

Silent Food Chains

Essential Questions:

What is a food web?

What is a food chain?

At a Glance:

Learners will develop an understanding of food chains by examining the role that the sun, producers, consumers, and decomposers play in the health of a food chain. Learners will work in teams to develop food chains.

Background Information:

A food chain describes the interconnectedness of all species in an ecosystem.

Food chains are comprised of four main parts: the sun, producers, consumers, and decomposers.

Producers are species that can photosynthesize and produce their own food; plants, trees, and grasses are examples of producers. They are the base of all food chains. Consumers are species that eat producers. Animals such as squirrels, leaf-eating insects, and butterflies are herbivores because they eat plants. They consume the plants, so they are called primary consumers. Animals that eat other animals are called carnivores, or secondary consumers. Some other types of consumers include humans (who are omnivores because they eat plants and animals), parasites (small organisms that live on the bodies of other organisms and use their energy), and scavengers (eat the carcasses of other dead animals). Finally, there are the decomposers, mostly fungi and bacteria that break down dead animals and plants into



reusable elements and recycle these elements back into the air.

An ecosystem does not just have one food chain. Depending on the number of living creatures in an ecosystem, there can be hundreds or thousands of food chains that form a food web. It is important to remember that in all food chains and webs, energy flows from the producers and through each consumer.

Location: Inside or outside

Objectives: *Learners will:*

1. describe a 'food chain'.
2. work in teams to form food chains.

Skills: communication, listening, empathy, analysis

Supplies:

- five sets of laminated food chain cards (5 cards in each set), each card having a string so that it can hang around a learner's neck. Each card is labeled as a different component of a food chain.
- Cones (Variation 2)

Example food chains:

- Sun – aquatic plant – fish – raccoon – vulture
- Sun – grass – grasshopper – preying mantis – bird – cat
- Sun – oak tree – squirrel – fox – decomposing insect
- Sun – flower – bee – spider – mockingbird
- Sun – corn – mouse – snake – hawk

Subjects: language arts, science

Time: 20 minutes

If one part of a food chain is removed, the rest of the food chain will be affected, often negatively. For instance, here is a simple food chain:

plankton – shrimp – small fish – big fish – bears

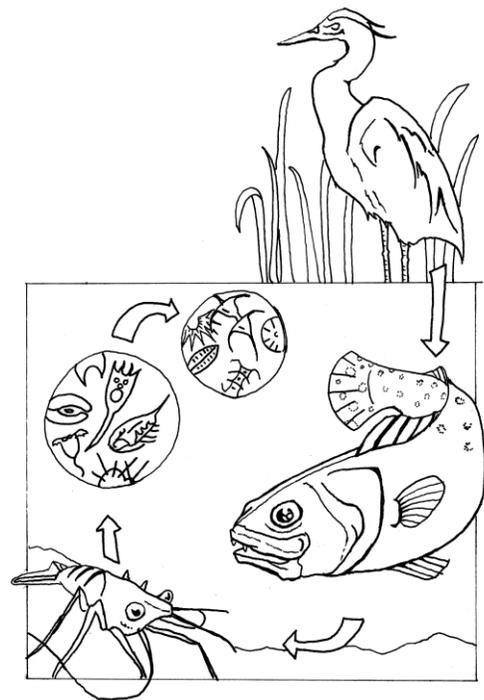
If all of the shrimp were harvested by fisherman, the plankton might grow at extremely high rates since the shrimp are no longer eating them. This could cause an imbalance as the plankton uses all of the resources (space and sunlight) available in the area. On the other end of the food chain, the small fish would start to die because they would not have their main food source to eat. This will affect how much large fish are able to eat and they will also begin to die. And this means that there is less food for the bears.

Getting Ready:

Prepare food chain signs learners can hold or put around their neck with a string.

Procedure:

1. Explain the concept of a food chain to learners. Talk through the progression of a food chain that is easy to understand. Discuss that all animals must eat other organisms in order to live. Plants, however, can make their own food using the energy of the sun, water, and carbon dioxide.
2. Have one child come to the front of the group and be the sun. Put the sign on him or her (he/she can hold it or string it around his/her neck). Then have the child come up and explain the connection until all the learners in the food chain are lined up.
3. Group learners so that there are five to a team.
4. Give each team a set of food chain cards.
5. Explain that each team will need to line up in the correct order of the food chain. The teams will need to figure out the order without speaking. (For older learners, teachers can create a greater challenge by placing the cards on the learners' backs.)
6. Once all teams have decided upon an order, ask them to explain the order to the other groups or you can time them to see how fast they can do it.



Variation 1 – Noisy Food Chains

Instead of having the learners quiet, have them make up an appropriate sound effects or actions related to their sign. To introduce this concept, when the learners come to the front of the class I have them make a particular sound and gesture, for example, the sun goes “Here comes the Sun” while bringing his/her arm from the left to the right over their head. The grass can sway or sing “...and the green grass grows all around, all around and the green grass grows all around”. The animals can make their representative noise and actions.

Variation 2 - Food Web Tag

1. Designate a play area by setting up cones or otherwise marking boundaries. Also mark an area to be the 'Animal Café'.
2. Explain the concept of a food chain to learners. Talk through the progression of a food chain that is easy to understand. Discuss that all animals must eat other organisms in order to live. Plants, however, can make their own food using the energy of the sun, water, and carbon dioxide.
3. Each learner gets a food chain sign/card to wear around their neck.
4. Each learner must try to find and tag an organism (plant/animal) that they can eat (below them on the food chain). They also must try to avoid being 'eaten' and tagged by an organism above them in the food chain.
5. When someone is tagged by someone else directly above them in the food chain (any predator/prey, producer/consumer relationship), they must link arms and walk to the safety of the 'Animal Café'.
6. The goal: eat and avoid being eaten.

Discussion/Assessment:

Discuss the role of different organisms in different food chains.

Have learners line up after all food chains have been made. See if they can 'combine' food chains to create a realistic food web.

See if they can make their own food web/food chain. See who can make the longest.

sun

shrew

spider

corn

hawk

bee

vulture

fish

grass

raccoon

cat

bird

sun

hawk

squirrel

grasshopper

sunflower

mockingbird

preying mantis

aquatic plant

oak tree

sun

grasshopper

sun