



Montana  
Office of Public Instruction  
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# Science Model Teaching Unit Animal Adaptations

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Grade 3 - Approximate Duration: 90 minutes

## Stage 1 Desired Results

### Established Goals

**Montana Science Content Standard 3:** Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

**Essential Understanding 3:** The ideologies of Native traditional beliefs and spirituality persist into modern day life as tribal cultures, traditions, and languages are still practiced by many American Indian people and are incorporated into how tribes govern and manage their affairs.

Additionally, each tribe has its own oral histories, which are as valid as written histories. These histories pre-date the “discovery” of North America.

### Understandings

- Adaptations are the physical and behavioral traits that help animals survive.
- Adaptation interactions are part of this natural system between predator and prey.
- Camouflage is one form of offensive and defensive adaptation used by both predator and prey.
- The true name of the Crow tribe is Apsáalooke, which means Children of the Large Beaked Bird (refer to the first paragraph of <http://lib.lbhc.cc.mt.us/history/1.00.php> for more specific information).
- **Camouflage** is the act of concealment, to blend in with the surroundings.
- **Predator** is an animal that hunts other animals for food.
- **Prey** is a creature that is hunted by a predator.

### Essential Questions

- Key Terms; predator, prey, adaptation, survival
- What do animals need to survive?
- How do different animals interact with each other for this survival?
- What are the differences and similarities of a predator and its prey?
- What is camouflage?
- How does camouflage benefit the prey?
- How does camouflage benefit the predator?
- How did the spots from the earth help the fawn in the story?
- What other special adaptation does the fawn have besides the camouflage?
- How do the Apsáalooke name the birds of prey?
- Are these birds of prey adaptations more offensive or defensive? How do you know?
- Which color was the best camouflage for the outdoor activity, why?



*Science Grade 3 Animal Adaptations (continued)*

*Students will be able to...*

- identify what creature is a predator and what creature is prey.
- identify the different animal adaptations in selected Native American stories.
- identify Apsáalooke names of four Montana birds of prey and their meaning.
- explain the use of camouflage by prey and predators.
- graph the different colors of camouflage from the student “food find” outdoor lab.
- identify offensive and defensive adaptations.

*Students will know...*

- Key Terms; adaptations, predator, prey, Apsáalooke, camouflage, survival
- the Apsáalooke is the true name of the Crow tribe.
- the Apsáalooke were early observers of the natural world and named creatures by these observations.
- adaptations are traits that help an animal survive.
- both Predator and Prey have adaptations.
- adaptations can be offensive and defensive.
- one form of adaptation is camouflage, the ability to blend in with the surroundings.

**Stage 2 Assessment Evidence**

**Performance Tasks**

Students will compare and contrast animal adaptations in selected Native American stories through discussion of predator and prey behaviors and physical features. These stories are listed under "Resources."

Each student will be able to give an example of an offensive and a defensive adaptation.

Students will create a collage using prey or predators' pictures, grouping them by their adaptations.

Students will read the Apsáalooke name and their meaning for four birds of Montana.

Students will graph the results of camouflage color found in the outdoor lab.

**Other Evidence**

Students will be observed as they organize the groups of predator and prey adaptations.

Student graphs will be assessed for accuracy of camouflage data based on the lab.

Participation

Individual questioning of students.

**Stage 3 Learning Plan**

Through ongoing class discussions and activities students will develop an understanding of animal adaptations and the different roles that the animals play in the predator/prey relationship. Students will see that the Apsáalooke are similar to scientists by utilizing detailed animal observations.

**Day 1**

The teacher will lead students in a brainstorming activity, thinking of the different ways animals survive in the wild. Next, the class will read Native American stories of animals and how they acquired their different adaptations. Students will identify and discuss how these adaptations help the animal whether it is a predator or a prey, to survive in the wild.

### *Science Grade 3 Animal Adaptations (continued)*

Then students are arranged into small groups. Students will need wildlife magazines, posters, and calendar pictures to be available to them for collaborating in small groups. Students will be creating two types of collages. One poster will be of predators and the other for prey creatures. After the posters are completed, students will identify what special adaptation each animal has as a prey or predator that helps it with its survival in an oral report to the class.

