

KINDERGARTEN

POLAR ANIMALS: UNIT 5

CONCEPTS AND ENDURING UNDERSTANDINGS:

Unit: Polar Animals

Time Frame: Four Weeks

Key Concepts: Scientific Processes, biologist, Polar Regions, adaptation, migration

ESSENTIAL QUESTION: How do animals survive in Polar Regions?

Great Idea: In the Polar Regions, the animal population is limited. Polar animals have special means to survive in a cold climate, such as adaptation and migration. A biologist is a scientist who uses scientific processes to study living things and draws conclusions based on evidence gathered.

GUIDING QUESTIONS:

1. Who is a biologist?

- Identify the job and tools of a biologist.

2. How do biologists research polar animals?

- Define and identify Scientific Processes in a science journal.
- Locate the regions where biologists travel in order to study polar animals.

3. Can all animals survive in cold weather?

- Define the characteristics of polar animals.
- Record schema of polar animals using a KWL chart.
- Record key details about the Arctic tern.
- Record key details about the Arctic fox.
- Record key details about the caribou.
- Record key details about seals and walruses.
- Label the body parts of a polar bear.
- Record key details about penguins.

4. What attributes do arctic animals share?

- Conduct an experiment to observe how feathers protect birds from cold water.
- Illustrate the adaptation of camouflage that protects polar animals.
- Demonstrate the migration path of whales in the polar region.
- Conduct an experiment to experience how blubber insulates polar animals.
- Conduct an experiment to experience how the thickness of fur insulates polar animals.
- Conduct an experiment to demonstrate how animals keep warm in Polar Regions.

Lesson Sequence

Students will:

1. Define and identify Scientific Processes in a science journal.
2. Identify the job and tools of a biologist.
3. Locate the regions where biologists travel in order to study polar animals.
4. Record schema of polar animals using a KWL chart.
5. Record key details about the Arctic tern.
6. Conduct an experiment to observe how feathers protect birds from cold water.
7. Record key details about the Arctic fox.
8. Illustrate the adaptation of camouflage that protects polar animals.
9. Record key details about caribou.
10. Demonstrate the migration path of whales in the Polar Region.
11. Record key details about seals and walruses.
12. Conduct an experiment to experience how blubber insulates polar animals.
13. Label the body parts of a polar bear.
14. Conduct an experiment to experience how the thickness of fur insulates polar animals.
15. Record key details about penguins.
16. Conduct an experiment to demonstrate how animals keep warm in Polar Regions.
17. Define the characteristics of polar animals.
18. Observe data to draw conclusions and review animal survival in Polar Regions.
19. Color and label your favorite polar animal; and, discuss how your animal survives in the Polar Regions.

CONTENT STANDARDS:

Next Generation Science Standards	
K. Earth's Systems	https://www.nextgenscience.org/dci-arrangement/k-ess2-earths-systems
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. Earth and Human Activity	https://www.nextgenscience.org/dci-arrangement/k-ess3-earth-and-human-activity
K-ESS3-1.	Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.
K. From Molecules to Organisms: Structures and Processes	https://www.nextgenscience.org/dci-arrangement/k-ls1-molecules-organisms-structures-and-processes
K-LS1-1.	Use observations to describe patterns of what plants and animals (including humans) need to survive.

Social Studies
https://marylandpublicschools.org/about/Documents/DCAA/SocialStudies/Framework/Kindergarten.pdf
3.0 Geography: Students will use geographic concepts and processes to understand location and its relationship to human activities.
A.1.a. Describe a globe as a model of Earth showing land and water.
A.1.b. Describe how maps are models showing physical features and/or human features of places.
A.1.c. Identify a location by using terms such as near-far, above-below, and here-there.
6.0 Social Studies Skills and Processes: Students shall use reading, writing, and thinking processes and skills to gain knowledge and understanding of political, historical, and current events using chronological and spatial thinking, economic reasoning, and historical interpretation, by framing and evaluating questions from primary and secondary sources.
A.1.a. Acquire new vocabulary through listening to and reading a variety of grade-appropriate print and non-print sources.
A.1.b. Discuss words and word meanings as they are encountered in texts, instruction, and conversation.
A.1.c. Make connections to prior knowledge and new vocabulary by listening, reading, and responding to a variety of texts.
D.2.a. Engage in field work that relates to the topic/situation/ problem being studied and gather data.
D.2.b. Engage in field work that relates to the topic/situation/ problem being studied and make and record observations.
G.1.a. Present social studies information in a variety ways, such as plays, skits, posters, songs, poems, murals, and oral presentations.
G.1.b. Plan and engage in school and community events, such as a mock election, playground clean-up, writing letters to community officials, and fund-raising for a cause.

