

Food Web

Time Frame: 30-45 minutes

Grade: 3rd-5th

Class Size: 20-30

Setting: Indoors or outdoors

Staff: 1

Use: In-class

NYS Education Standards:

MST-Section 4: Living Environment

Students will: understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

- *Key Idea 5:* Organisms maintain a dynamic equilibrium that sustains life.
- *Key Idea 6:* Plants and animals depend on each other and their physical environment.

Objectives:

- ✓ Students will be able to identify different organisms found in an aquatic ecosystem
- ✓ Students will be able to imitate food web interactions in an aquatic ecosystem
- ✓ Students will be able to justify why organisms are connected in an ecosystem

Motivation: Game, dress up

Materials: *Organism Identification Cards*, fish mounts/pictures/dead on ice, *Food Web worksheet*, props that correspond to each organism identification card as follows: Angler/large fishing rod with thick fishing line, Crab/tongs, Plankton/hair band with springs, Sun/sunglasses, Algae/toothpaste, Bird/noise maker, Bait/deodorant, air freshener, Shellfish/fake pearl necklace, Fish (all)/models, swimmies, nose plugs etc., Skate/elbow, knee pads, Squid/apron

Lesson Procedures:

Introduction (1-2 minutes)

1. Introduce yourself and the I FISH NY program.
2. Introduce the day's activities:
 - a. Prep for upcoming fishing trip
 - b. Fish identification
 - c. Aquatic ecosystems and an ecological interaction in that ecosystem, food web

Brainstorming (2-3 minutes)

1. Have students brainstorm a list of plants and animals that live in an (*freshwater or saltwater*) ecosystem.
2. Write answers on the board.
3. Option for older students: Introduce the following concepts: abiotic, biotic, producers, photosynthesis, and consumers.
 - a. Say: Ecosystems have abiotic factors and biotic factors:

- i. The abiotic environment (non-living; i.e. water, sunlight, atmospheric gases, temperature, wind, and climate)
- i. The biotic environment (living organisms; i.e. plants, animals, insects, and bacteria.)

Organism ID Share (12-17 minutes)

1. Invite a student volunteer to choose an *Organism Identification Card* and read it aloud. That student then pretends to be that organism in the food web. Give that student the Organism Prop corresponding to that organism and ask the student to stand at their desk.
2. When a student becomes a fish, show the class the fish mount, discuss some features of the fish and then hand the student the Prop.
3. Continue having students take turns choosing *Organism Identification Cards*, reading them aloud, and then standing at their desks with the props. Be sure that the last *Organism Identification Card* you share is the “Angler.”
4. Demonstrate how the food web works; begin with the angler and continue working your way through the ecosystem by asking each student questions about his/her organism, such as, “What do you eat?” and/or “What other organism(s) do you depend on?”
 - a. The prop for the angler is a fishing rod. Use the fishing line to make the web; moving from organism to organism.
 - b. Each time the web may be different, depending on the student’s interjections.
5. After the web is formed, discuss the relationships and dependency of the food web. For example, remove one of the organisms from the web. Discuss and show the break down of the web when a link is removed.
6. When finished with the exercise, reel in by having each student, one at a time, let go of the fishing line. Start with the last organism chosen and continue on to the next student whose line went slack.

Relation to Fishing (5-7 minutes)

1. Relate the exercise to fishing. Discuss the purpose of the exercise. For example, discuss bait selection, i.e. plants vs. invertebrates.

Closing (1-2 minutes)

1. Go over trip rules, clothing, food, details, etc.
2. Invite students’ questions.

Post-Activity/ Assessment

1. After I FISH NY presentation, distribute *Food Web worksheet* for students to complete. Review answers together.