, and what is it like?

- Phenomenon- Water is in many places and can look different.
    - Research water in national parks to identify where water is found.
    - Compare bodies of water and create a class chart to observe patterns in the shapes and kinds of bodies of water.
    - Observe solid and liquid water.
    - Read an infographic about water being a solid or liquid, depending on its temperature.

Lesson 4: Investigation- How can we show the location, shapes, and kinds of land and water in a place?

- Phenomenon- There are different ways to show land and water on maps.
    - Explore a map to see what we notice.
    - Read a book about maps and how to represent shapes and kinds of land and water.

- Explore different ways to show the shapes and kinds of land and water using maps.

Lesson 5: Putting the Pieces Together- How are places where plants and animals live similar and different?

- Phenomenon- The kinds of land and water in different places can look similar or different.
    - Recall we are ready to use what we figured out to develop maps of the national parks.
    - Develop maps (models) of the land and water in the national parks.
    - Do a gallery walk to observe patterns in the shapes, kinds, and locations of land and water in different places.

Lesson 6: Investigation- What kinds of plants and animals live near us?

- Phenomenon- Plants and animals are in our schoolyard.
    - Plan an investigation to observe plants and animals in the schoolyard.
    - Make observations of plants and animals in the schoolyard and record them.
    - Compare observations to describe the kinds of plants and animals near us.

Lesson 7: Investigation- What kinds of plants and animals live in each national park?

- Phenomenon-Plants and animals live in national parks.
    - Read a newspaper article about using images of plants as data to answer questions.
    - Plan an investigation of plants and animals using photographs.
    - Use a card sort to make and record observations of how plants and animals are similar and different.

Lesson 8: Investigation- What kinds of plants and animals live on land and in water?

- Phenomenon- There are plants and animals on land and in water.
    - Use information from research to sort plants and animals by where they live on land or in water.
    - Observe and compare plants and animals that live on land and those that live in water.
    - Write and draw about what we figured out to share with others.

Lesson 9: Putting The Pieces Together- How can we share information about the national parks with others?

- Phenomenon- Scientists communicate ideas about the different kinds of plants and animals that live in different national parkss
    - Write a script to use in a national park presentation video.
    - Make our national park presentation videos and share them with others.
    - Give and receive feedback on our scripts.
    - Connect to experiences in our schoolyard and communities.

- Notice patterns in the kinds of plants and animals in different places.

Big Ideas

In this unit, students begin by noticing and wondering about different kinds of places, including their own schoolyard and national parks in different regions of the United States, and the plants and animals that live there. Students use a website to obtain information from texts and media to observe patterns in the shapes and kinds of land and water in different national parks and develop maps to compare how they are similar and different. Students then make first-hand observations of plants and animals that live in their school and community, and media-based observations of plants and animals that live on land and in water in the national parks. Finally, students present their findings about the plants and animals that live in the national parks to compare the kinds of plants and animals that live on land and in water in different places.

CRLLKS- 21st Century

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated

with each job.

Connection: The different parts of a plant have different jobs and roles within the plant life cycle.

Cross-Curricular Integration

Integration Area: Language Arts

W.IW.2.2 Write informative/explanatory texts to examine and convey complex ideas and information

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.

Activity

Students will research and write about animals. They will research their habitat, diet, and important facts about

the animal.

Student Learning Standards

Mathematics

MD.D.10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put- together, take-apart, and compare problems10 using information presented in a bar graph. Science example: Make a picture graph with single- unit scale showing the number of plant, vertebrate-animal, and invertebrate-animal species observed during a field trip or in a nature photograph; how many more plant species were observed than animal species?

Science and Engineering Practices

Asking Questions and Defining Problems:

- Ask and/or identify questions that can be answered by an investigation.

Developing and Using Models:

- Compare models to identify common features and differences.

Planning and Carrying Out Investigations:

- Evaluate different ways of observing and/or measuring a phenomenon to determine which way can answer a question.
- Make observations (firsthand or from media) and/or measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.

