



Post-Program Resource

Garden Detectives

4th-5th Grade

Who Eats Who? Food Chain Activity & Craft

Duration: 45 minutes

Objective: To extend student learning by introducing the concept of food chains. Students will apply their knowledge of food chains to Tudor Place's Garden and create their own craft highlighting the hierarchical series of organisms that depend on one another as a source of food.

NGSS Standards Met:

LS2.A: Interdependent Relationships in Ecosystems

- The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

LS4.D: Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

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

Materials Needed:

Food chain presentation

Link to access presentation:

<https://docs.google.com/presentation/d/1NDPpg9GcYJmWWeOCrQQpPiqVTSUh8-oALxea4zmrS0g/edit?usp=sharing>

Drawing paper or printout resource

Drawing materials (colored pencils, markers, crayons, etc.)

Food Chain Presentation & Mini Activity

Link to access presentation:

<https://docs.google.com/presentation/d/1NDPpg9GcYJmWWeOCrQQpPiqVTSUh8-oALxea4zmrS0g/edit?usp=sharing>

Tips for the Presentation:

Questions/prompts will automatically appear. Click to go to the next slide or reveal an answer. Everything else is animated. You may want to run through the slides once or twice beforehand to become familiar with the presentation.

The presentation will prompt students to review what they learned at Tudor Place

- (Slides 1-5) Images will prompt students to identify parts of a plant and the things they need.
- (Slide 6) Next, there will be an image of the dog statues from the Tudor Place garden and an image of scratches on one of their noses.
 - Ask students: Does anyone remember what caused these scratches?
 - Squirrels like to sharpen their teeth on the statues.
- (Slide 7) Squirrels, humans, plants and other animals all live together in an ecosystem.
 - All of the living and non-living things in an environment make an ecosystem.
 - This includes plants, animals, humans and things like rocks and mountains.
 - Do plants and animals in an ecosystem need each other? How?
 - Animals eat animals, animals eat plants, both need water
- (Slide 8) Look at some examples together. Take time to explore the relationship in each photo to reinforce animal-plant interdependence.
 - Ex) The rabbit eats grass.
 - Ex) The bee drinks nectar and pollinates flower.
 - Ex) The bird builds nest out of sticks.
- (Slide 9) That was too easy! Let's take it up a notch with a challenge. How do these plants and animals all need each other?
 - The rabbit eats the plant, and the hawk eats the rabbit.
 - This is called a food chain.
 - A food chain shows how energy moves through an ecosystem, from plants to animals.
- (Slide 10) Within their groups, have students arrange the five plants and animals on the slide into a food chain. Give the students two to three minutes, as you deem appropriate.
 - Remind students that there might be more than one right answer.
 - If students are stuck, ask them "who eats who?"
 - Organism list:
 - Walnut > Deer Mouse > Rat Snake > Hawk > Mushroom

- Have groups guess the order and explain their reasoning before revealing the correct answer.
- (Slide 11) The presentation will start with the walnuts. Have students guess which organism comes next. Then, click to reveal.
 - If students have different answers, ask them why.
 - Ex) Either the snake or the hawk would eat the mouse. Both are correct.
- (Slides 12-16) The slides will go through each of the animals and plants and explain key vocabulary associated with their positions in the food chain. Ask for student guesses before revealing answers when there is a word to define.
 - Walnut: If plants can't eat like us, how do they get energy?
 - Take student guesses about how plants get/make energy.
 - Explain the process of photosynthesis at an age-appropriate level.
 - Plants use photosynthesis to make food.
 - They take sunlight, air and water to make sugar. This sugar is the basis of all energy in a food chain.
 - Because plants in the food chain make their own food, they are called producers.
 - Deer Mouse
 - **Primary consumer:** an animal that eats plants
 - The deer mouse is an omnivore: animals who eat both plants and animals.
 - Often, primary consumers are herbivores: animals who can only eat plants.
 - Rat Snake
 - **Secondary consumer:** an animal that eats other animals that eat plants
 - They are the third spot on the food chain.
 - They can be carnivores: animals who only eat meat, like the snake.
 - They can also be omnivores.
 - Red-Shouldered Hawk
 - **Apex Predator:** the top of the food chain. Nothing eats them.
 - They are almost always carnivores.
 - Giant Puffball Mushroom
 - **Decomposer:** plants and animals that break down dead things
 - Fungi, like mushrooms, break down dead animals and plants.
 - Imagine how many leaves there would be if there was nothing that ate the leaves that fell.
 - Ex) fungi, insects, mold, mushrooms
 - (Slide 17) When you eat something, you only get about 10% of its energy.
 - Ex) plant makes 100 calories of energy, mouse eats it and gets 10 calories, hawk eats rabbit and gets 1 calorie.
 - Originally, all energy comes from plants.
- (Slide 18) The slides will go over "how-to" instructions for making a food chain of their own.

Food Chain Mini-Research Project and Craft

The students explored an example food chain as a class. Next, students will apply their learning to research and draw a food chain from a habitat of their choice.

Challenge students to create a food chain with four or five plants/animals. Students should label each animal with the plant/animal's role in the food chain (producer, primary/secondary consumer, etc.). Students should include at least three levels.

Tudor Place examples:

Producer > Primary consumer > Secondary consumer > Apex predator (optional)

Nectar	➡	Butterfly	➡	Bird	➡	Hawk
Seeds	➡	Mouse	➡	Hawk/Owl		
Grass	➡	Rabbit	➡	Fox		

Students can complete this project on blank paper/construction paper or using the printout template below. If time allows, invite students to share their food chains with the class.

Glossary

Apex Predator: An animal at the top of a food chain/web. Nothing hunts an apex predator.

Biomagnification: The process where toxins “magnify” up a food chain, harming animals farther up

Carnivore: Animals that only eat other animals (meat)

Decomposer: Plants and animals that break down dead things into soil

Ecosystem: All of the living and non-living things that live together in an environment

Food Chain: shows how energy moves through an ecosystem, from plants to animals

Herbivore: Animals that eat only plants

Omnivore: Animals that eat both plants and animals

Photosynthesis: The process where plants turn sunlight into sugars/energy

Primary Consumer: An animal that eats plants. The second tier of a food web.

Producer: The term for plants in a food web/chain.

Secondary Consumer: An animal that eats other animals that eat plants. The third tier of a food web/chain.

Who Eats Who?

