

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 how they get the food they need to survive by hunting. Then draw a picture in the space below that shows how living in a group might help them get the food they need. Be sure to include labels to help explain your thinking.

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

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

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

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Some Ideas You Can Use: Life in Groups

Many kinds of animals live in groups. The size of these groups can range from two or three animals to many thousands. Look at the pictures below for some examples.



There are many reasons why an animal might live in a group instead of alone. Groups of animals can work together to find food, raise their babies, and deal with changes in their habitat. All of these reasons could make it easier for an animal to survive. Not all animals, however, live in groups. Some animals spend most of their life alone. So, it is important for us to figure out why it is helpful or why it is not helpful for animals to live in a group.

Some things I **know** from what I read...

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Some Ideas You Can Use: Wolves

Wolves, such as the ones in the picture at right, often live together in groups of 5 to 20 wolves for a long time. These groups are called **wolf packs**. A wolf pack usually includes an adult male, an adult female, and some younger wolves.



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 pictures below show a caribou, an elk, and a bison. These animals are all adults. Young caribou, elk, and bison weigh much less than 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 the 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 _____

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Investigation Information and Standards Alignment

Subject

Science

Discipline

Life Science

Grade band

3-5

Task

Students figure out how and why wolves live together in a pack instead of living alone.

Core Idea(s)

ELS9: Life in Groups

Practices

SEP1: Asking questions and defining problems

SEP3: Planning and carrying out investigations

SEP4: Analyzing and interpreting data

SEP6: Constructing explanations and designing solutions

SEP7: Engaging in argument from evidence

SEP8: Obtaining, evaluating, and communicating information

Crosscutting Concepts

CC2: 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.
Arizona	3.L2U1.8	Construct an argument from evidence that organisms are interdependent.
Arkansas	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.
Florida	SC.5.L.17.1	Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
Georgia	S5L2.a	Ask questions to compare and contrast instincts and learned behaviors.
Indiana	3.LS.4	Construct an argument that some animals form groups that help members survive.
Minnesota	3.4.1.1.2	Identify common groups of plants and animals using observable physical characteristics, structures and behaviors.
Mississippi	L.3.1.3	Obtain and communicate examples of physical features or behaviors of vertebrates and invertebrates and how these characteristics help them survive in particular environments.

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Investigation Information and Standards Alignment

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.
North Carolina	4.L.1.2	Explain how animals meet their needs by using behaviors in response to information received from the environment.
	4.L.1.4	Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.
Ohio	3.LS.2	Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing.
South Carolina	4.L5A.4	Construct scientific arguments to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.
Texas	4.10B	Explore and describe examples of traits that are inherited from parents to offspring such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively
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.
Virginia	3.4A	The student will investigate and understand that adaptations allow animals to satisfy life needs and respond to the environment. Key concepts include behavioral adaptations
Wyoming	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</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.

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Investigation Information and Standards Alignment

	RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate 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.

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.

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Investigation Information and Standards Alignment

	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.