2 Science Unit 4: Animal Biodiversity (Adventures)

Content Area: **Science**
Course(s):
Time Period: **Marking Period 4**
Length: **9 Weeks**
Status: **Published**

Unit Overview

In this unit, students begin to develop an understanding of the world's animal biodiversity. They explore animal classification and the traits that define each group. Students then turn their focus to habitats and how the surrounding environment affects what organisms live in a particular environment.

Standards

Scientific & Engineering Practices

- Students evaluate and communicate information by sorting animals based on their traits and explaining their choices. Then, students sort the animals based on the traits scientists use to classify the animals as mammals, birds, reptiles, and invertebrates. Students determine which group ‘challenge animals’ belong to, based on their characteristics.
- Students make observations from media of the animals and plants in two different habitats--a playground and a desert--to compare the diversity. Students carry out this investigation by collecting data in the form of counts of organisms in each habitat. Then, they compare and analyze the data to determine which habitat is more diverse.
- Students listen to a variety of frog calls, then analyze the sounds from two different habitats to determine which frogs are there. They then construct an argument from evidence about which habitat is more biodiverse based on the amount of different frog calls.
- Students define a problem by stating which type of bird they want to design a bird feeder for, and what its needs are. Each student designs a solution by comparing multiple sketches and developing a model of a bird feeder that best meets the needs of the bird they want to attract. Students reflect on how to improve their prototype.

Crosscutting Concepts

- Students identify patterns in animal’s characteristics in order to group them.
- Students identify patterns in the data they collect in order to determine that the desert habitat is more diverse than the playground habitat.
- Students identify patterns in frog calls in order to determine how biodiverse a habitat is.
- Students explore the cause and effect relationship between bird feeder design and the type of food in it and the types of birds that visit it.

SCI.K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
SCI.K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
SCI.K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
SCI.2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.

Materials

Core Materials:

- Mystery Science
    - How many different kinds of animals are there?
    - Why would a wild animal visit a playground?
    - Why do frogs say “ribbit”?
    - How could you get more birds to visit a bird feeder?
- Teacher Created Labs

Supplemental Materials:

- BrainPop resources
- NewsELA
- GRC Lessons
- TBSAID
- Nearpod Activities

Technology

Technology Literacy

• 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).

• 9.4.2.TL.2: Create a document using a word processing application.

• 9.4.2.TL.3: Enter information into a spreadsheet and sort the information.

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.

• 9.4.2.TL.5: Describe the difference between real and virtual experiences.

• 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).

Technology - Data & Analysis

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.

• 8.1.2.DA.4: Make predictions based on data using charts or graphs.

Technology - Effects on the Natural World

• 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology.

• 8.2.2.ETW.2: Identify the natural resources needed to create a product.

• 8.2.2.ETW.3: Describe or model the system used for recycling technology.

• 8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global

Evidence of Learning/Assessment

Formative Assessment

- Teacher Observation
- Quizzes
- Exit Tickets
- Labs

Summative Assessment

- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

Follow IEP Plan which may contain some of the following examples…

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts

- Study Guides
- Limit number of questions
- Scribe
- Newsela leveled reading passages

504

Follow 504 Plan which may contain some of the following examples…

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Study Guides
- Limit number of questions
- Scribe
- Newsela leveled reading passages

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Study Guides
- Limit number of questions
- Scribe
- Newsela leveled reading passages

At-risk of Failure

- Extra time during intervention
- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices

- Songs/videos to reinforce concepts
- Study Guides
- Limit number of questions
- Scribe
- Newsela leveled reading passage

Gifted & Talented

- Independent projects
- STEM Projects
- Leveled Reading with Newsela

Interdisciplinary Connections

Connections to NJSLS - English Language Arts

- W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS4-1)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS4-1)

Connections to NJSLS – Mathematics

- MP.2 Reason abstractly and quantitatively. (2-LS4-1)
- MP.4 Model with mathematics. (2-LS4-1)
- 2.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 problems using information presented in a bar graph. (2-LS4-1)

Career Readiness, Life Literacies, and Key Skills

Critical Thinking and Problem Solving:

• 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

• 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

• 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Career Ready Practices

- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.