Next, the class will arrange all of the predator posters into one large group and the prey posters into another group. Divide the class into prey or predator and go to the appropriate set of posters. Here each group will create and display a written list of adaptations they see on their set of posters. Looking at these newly generated lists the class will compare which of these adaptations are represented on both, predator and prey posters. "What do these two groups have in common?" The teacher will then introduce the concept of offensive (predators) and defensive (prey) adaptations. Students will pick two adaptations they observe on each chart and write each one on a sticky note. They will discuss how these adaptations can be offensive and defensive with their classmates. Each sticky note will then be placed on the chart, "Adaptations: Offensive and Defensive."

#### **Day 2**

##### Food Find Lab

##### Materials:

pencils

Work sheets

2" pipe cleaners 22 of each color (bent into a "z" shape)- Red, green, white, orange, black, brown, yellow, blue, purple

An item to mark the student's "nest" area (coat, mat, or piece of paper)

Apsáalooke is the true name of the Crow tribe is Apsáalooke, which means Children of the Large Beaked Bird (refer to the first paragraph of <http://lib.lbhc.cc.mt.us/history/1.00.php> for more specific information). Students will learn the name of birds in Apsáalooke and their meanings (use the "Bird Cards," [http://lib.lbhc.cc.mt.us/history/lessonplans/bird\\_cards.pdf](http://lib.lbhc.cc.mt.us/history/lessonplans/bird_cards.pdf), found in the "Bird Cards" Lesson, [http://lib.lbhc.cc.mt.us/history/lessonplans/bird\\_cards.php](http://lib.lbhc.cc.mt.us/history/lessonplans/bird_cards.php). Students will discuss the definitions of the words and understand these definitions are based on the observations of the bird's physical characteristics.

Students will then be divided into groups, representing one of these predatory birds. Each group will discuss the type of bird they are representing and what would be their prey in their natural setting. The students will research what is the diet of each of these birds. All students will come back together into one large group and share their results of the birds' diets. Next students will choose eight of the prey creatures they researched and match them to a pipe cleaner color. The pipe cleaners represent the different prey these types of birds would be eating. Examples are insects, small reptiles, amphibians, and rodents. Example, red= beetles

### *Science Grade 3 Animal Adaptations (continued)*

Before the pipe cleaners are scattered on the ground, the class will predict which color of pipe cleaner will be retrieved the most and which color will be retrieved the least. One student records the class predictions.

Students will then form a large circle in an outside grassy area. Each “bird” will set up his/her nest in his/her spot in the circle. Prior to setting up the nest, the teacher will spread the pipe cleaners on the ground in the center area of the large circle used for this activity. The size of the circle depends on the size of the class. Have students at least an arm’s length away from each other.

The task of each bird group: pick up as much “food” as they can in a ten second round.

The teacher will call a start time and the students will have ten seconds to search for their prey, picking up just one pipe cleaner at a time and returning it to the nest before another pipe cleaner can be retrieved. The class will run five trials. At the end of each trial the students return to their nests and tally the different colors of pipe cleaners they retrieved. After the fifth trial the area is cleaned and the class moves inside to calculate their results.

Students will take their tally charts and convert them into a bar graph format. Next students evaluate their graphs and discuss which pipe cleaner color was retrieved the least to the most. Once students have created their graphs, engage students in a discussion to address the following questions.

- Which color was the hardest to find?
- Why did that “creature pipe cleaner” have the best camouflage?
- Was the least retrieved color what the group predicted would be the hardest to find?
- Make a master class list of the “find food” results. Are the results of the master list different from the results of the individual graphs?
- Were all of the pipe cleaners retrieved?

Allow time to review the concepts of this lesson as follows: Students will complete this activity by writing a paragraph about the bird they represented, explaining what their graph results reflected about the colors of camouflage, and how this relates to the real world around them.

Students will divide back into their bird groups and give a report to the classroom on “what I learned today.”

