

Snack Attack

Teachers' Guide

Grades 3rd -5th



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Program Description:

Come explore predator-prey relationships in the ocean and investigate the importance of this balance in a community. Discover how some of our amazing animals catch their meals – and how they keep from becoming a meal for something else!

Enduring Understandings for Snack Attack:

- All organisms have adaptations that allow them to survive in their natural habitats.
- All organisms in an ecosystem are connected as part of a food web.
- Humans play an important role in maintaining healthy ecosystems and balancing natural processes.

Objectives:

- Students will classify organisms according to their physical characteristics.
- Students will investigate the adaptations that allow an animal to survive successfully in its habitat.
- Students will understand the roles of both predators and prey in a food web and the interdependence of all organisms in an ecosystem.
- Students will discuss the role that humans play in maintaining healthy aquatic ecosystems.

Georgia Performance Standards Addressed:

Third Grade

S3CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

- a. Observe and describe how parts influence one another in things with many parts.
- b. Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world.

S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.

- d. Explain what will happen to an organism if the habitat is changed.

S3L2. Students will recognize the effects of pollution and humans on the environment.

- a. Explain the effects of pollution (such as littering) to the habitats of plants and animals.

b. Identify ways to protect the environment.

- Conservation of resources
- Recycling of materials

Fourth Grade

S4CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

- Observe and describe how parts influence one another in things with many parts.
- Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts.

S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.

- Identify the roles of producers, consumers, and decomposers in a community.
- Demonstrate the flow of energy through a food web/ food chain beginning with sunlight and including producers, consumers, and decomposers.
- Predict how changes in the environment would affect a community (ecosystem) of organisms.
- Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many.

S4L2. Students will identify factors that affect the survival or extinction of organisms such as adaptation, variation of behaviors (hibernation), and external features (camouflage and protection).

- Identify external features of organisms that allow them to survive or reproduce better than organisms that do not have these features (for example: camouflage, use of hibernation, protection, etc.).

ELA4LSV1. The student participates in student-to-teacher, student-to-student, and group verbal interactions. The student

- Asks relevant questions.
- Responds to questions with appropriate information.
- Displays appropriate turn-taking behaviors.
- Responds appropriately to comments and questions.
- Volunteers contributions and responds when directly solicited by teacher or discussion leader.

Fifth Grade

S5CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

- Observe and describe how parts influence one another in things with many parts.
- Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts.

S5L1. Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.

- a. Demonstrate how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal).

ELA5LSV1 The student participates in student-to-teacher, student-to-student, and group verbal interactions. The student

- b. Asks relevant questions.
- c. Responds to questions with appropriate information.
- f. Displays appropriate turn-taking behaviors.
- i. Responds appropriately to comments and questions.
- j. Volunteers contributions and responds when directly solicited by teacher or discussion leader.

Pre-visit activities:

1. Predators in Pursuit – Students will investigate predator-prey relationships and animal adaptations

Post-visit activities:

2. Ocean of Adaptations – Students will create a class mural with animals from the aquarium, along with their natural predators or prey.

Predators in Pursuit

Adapted from the Savannah River Ecology Laboratory's "Be a Predator for a Day"

Objective: Students will investigate predator-prey relationships and gain an understanding of some of the adaptations that help animals survive.

Materials:

- Predator cards (one for each student) – hole-punched and laminated (or covered with plastic sheet protector). Cards can be found online at <http://www.uga.edu/srel/kidsdoscience/predator-prey/predator-cards.pdf>
- Prey cutouts - Templates for prey animals can be found online at <http://www.uga.edu/srel/kidsdoscience/predator-prey/prey-templates.pdf>
- String or yarn for predator cards (so that students can wear them around their necks)
- Stickers (small colored dots) for students to mark prey animals that have been "killed"
- If you plan to re-use the prey animals or to play more than one round, use small post-it notes instead of stickers for easy removal
- Data sheets (one for each student)
- Pen or pencil for each student

Vocabulary: predator, prey, adaptation, camouflage, food chain, food web

Background:

All animals have basic survival needs, one of which is food. Different animals, however, have adapted to many different food items and feeding styles. Some are grazers, some are filter feeders, some are scavengers, and some are predators. Within each of these categories, animals have developed a variety of behaviors and physical structures to go along with their particular feeding styles. For example, a humpback whale filters plankton from the water with baleen, attached to its jaw, while a whale shark catches the same food using special filters in their gills.

