

ARCTIC PASSAGE LESSON

FOR 5TH GRADE

THEME: HOW COMMUNITIES USE SCIENCE

In this lesson plan and field trip your students will use scientific thinking to learn about how different communities of people use science to promote conservation.

STANDARDS

Wisconsin Standards for Science (WSS) / Next Generation Science Standards (NGSS):

- Earth and Human Activity 5-ESS3-1.

Wisconsin's Model Academic Standards for Science (WMAS):

- B. Nature of Science
 - B.4.1 Use Various sources, to help answer science-related questions and plan investigations
- C. Science Inquiry
 - C.4.1 Use the vocabulary of the unifying themes to ask questions
 - 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
 - C.4.5 Use data they have collected to develop explanations and answers
 - C.4.6 Communicate the results of their investigations
 - C.4.7 Support their conclusions with logical arguments
 - C.4.8 Ask additional questions that might help focus or further an investigation

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ARCTIC PASSAGE LESSON

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OBJECTIVES

Through participation in this lesson students will be able to:

- Students will be able to define the terms resources, environment, and conservation.
- Students will be able to obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

FIELD TRIP POINTERS

Go slow! Do not expect to cover the entire zoo during your field trip. Students will have a more memorable experience by lingering longer at fewer exhibits.

Look for the Docents! The zoo often has Docents stationed at various exhibits who can help expand your discussions and tell stories that help students develop empathy for animals. Check the Zoo's website for more guidelines and recommendations for a successful field trip:

<https://www.henryvilaszoo.gov/education/school-field-trip/>

MATERIALS

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



ENGAGEMENT

PRE FIELD TRIP

INTRODUCE KEY VOCABULARY (5-10 MIN)

Write these three terms on chart paper or on a whiteboard in your classroom. Ask students what they know about these three terms: **resources**, **environment**, and **conservation**.

What smaller words do you see inside of these words (ex: conservation, resources), or what are some similar words you can think of (ex: they may think of environmental for environment, or they may think of other nouns with the -ment ending such as government, or protection, conversation for the -tion ending)?

Can we guess the meaning of the entire word by the pieces that make up the word, or by similar words that we know? (ex: conservation means the act of conserving, resources are sources or things we can use from the natural world, the environment is a noun that refers to the surroundings or conditions in which a person, animal, or plant lives or operates).

Write the definitions next to the terms.

Resources: natural materials humans can use.

Environment: the surroundings or conditions in which a person, animal, or plant lives and operates.

Conservation: protecting the Earth's resources and environment.



ENGAGEMENT

PRE FIELD TRIP

INTRODUCE STANDARD, GROUP BRAINSTORM (10 MINUTES)

Tell students we will be learning about different communities (or groups) of individuals that use science to promote conservation. Give students 2 minutes or so to brainstorm possible groups of individuals that use science to promote conservation. After students have brainstormed, have them share with the class.

Some possible categories could include: adults, kids, politicians, citizens, scientists, consumers, schools.

Tell them that we will be going to the Henry Vilas Zoo to learn about how different communities of people use science to promote conservation. Tell students that we will be exploring the Arctic Passage exhibit to learn about conservation.

WATCH VIDEO AND DISCUSS (10-15 MINUTES)

Show students the following video (4 minutes). Ask students to think about these questions while they watch:

1. Who is the person in the video? What is his job?
2. What important information does the video include about polar bears?

After watching the video, ask students these two questions again, and have them share their thoughts and answers. Ask them this final question: why is it important for people to use science ideas to promote conservation?



Henry Vilas Zoo is an Arctic Ambassador site through Polar Bears International. We even have a retired tundra buggy on grounds like the researcher in the video was in!



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EXPLORATION

FIELD TRIP ACTIVITY

AT THE ZOO

Have students work in partners or in small groups. Explain that they will be exploring different parts of the Arctic Passage exhibit and answering questions about these sources of information. Show them the observation sheet (attached below)*.

Explain that for each source of information, students will decide which group of people the source is related to (is it talking about scientists, does it include information for consumers, citizens?), and they will write down how this group of people can protect the Earth's environment. Explain that there are a few sources listed. After exploring the listed sources, students can choose other sources in the exhibit, such as the seals exhibit, the grizzly bears exhibit, the grizzly bear interpretive storybook, and the seals puzzle.

You may see one of our amazing keeper staff caring for some of the animals in Arctic Passage. Our keepers provide daily enrichment for our animals. Enrichment is a zoo word that means any thing novel or unique for an animal to interact with.

Can you spot any signs of enrichment?



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EXPLANATION

POST-FIELD TRIP ACTIVITY

DISCUSSION

After the field trip, each group of students should discuss the information they gathered. Discuss these questions as a class.

1. What groups of people did you learn about?
 - What did you learn about scientists?
 - What did you learn about consumers?
 - Did anyone learn any information about other groups of people?
2. What can different groups do to protect the Earth's resources and 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?

For the last question, give students a note card. Read the question out loud. Explain that students will be writing their answer on the notecard without putting their name. Give students time to write. (3-5 minutes).

4. What roles do communities of individuals such as the Henry Vilas Zoo play when it comes to conservation?

GIVE ONE, GET ONE ACTIVITY (10-15 MINUTES)

When everyone has written an answer on their notecards, explain the give one get one activity to the class. The activity starts with two people reading their cards to each other, then switch cards. Now, each student finds a different partner and reads their new card out loud to their partner. The activity can continue for as long as you deem appropriate for your group. Once students have exchanged their cards several times during "give one, get one," have students turn in their cards and sit at their spots. Ask question 4 (above) to the whole group, and have students share answers.



EXTENTION

POST-FIELD TRIP ACTIVITY

OTHER ACTIVITIES

Using appropriate electronic devices, have each group create google slides presentations about polar bears. Refer to the “other useful resources” section for resources to use with your students. Students can also choose to make a poster presentation. In this presentation, they should include the threats they face, and how different groups of people (scientists, consumers and citizens) can help protect them and their environment.

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 made by different groups of people.

Design an interview for a scientist about a conservation topic of your choosing (polar bears, climate change, etc). Include a list of relevant questions to ask your interviewee. If there is an opportunity to connect with a scientist. Check out .

Write persuasive letters to politicians, companies, or organizations about the importance of conservation (ex: write a letter defending the importance of passing laws to limit carbon fuels emissions, explain why electric or hybrid cars should be made more affordable by companies to consumers than gas-burning vehicles, etc).



Henry Vilas Zoo works closely with the Orangutan SAFE program to help protect wild orangutans and the places they call home.

Students can conduct research projects related to conservation efforts by specific communities of individuals, such as researching the role and history of Association of Zoos and Aquariums (AZA) Zoos, researching the effects of climate change on other habitats around the world..

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Tag us when you post about your field trip experience to inspire other teachers!



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NAME:

ARCTIC PASSAGE EXPLORATION

How do different groups of people (scientists, consumers, citizens) use science to protect the Earth's resources and environment?

Information Source	What group(s) of people did you learn about?	How can this group, or how do these groups, protect the Earth's resources and environment?
Polar Bear exhibit and signs		
Tundra Buggy		
Bear Relocation Trap		
Seal exhibit and signage		