

Wolf Packs



The Phenomenon

Wolves live in North America, Europe, and Asia. They are large dog-like animals that eat other animals. Wolves have excellent senses and sharp teeth, and they can run fast.

Take a minute to watch a video of some wolves. This video was taken using a trail video camera. A trail video camera has a motion sensor attached to it, so it will start recording video and sound anytime something large, like a wolf, moves in front of the camera. As you watch the video, write down some things you notice and wonder about.

Things I noticed ...	Things I wonder about...
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The Task

The video you just watched showed eight wolves that live together. A group of wolves that live together is called a wolf pack. In size, a wolf pack can range from 5 to 20 wolves. Your goal in this investigation is to figure out why wolves live together in a pack instead of living alone. To help you figure out why wolves live in groups, you will watch eight different videos of wolves hunting. The guiding question of this investigation is:

Why do wolves live in groups?

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Initial Ideas

Before you start this investigation, take a few minutes to think about wolves and what they need to survive. List some of your ideas in the space below.

Some **ideas** that I have...

Now, in the space below, list some things that you think will be important to learn more about during this investigation.

Some **things** that I want to know more about...

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Wolves hunt many different types of animals such as caribou, elk, and bison. These three different types of animals are not all the same size.

- An adult caribou weighs between 200 and 400 pounds
- An adult elk weighs between 500 and 700 pounds
- An adult bison weighs between 1,300 and 1,500 pounds

The picture below shows a caribou, an elk, and a bison. These animals are all adults. Young caribou, elk, and bison weigh much less than the adults.

Some things I know from what I read...

Plan Your Investigation

Prepare a plan for your investigation by filling out the chart below.

I am trying to answer the following **question**...

I will collect following **observations or measurements**...

I will **collect** these observations or measurements by...

I approve of this investigation plan

_____ Teacher's Signature

_____ Date

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Collect Data

Keep a record of what you observe or measure during your investigation in the space below.

My **observations or measurements...**

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Analyze Your Data

You will need to analyze the data you collected before you can develop an answer to the guiding question. To analyze the data you collected, create a table of the observations you find important and then look for patterns in the observations.

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Draft Argument

Develop an argument on a whiteboard. It should include:

1. A *claim*: Your answer to the guiding question.
2. *Evidence*: An analysis of the data and an explanation of what the analysis means.
3. A *justification of the evidence*: Why your group thinks the evidence is important.

The Guiding Question:	
Our Claim:	
Our Evidence:	Our Justification of the Evidence:

Argumentation Session

Share your argument with your classmates. Be sure to keep track of any ideas that you can use to revise your argument and make it better in the space below.

Some possible ways to **improve** our argument...

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Reflective Discussion

You can keep track of any ideas from the discussion that you think are important or will be useful in the future in the space below.

Some important **ideas**...

Draft Report

Prepare a *report* to share what you figured out during your investigations

Introduction

We have been studying _____ in class. Before we started this investigation, we explored _____

We noticed _____

Our goal for this investigation was to figure out _____

The guiding question was _____

Method

To answer this question, _____

Argument

We figured out _____

The _____ below includes information about _____

This analysis shows _____

This evidence is important because _____

Videos

Video for stage 1 (Task)

"#FromTheField Camera trap footage of grey wolves": <https://youtu.be/WBD2uNCywtA>

Videos for stage 4 (Do)

"Musk Ox vs. Wolves / National Geographic": www.youtube.com/watch?v=pb6Rke7jiTc

"Wolves Hunting Caribou—Planet Earth—BBC Wildlife" (1 wolf): <https://youtu.be/A0E6geAq1k8>

"Wolf Hunting Elk in Yellowstone / BBC" (4 wolves): <https://youtu.be/bfGP4Xbme3o>

"Wolf Hunts Caribou—Nature's Epic Journeys: Episode 2 Preview" (1 wolf): www.youtube.com/watch?v=NdVlxS8tgYM

"Pack of Wolves Hunt a Bison / Frozen Planet / BBC Earth" (25 wolves): www.youtube.com/watch?v=8wl8ZxAaB2E

"Baby Bison Takes on Wolf and Wins / American's National Parks" (1 wolf): <https://youtu.be/K6TnWW1s4hE>

"Nature / Wolves Hunting Buffalo / Cold Warriors: Wolves and Buffalo / PBS" (3 wolves): <https://youtu.be/tCG1l-Ssgww>

"Clash: Encounters of Bears and Wolves / Clip 2 / PBS" (several wolves): www.youtube.com/watch?v=ZNREOZ4xCGY

"Bison and Her Calf Battle Wolves / North America" (3 wolves): www.youtube.com/watch?v=GtG-9ftqoHw

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Information and Standards Alignment

Subject

Science

Discipline

Life Science

Grade band

3-5

Task

Students figure out why wolves live together in a pack instead of living alone by will watch eight different videos of wolves hunting.

