# *Food Webs* Lesson Plan

## NGSS Standard

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

## Objectives

I can classify producers, herbivores, omnivores, carnivores, and decomposers.

I can express how extinct organisms effect the food web.

## Engage

Students are asked "What did you eat last night for dinner? This morning for breakfast? What is your favorite food?" Students will respond with several answers which can be used in explore and explain. Ask students where their food came from. Through questions such as this, help students build understanding that because they eat food, they are a part of a food web. Use guided questions to make sure that all types of food are discussed (plants and animals). For example, if a student talks about pizza, discuss through questioning how the dough is actually flour and comes from wheat, which is a plant. The tomato sauce comes from tomatoes, another plant. Cheese is an animal product, as is pepperoni.

## Explore 1

Ask 5 students to be volunteers and come to the front. Give each student a nametag and ask students to put themselves in order of a food web. Have the rest of the students help out if students are unsure of where they belong in the food web.

Ask: Who should we start with? Why? (First should be the producer, because the producer uses the energy from the sun to make its own food. However, if they start somewhere else in the cycle, stay with the cycle and come back to the producers and discuss the importance of the producers in the web.)

Ask: Who eats producers? Or Who goes after the producers? (Herbivores should come next because they only eat plants, and plants are the producers.)

Ask: Who eats the herbivores? Or Who goes after the herbivores? (Omnivores should go next because they eat both plants and other animals.)

Ask: Who eats the omnivores? Or Who goes after the omnivores? (Carnivores go after the omnivores because they eat meat.)

Ask: Who eats the carnivores? Or Who goes after the carnivores? (Decomposers go last because they break down organisms when they die.)

Stop and discuss that this is called a food web and not a food chain. This is a web because it is a constant cycle with no set order. It is possible for an omnivore to be second because they do eat producers.

## Explore 2

Once students have had time to construct the food web, tell students, “Now that you are experts on food webs, we are going to talk about a specific food web, the Ohio River food web.”

Ask: “What is an example of a producer that lives in the Ohio River?” (Help students arrive at algae, show the students the picture of algae on the card and hand out algae cards to 4 or 5 students, adjust the numbers to the group size.)

Ask: “What is an example of an herbivore that lives in the Ohio River?” (Guide the students to the answer of Blue Gill, show the picture of the Blue Gill on the card. Pass out cards to 2, 3, or 4 students based on size.)

Ask: “What is an example of a carnivore that lives in the Ohio River?” (Guide the students to the answer of gar, show picture and hand out gar cards to 2 or three students.)

Ask: “What is an example of an omnivore that lives in or around the Ohio River?” (Guide the students to the answer of students, and explain that no omnivore card is used in this activity.)

Ask: “What is an example of a decomposer that lives in the Ohio River?” (Guide students to the answer of crayfish show picture and give the rest of the students’ crayfish cards.)

Explain to students that they will be going out into the hall while the algae stay in the room and hide their cards. Then the consumers will re-enter the room and have to find a certain amount of specific food to survive. In order to survive blue gill students must find 4 algae cards, gar students must find 2 blue gill cards, and crayfish students must find 3 gar cards.

Send all consumers to the hallway and allow producers to hide the food. Once food is hidden, allow consumers about 5 min to search for food.

When the search is complete, see how much of their food each consumer found and see how many survived. Remember blue gill need 4 algae cards, gar needs 2 blue gill cards and crayfish need 3 gar cards.

Ask: “If one of these entire species were to die what is this called?” The students will arrive at the answer of extinction.

## Explain

Collect the animal cards and pass out one of the endangered species cards to each student.

Tell the students that each of the organisms on the card has two main things in common and help guide them to the fact that the each are endangered and each lives in or around the Ohio River using questions such as “What do these organisms have in common? Where do these organisms live?”

Have each student read their endangered species card and then have the students sit in a circle on the floor. Once in the circle distribute a rope between the students in a web like manner to symbolize a food web. When the web is complete, select one of the cards that is a plant and tell that students that they have gone extinct and that they are going to show this by tugging back and forth gently on the rope. Explain to the rest of the group that if they feel the rope being tugged, they are going to tug back and forth in return.

Once the tugging is complete, explain that if a tug was felt, they were affected by the extinction of that plant. Ask how many students felt the tug. Ask students if they, as humans, would feel the tug. Ask how many eat fish? Ask how many interact with the plants/animals on their cards (help them draw the connections between themselves and the organisms if necessary). Discuss that as humans we have to help protect these organisms so that we are not affected.

If time remains the activity can be repeated causing a different organism to go extinct and review the information that was learned in the lesson.

## Extend

Extensions will occur in the form of a post activity that asks students to create a food web that they can observe at their schools. Student can then collect data on their food webs and discuss how these webs may be affected by endangered/extinct animals and what they, in their classrooms/schools can do to help.

## Evaluation

Evaluations will be obtained during the pre and post assessment. These assessments will hold the physical data. Formative assessment should be used throughout the station. Student conversation should be monitored for correct ideas and misconceptions to correct. Student work should also be monitored during the station. Students will complete a page or two in the field trip booklet for this station.

# Do you know the food web?

**Name: _____ Date: _____**

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Directions: Circle True or False for each statement.

1. Producers are plants that make their own food. True False
2. Herbivores are plants that are eaten by animals. True False
3. Omnivores are animals that only eat meat. True False
4. Carnivores are animals that eat plants and other animals. True False
5. When a plant or animal goes extinct it effects the entire food web. True False

Producer: Organism that makes its own food.

Decomposer: Organism that breaks down dead plants and animals.

Carnivore: Organisms that only eat meat.

Herbivore: Organisms that only eat plants.