Reading English Language Arts
https://www.marylandpublicschools.org/programs/Documents/ELA/Standards/Grades_PK_K_MCCR_ELA%20Standards.pdf
Reading: Literature
Key Ideas and Details
RL.K.1. With prompting and support, ask and answer questions about key details in a text.
RL.K.3. With prompting and support, identify characters, settings, and major events in a story.
Craft and Structure
RL.K.4. Ask and answer questions about unknown words in a text.
RL.K.5. Recognize common types of texts (e.g., storybooks, poems).
Integration of Knowledge and Ideas
RL.K.7. With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
RL.K.9. With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
Range of Reading and Level of Text Complexity

RL.K.10. Actively engage in group reading activities with purpose and understanding.
Reading: Informational Text
Key Ideas and Details
RI.K.1. With prompting and support, ask and answer questions about key details in a text.
RI.K.2. With prompting and support, identify the main topic and retell key details of a text.
RI.K.3. Analyze how and why individuals, events, and ideas develop and interact over the course of text.
Craft and Structure
RI.K.4. Ask and answer questions about unknown words in a text.
Integration of Knowledge and Ideas
RI.K.7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
Range of Reading and Level of Text Complexity
RI.K.10. Read and comprehend complex literary and informational texts independently and proficiently.
Reading: Foundational Skills
Print Concepts
RF.K.1.a. Follow words from left to right, top to bottom, and page by page.
Writing
Texts Types and Purposes
W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
Research to Build and Present Knowledge
W.K.8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
Speaking and Listening
Comprehensions and Collaboration
SL.K.1.a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and text under discussion).
SL.K.1.b. Continue a conversation through multiple exchanges.
SL.K.2. Confirm understanding of text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
Presentations of Knowledge and Ideas
SL.K.4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
SL.K.5. Add drawings or other visual displays to descriptions as desired to provide additional details.
SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.
Language
Conventions of Standard English

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.K.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
Vocabulary Acquisition and Use
a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
L.K.5.c. Identify real-life connections between words and their use (e.g., note places at school that are colorful).
L.K.6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

Health
https://marylandpublicschools.org/about/Documents/DCAA/Health/Health_Education_Framework_July_2022.pdf
Standard 1.0 Mental and Emotional Health
A.1.a. Demonstrate positive communication among peers.
E.1.a. Identify character traits contributing to your uniqueness.
E.1.b. Identify actions to make a friend.
Physical Education
https://www.marylandpublicschools.org/about/Documents/DCAA/PE/MDPEFramework.pdf
Standard 6.0 Social Psychological Principles
C.1.a. Imitate socially acceptable behaviors of cooperation, respect, and responsibility to interact positively with others.

Visual Arts
https://www.marylandpublicschools.org/programs/Documents/Fine-Arts/Visual+Art+Standards+Grades+P-12.pdf
Creative Expression and Production
3.1.c. Create artworks that explore the uses of color, line, shape, and texture to express ideas and feelings.



Dear Families,

We are beginning a new social studies and science unit called *Polar Animals*. In this unit, your child will learn how polar animals have special means to survive in the Polar Regions such as: migration and adaptation. A biologist is a scientist who studies living things and draws conclusions based on evidence collected using scientific processes. In the Polar Regions, the animal population is limited.

Here are some ideas you can do to enrich your child during this unit:

- Take a trip to the library to explore literature
 - Find non-fiction and fiction selections that cover polar animals
- Research animals within the local area and compare them to polar animals
 - Discuss how or if any local animals hibernate, migrate or adapt
- Pretend your child is a polar bear and practice insulating for cold weather play by layering clothing
 - Have your child discuss how this helped them while playing outside
- Place objects on same color items around the family room
 - See if your child can find them although they can “camouflage”

Please enjoy the winter season and thank you for your partnership in learning.

Your Child’s Kindergarten Teacher,