Core Idea(s)

1. Life in groups (social interactions and group behavior)

Practices

1. Asking questions and defining problems
2. Planning and carrying out investigations
3. Analyzing and interpreting data
4. Constructing explanations and designing solutions
5. Engaging in argument from evidence
6. Obtaining, evaluating, and communicating information

Crosscutting Concepts

1. Cause and effect

Alignment with Academic Standards for Science

Teachers can use this investigation to help students reach any of the performance expectations for science that are listed in the table below.

Source	Code	Standard
NGSS	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Alabama	3-11a	Construct explanations that forming groups helps some organisms survive.
Alaska	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Arizona	-	-
Arkansas	3-LS2-1	Construct an argument that some animals form groups that help members survive.
California	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Colorado	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Connecticut	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Delaware	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Florida	-	-
Georgia	-	-

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Hawaii	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Idaho	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Illinois	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Indiana	3.LS.4	Construct an argument that some animals form groups that help members survive.
Iowa	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Kansas	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Kentucky	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Louisiana	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Maine	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Maryland	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Massachusetts	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Michigan	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Minnesota	-	-
Mississippi	-	-
Missouri	3.LS3.C.1	Construct an argument with evidence that in a particular ecosystem some organisms -- based on structural adaptations or behaviors -- can survive well, some survive less well, and some cannot.
Montana	3.LS2.D	construct a cause and effect argument communicating some animals, including humans, form groups and communities that help members survive.
Nebraska	SC.3.7.2.A	Construct an argument that some animals form groups that help members survive.
Nevada	3-LS2-1	Construct an argument that some animals form groups that help members survive.
New Hampshire	3-LS2-1	Construct an argument that some animals form groups that help members survive.
New Jersey	3-LS2-1	Construct an argument that some animals form groups that help members survive.
New York	3-LS2-1	Construct an argument that some animals form groups that help members survive.
North Carolina	-	-
North Dakota	3-LS2-1	Construct an argument that some animals form groups that help members survive.

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Ohio	-	-
Oklahoma	3.LS1.1	Construct an argument that some animals form groups that help members survive.
Oregon	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Pennsylvania	-	-
Rhode Island	3-LS2-1	Construct an argument that some animals form groups that help members survive.
South Carolina	-	-
South Dakota	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Tennessee	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Texas	-	-
Utah	3.2.4	Construct an explanation showing how variations in traits and behaviors can affect the ability of an individual to survive and reproduce.
Vermont	3-LS2-1	Construct an argument that some animals form groups that help members survive.
Virginia	-	-
Washington	3-LS2-1	Construct an argument that some animals form groups that help members survive.
West Virginia	-	-
Wisconsin	3-LS2-1	Construct an argument that some animals form groups that help members survive.

Alignment with Common Core State Standards for English Language Arts

Teachers can use this investigation to help students reach any of the performance expectations for reading, writing, or speaking and listening that are listed in the table below.

Strand	Code	Standard
Reading	RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
	RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
	RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
	RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a <i>grade 3 topic or subject area</i> .
	RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
	RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate

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		understanding of the text (e.g., where, when, why, and how key events occur).
	RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
	RI.3.10	Read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2-3 text complexity band independently and proficiently.
Writing	W.3.2.A	Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.
	W.3.2.B	Develop the topic with facts, definitions, and details.
	W.3.2.C	Use linking words and phrases to connect ideas within categories of information.
	W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.
	W.3.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
	W.3.6	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
Speaking and Listening	SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i> , building on others' ideas and expressing their own clearly.
	SL.3.1.A	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
	SL.3.1.B	Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
	SL.3.1.C	Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
	SL.3.1.D	Explain their own ideas and understanding in light of the discussion.
	SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
	SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
	SL.3.6	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

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Alignment with English Language Proficiency Standards

Teachers can use this investigation to help emerging multilingual students reach the performance expectations for English language proficiency listed in the table below.

Modality	Code	Standard
Receptive	ELP 1	Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing.
	ELP 8	Determine the meaning of words and phrases in oral presentations and literary and informational text.
Productive	ELP 3	Speak and write about grade-appropriate complex literary and informational texts and topics.
	ELP 4	Construct grade-appropriate oral and written claims and support them with reasoning and evidence.
	ELP 7	Adapt language choices to purpose, task, and audience when speaking and writing.
	ELP 9	Create clear and coherent grade-appropriate speech and text.
	ELP 10	Make accurate use of standard English to communicate in grade-appropriate speech and writing.
Interactive	ELP 2	Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.
	ELP 5	Conduct research and evaluate and communicate findings to answer questions or solve problems.
	ELP 6	Analyze and critique the arguments of others orally and in writing.