Analyzing and Interpreting Data:

- Record information (observations, thoughts, and ideas).
- Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
- Compare predictions (based on prior experiences) to what occurred (observable events).

Constructing Explanations and Designing Solutions:

- Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.

Engaging in Argument from Evidence:

- Identify arguments that are supported by evidence.
- Distinguish between explanations that account for all gathered evidence and those that do not.
- Analyze why some evidence is relevant to a scientific question and some is not.

- Construct an argument with evidence to support a claim.

Obtaining, Evaluating, and Communicating Information:

- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim.
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

Science and Society

Alejandro Purgue

Scientist who studies sounds animals make. Discovered that bullfrogs make most of their sound through their ears.

CSDT Technology Integration

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.

8.1.2.DA.3: Identify and describe patterns in data visualizations.

Activity:

Mystery Science lesson How Many Different Kind of Animals Are There? This is a lab. The students will complete a lab using the guided video process to explore the mystery.

Enduring Understandings

Next Generation Standards

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats

- 2-LS4.D- Biodiversity and Humans
    - There are many different kinds of living things in any area, and they exist in different places on

land and in water.

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

- ESS2.C-The Roles of Water in Earth's Surface Processes
    - Water is found in the ocean, rivers, lakes and ponds. Water exists as solid ice and in liquid form.

Biodiversity and Humans

2-LS4.D There are many different kinds of living things in any area, and they exist in different places on land and in water.

Focus Areas

Knowledge

- The meaning of biodiversity.
- That biodiversity is key to the planet's health as a system.
- The roles of producers, consumers and decomposers on land and in water.
- Characteristics of several ecosystems.
- Organisms and their environments are directly related.
- How humans affect biodiversity.

- Water exists in liquid or ice forms.

- Water cycles through its different forms via the water cycle.

- We can use a map to find where water is located on Earth.

- Water is found in oceans, rivers, lakes, and ponds.

Skills

- Identify traits of organisms which help them survive in their environment.
- Sort organisms into producers, consumers and decomposers.
- Sort animals into herbivores, carnivores and omnivores.

- Describe some of the distinguishing characteristics of oceans, rivers, lakes, and ponds.

- Recognize and name different bodies of water in pictures and on maps.

- Describe where water may exist as a liquid or as a solid (ice).

- Draw and discuss the steps of the water cycle.

Understandings

- Make observations of plants and animals to compare the diversity of life in different habitats.
- Obtain information to identify where water is found on Earth and that it can be solid or liquid.
- A range of different organisms live in different places.
- Water is found in many types of places and in different forms on earth.

Climate Change

Physical Education: Cross-Curricular

2.1.2.CHSS.4: Describe how climate change affects the health of individuals, plants and animals.

- Activity: In this unit, students will analyze the effects climate change has on individuals.

Social Studies: Cross-Curricular

6.3.2.CivicsPD.1: With adult guidance and support, bring awareness of a local issue to school and/or community members and make recommendations for change.

- Activity: In this lesson, students investigate which kinds of birds are likely to visit a bird feeder based on what they eat. In the activity, Design a Bird Feeder, students first draw their own bird feeder design to attract a specific type of bird. Then they build a prototype of their bird feeder using available materials.

Resources

Primary Resources

- Mystery Science

Supplemental Resources

Scott Foresman Science, Pearson, 2008

- Chapter 2, All About Animals
- Chapter 3, How Plants and Animals Live Together

- Chapter 4, How Living Things Grow and Change

Leveled Readers

- *Plants*
- *Animals*
- *Plants and Animals*
- *Growing and Changes*

Scientific Inquiry

Core

- How many different kinds of animals are there? Lab
- Why do frogs say “ribbit”? Lab
- Ecosystems Activity

Supplemental

- BrainPop Jr. Animal Adaptations video, Food Chain Video
- Scholastic Science Spin Magazine and Activity
- Animal Research Writing
- Habitat Activity