Predators also have adaptations which help them to catch prey, while prey animals have adaptations to keep them from being caught. Some examples of these adaptations are:

- Speed (gazelle, cheetah, or dolphin)
- Hearing (the ears of a deer or bat)
- Vision (eagles and other birds of prey)
- Camouflage – comes in many varieties. Some animals hide by blending in with the background (octopus), some have stripes or spots to disrupt their outlines (zebra), some mimic other animals or objects (katydid)

These adaptations help maintain the balance between predators and prey in an ecosystem. While it is important for predators to have prey to eat, it is also very important for prey populations to have

predators. Without the checks provided by predators, populations can grow out of control until food resources are too scarce to support them.

During this activity, students will investigate some of the feeding relationships found in a typical woodland ecosystem, and will see firsthand how camouflage can help protect animals from predators.

Procedure:

1. Print out predator cards and laminate or put into plastic sheet protectors. Hole punch the cards and tie yarn or string on so the students can wear them. Print out and cut out the prey animals. Some of these animals (about 1/3) should be brightly colored so that they will be easy to spot. The rest should be colored to match various backgrounds in the room so that they will be camouflaged and more difficult for the students to locate. Distribute prey animals around the room (use double-sided tape).
2. Introduce the terms **predator** and **prey** to the class. Ask the students to name some animals that are examples of each. Can some animals be both predator and prey? Which one are humans? Ask the students to name some characteristics that predators might have to help them catch prey, as well as characteristics that help prey animals keep from being caught. What do we call these traits? (**adaptations**).
3. Hand out predator cards, data sheets, pens and pencils, and stickers (each student will need at least 6 stickers). Students may also need a clipboard or book to press on for writing. Have the students look at their cards to see what animal they are and point out to them that each predator can only eat certain types of prey. Ask the students to check the chart on the next page and see which type(s) of prey they can eat and have them circle those types at the top of their data sheet.
4. Give the students 5 minutes to search for prey in the room. When they find their prey, they “kill” it by marking it with a dot sticker. Before they continue to hunt, they will need to record on their data sheet the location and type of prey that they found. This simulates time taken by the animal to eat their prey before they resume hunting. Once a prey item has been marked, it is off-limits to all other predators and cannot be “eaten” again.
5. After 5 minutes, have the students sit down and finish their data sheets. They will need to add up the number of each type of prey item they caught. Once the students have finished adding, share the survival guide with them so they can check to see if they survived.

Discussion:

Ask the students, by show of hands, how many of them survived. Why is it harder for some animals to find food than others? What made some of the prey items easier to find? Or harder? Review **adaptations** and **camouflage**. What happens to the predators if they cannot capture enough prey? What happens to prey populations if predators disappear? Is it important to have both predators and prey in a community? Why?

Extensions:

1. Using the predator-prey relationships from the game, draw a food web on the board with the students’ help. Also include other parts of the community, such as producers and decomposers.

2. Ask the students to think of ways that humans are connected to the food web. How do we impact the plants and animals in our community? What are some things we can do to make sure our impacts are positive instead of negative?

