

11Earth and Human Activity: Arctic Passage Exploration Grade 4

Standards

Wisconsin's Model Academic Standards for Science (WMAS)

Science Inquiry

C.4.2 Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations

C.4.3 Select multiple sources of information to help answer questions selected for classroom investigations

C.4.5 Use data they have collected to develop explanations and answer questions generated by investigations

C.4.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their answers

Life and Environmental Science

F.4.1 Discover how each organism meets its basic needs for water, nutrients, protection, and energy in order to survive.

Next Generation Science Standards (NGSS)

Earth and Human Activity

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Common Core State Standards (CCSS)

CCSS.ELA-LITERACY.W.4.8

Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

Objectives

- Students will be able to identify relevant information about the animals and the environment in Arctic Passage using multiple sources.
- Students will be able to obtain and combine information to describe how human activity affects the Arctic environment.

Materials

- At Zoo: clipboards, pencils, data sheet
- Extension after zoo visit: computer, materials for poster

Preparation

- Make arrangements with your school for transporting your class to the Zoo. Each student should carry a button, shirt, name tag, etc. with what number to call if the student gets separated from the group.

Procedure

Engagement: Note: This unit will fit well after or at the end of a unit studying energy and conservation. Before your field trip to the Zoo, review with students what they remember about energy and conservation. What kinds of energy sources do humans use? What is conservation?

Tell students that we will be watching a video about global warming. During the video, students should be listening for one of these three topics:

1. What is global warming?
2. What are some of the causes of global warming?
3. What are the consequences and effects of global warming on the environment?

Have students show you a number one, two or three on their hand so you can tell which topic they will be listening for. <https://www.youtube.com/watch?v=oJAbATJCuqs> *

After the video, discuss these questions as a group.

Tell students that we will be going to see a series of exhibits about the Arctic, called Arctic Passage, at the Henry Vilas Zoo. We will be learning about the animals there, as well as how human activity (particularly energy usage), has affected this environment. Have students share predictions about what we might see or learn about at Arctic Passage.

**If you are teaching this lesson in Spanish, you can watch this video on global warming (calentamiento global): <https://www.youtube.com/watch?v=IHQ-vLLPo4g>*

Have students choose a question to think about while viewing the video. Have students show you number 1, 2, or 3 on their hand so you can see which questions students have chosen.

1. *¿Qué es el calentamiento global?*
2. *¿Cuáles son algunas de las causas del calentamiento global?*
3. *¿Cuáles son las consecuencias o efectos del calentamiento global para el medioambiente?*

After the video, discuss these questions as a group.

Exploration: During the Zoo visit, have students complete their observations of Arctic Passage on their observation sheet. Explain that students will be observing three different animals in partners or small groups (depending on size of group). In addition to observing the animals of Arctic Passage, students should also explore the signage and interactive activities available to them within the Arctic Passage exhibit to help them complete their observations. These will be considered sources for this exploration. Explain that students need to write down two sources for their observations. If they would like to use more than two sources, students are welcome to do that.

Explanation: After the field trip, each group of students should discuss their observations with each other. Discuss these questions as a class:

1. Based on your observations, how does human activity affect the Arctic habitat? (hopefully students will notice that human activity has both positive and negative effects on the Arctic)
2. Based on your observations, how can humans help protect Arctic animals and their environment?
3. Arctic Passage was built in 2015. Think about all the different sources of information you saw in these exhibits. Why do you think the Henry Vilas Zoo decided to build these exhibits, and why do you think they chose to design these exhibits in the way that they did?
4. What roles do institutions such as the Henry Vilas Zoo play when it comes to conservation?

Extension:

- Using appropriate electronic devices, have each group create google slides presentations about one animal of their choice from Arctic Passage. They can include a list of sources for information on the last slide, or they can include the source listed on each slide with relevant information. Students can also choose to make a poster presentation.
- Students can conduct research projects related to conservation efforts, such as researching the role and history of Association of Zoos and Aquariums (AZA) Zoos, researching the effects of global warming on other habitats around the world, learning about polar bear researchers, and learning about zookeepers.
- Students can design a new exhibit for the Zoo which has the focus of educating the public about the habitat, its species, and conservation efforts.

Observation Sheet

name(s): _____

Name of animal	Important information about this animal	Threats to this animal	Ways we can help protect this animal
	sources: • •	sources: • •	sources: • •
	sources: • •	sources: • •	sources: • •
	sources: • •	sources: • •	sources: • •

Hoja de observaciones

Nombre(s): _____

Nombre del animal	Información clave de este animal	Amenazas para este animal	Cosas que podemos hacer para proteger a este animal
	fuentes: • •	fuentes: • •	fuentes: • •
	fuentes: • •	fuentes: • •	fuentes: • •
	fuentes: • •	fuentes: • •	fuentes: • •