### **Resources**

#### Stories

Real Bird, H. (1977). *Birds and People- Book 11- A Crow Story*: Portland, OR: Pacific Northwest Indian Reading and Language Development Program, Northwest Regional Educational Laboratory; Beaverton, OR: Educational Systems, Inc.- <http://www.nwrel.org/indianed/indianreading/1/book11.pdf>

Caduto, M. & Bruchac, J. (1991). “How the Fawn Got its Spots”. *Keeper of the Animals*. Golden, CO: Fulcrum Publishing.

*Science Grade 3 Animal Adaptations (continued)*

Thomason, Dovie (Lakota/Kiowa-Apache), "The Animals' Wishes." 2000, color illustrations; Iroquois.

Otto, Simon (Ojibwe/Odawa), *Walk in Peace: Legends and Stories of the Michigan Indians*. 1990, b/w illustrations.

Apsáalooke Bird names:

McCleary, Carrie. Little Big Horn College. *Apsáalooke Writing Tribal Histories Project*.

Real Bird, H. (1977). *Birds and People- Book 11- A Crow Story*: Portland, OR: Pacific Northwest Indian Reading and Language Development Program, Northwest Regional Educational Laboratory; Beaverton, OR: Educational Systems, Inc.- <http://www.nwrel.org/indianed/indianreading/1/book11.pdf>

Medicine Horse, Mary Helen. 1987. *A Dictionary of Everyday Crow*. Crow Agency, Montana: Bilingual Materials Development Center.

## “Find Food” Lab

**Make a tally mark for each pipe cleaner collected in each trial.**

	<b><i>Trial 1</i></b>	<b><i>Trial 2</i></b>	<b><i>Trial 3</i></b>	<b><i>Trial 4</i></b>	<b><i>Trial 5</i></b>
<b>red</b>					
<b>green</b>					
<b>white</b>					
<b>orange</b>					
<b>black</b>					
<b>brown</b>					
<b>yellow</b>					
<b>blue</b>					
<b>purple</b>					

# Adaptations: Offensive and Defensive

Place your sticky note under “Offensive” if the adaptation is offensive and under “Defensive” if it is defensive.

Science Grade 3 Animal Adaptations (continued)

Bar graphs for each trial run.

 <b>Pipe cleaners Retrieved</b>	<i><b>Food Find Trial 1</b></i>									
	<b>22</b>									
	<b>20</b>									
	<b>18</b>									
	<b>16</b>									
	<b>14</b>									
	<b>12</b>									
	<b>10</b>									
	<b>8</b>									
	<b>6</b>									
	<b>4</b>									
	<b>2</b>									
	red	green	white	orange	black	brown	yellow	blue	purple	

 <b>Pipe cleaners Retrieved</b>	<i><b>Food Find Trial 2</b></i>									
	<b>22</b>									
	<b>20</b>									
	<b>18</b>									
	<b>16</b>									
	<b>14</b>									
	<b>12</b>									
	<b>10</b>									
	<b>8</b>									
	<b>6</b>									
	<b>4</b>									
	<b>2</b>									
	red	green	white	orange	black	brown	yellow	blue	purple	

Science Grade 3 Animal Adaptations (continued)

 <b>Pipe cleaners Retrieved</b>	<b><i>Food Find Trial 3</i></b>									
	22									
	20									
	18									
	16									
	14									
	12									
	10									
	8									
	6									
	4									
	2									
		red	green	white	orange	black	brown	yellow	blue	purple

 <b>Pipe cleaners Retrieved</b>	<b><i>Food Find Trial 4</i></b>									
	22									
	20									
	18									
	16									
	14									
	12									
	10									
	8									
	6									
	4									
	2									
		Red	green	white	orange	black	brown	yellow	blue	purple

Science Grade 3 Animal Adaptations (continued)

	<b><i>Food Find Trial 5</i></b>										
<b>Pipe cleaners Retrieved</b>	<b>22</b>										
	<b>20</b>										
	<b>18</b>										
	<b>16</b>										
	<b>14</b>										
	<b>12</b>										
	<b>10</b>										
	<b>8</b>										
	<b>6</b>										
	<b>4</b>										
	<b>2</b>										
		red	green	white	orange	black	brown	yellow	blue	purple	