Predator	Prey
Hawk	Snakes, Mice
Alligator	Fish, Frogs
King Snake	Snakes, Mice
Praying Mantis	Insects
Bobcat	Rabbits, Mice
Bullfrog	Frogs, Fish, Insects

My Data Sheet

I am a PREDATOR: (circle one)

Hawk Alligator Kingsnake Praying Mantis Bobcat Bullfrog

My PREY are:

Snakes Frogs Mice Fish Insects Rabbits

I found these prey items:

	Location of Prey	Type of Prey
1		
2		
3		
4		
5		
6		
7		
8		

What I ate (data summary):

Prey Species:	Number That I Ate:
Snakes	
Frogs	
Mice	
Fish	
Insects	
Rabbits	

Predator Survival Guide (Prey items needed to survive):

Predator:	What it needs to eat:						
Hawk	2 snakes	OR	4 mice	OR	1 snake & 2 mice		
Alligator	4 fish	OR	3 frogs	OR	2 fish & 2 frogs	OR	3 fish & 1 frog
Kingsnake	2 snakes	OR	3 mice	OR	1 snake & 2 mice		
Praying Mantis	5 insects						
Bobcat	2 rabbits	OR	5 mice	OR	1 rabbit & 3 mice		
Bullfrog	2 frogs	OR	4 fish	OR	6 insects	OR	
	1 frog & 2 fish		OR	1 frog & 3 insects		OR	
	2 fish & 2 insects		OR	1 frog & 1 fish & 2 insects			

Source:

University of Georgia, Savannah River Ecology Laboratory. "Be a Predator for a Day". 14 January 2004. 27 July 2009. <http://www.uga.edu/srel/kidsdoscience/kidsdoscience-predator-game.htm>

An Ocean of Adaptations

Objective: Students will reflect on their visit to the Georgia Aquarium, identify their favorite aquatic animal and examine the adaptations that make it either predator or prey or both.

Duration: two 45 minute sessions

Materials:

- ✓ Drawing materials
- ✓ Found objects (felt, scrap paper, sticks, stones)
- ✓ Writing materials
- ✓ Paper or notebook
- ✓ Blue paper for ocean background

Background:

All animals have adaptations that help them survive in their environments. This includes ways to find food or water, and hide from predators. Sometimes predators and prey use similar adaptations for different purposes. For example, camouflage is often used to hide from predators and by predators to approach prey undetected. Body size and speed of an animal can also affect their ability to survive. For example, tuna use their powerful tails to swim quickly and capture prey, and large whales are protected by their large size. The mouth design and types of teeth of predators are adapted to the type of food they eat. Predators could have sharp teeth for grasping food, where other have flat teeth for grazing, or large plates for crunching.

Procedure:

1. Teacher will construct the background for the ocean mural. Suggested materials to use:
 - Big sheet of blue paper to represent ocean
 - Sketch in: coral reef area- very colorful
 - open ocean area – big area with some rocks
 - cold water environment - with ice and snow
 - or any combination of the above
2. Have the students brainstorm to recall some of the organisms they observed in the aquarium. What did the fish look like? What were some of the different species? What colors were they? Was the animal predator or prey?
3. Next have the students identify their favorite animal. Each student will then create or draw their favorite aquatic organism from the aquarium. Students will then attach each animal in its appropriate location on the mural (students should try to remember where they observed the animal: open water vs. hiding in reefs, surface feeder vs. bottom feeder).
4. Have students write a description of their animal and their adaptations for survival and answer the following the questions.
 - a. What is the importance of these adaptations?
 - b. Who is their predator and prey?
 - c. Where does this animal live in the ocean?
5. Hold a class discussion on aquatic adaptations and their importance.

- a. What are some adaptations that aquatic animals might have, and what are some unique adaptations that only a few have?
6. Then ask the students the following question: “When I think of my animal, I think of ...” and should complete this statement with one or two words. Have the students write down each of their words and paste them on the mural, or write them directly on the mural neatly.

Assessment:

Did the student correct identify the following for their chosen animal?

- Adaptations of the animal
- Importance of those adaptations
- Listed possible predators and prey items
- Habitat

Extension:

1. When the mural is complete with words and aquatic life, have the students pick one or two words and one or two aquatic creatures, and write a short story or poem using these catalysts.
2. Have the students present their poems or short stories to the class, or display them on colorful posters.