Food Web

Purpose: To illustrate the concept of a food web and stress their importance to an ecosystem

Materials:

- A 50·foot rope (kite string will work, but it tangles quickly)
- Organism cards for players
- Set of food web destruction scenarios

Method:

- Explain a food web to the group - a food web is made up of pathways of feeding that connect through a given ecosystem. For example: algae is eaten by bugs: bugs are eaten by fish; fish are eaten by other fish: these are eaten by snakes; snakes are eaten by alligators. Many of us are familiar with the "food chain." The food web goes one step further. There may be many creatures that eat algae, instead of just one.
- Give each person a card with the identity of a plant or animal in a given ecosystem. Plants and insects can have two or more individuals, birds and anoles can be one or two individuals. The predators like spider and hawk should only be one person.
- Have the group form a circle. Start with one end of the rope, ask the group what they think the start of the food web is. Give the person with the beginning card the end of the rope.
- Follow the path of the food web by giving each person a piece of the string as their plant or animal comes up in the web.
- Once all the rope has been used, the group will be able to see how connected everything is.
- Have the group lower the rope to near the ground. Instruct them to keep holding the rope until they feel a slight tug. When they feel the tug, they should let go.
- With the rope lowered, the leader, or a participant, can walk through the circle tangling the rope and destroying the food web. As the leader walks through the web, describe examples of how parts of the web are destroyed.
- Walking through the web illustrates parts of the food web being removed. Since everything is connected, removing parts will make the entire web collapse.

This activity can illustrate the importance of an ecosystem as a whole. Participants should recognize the interconnectedness of life. For older children, mention how bacteria break down tissue into nutrients, which can also become part of your web.

Sample Organism Cards for Food Web

With a small group you can use a few cards, just make sure you choose ones that are connected.

Resurrection fern: shade from trees

Match weed: sun

Milkweed: sun

Passion vine: sun or shade from trees (string to both)

Wild Tamarind/ Lysiloma tree: sun, shade for some plants, birds nest

Live oak: sun, shade for some plants, bird nests, resurrection fern

White peacock butterfly: pollinates and feeds on nectar of match weed

Monarch butterfly: pollinates and feeds on nectar of milkweed20

Zebra longwing: pollinates and feeds on nectar of firebush, larva eats leaves of passion vine

Cassius blue butterfly: larva feeds upon live oak leaves

Sphinx moth: larva eats firebush leaves; adult pollinates and feeds on nectar of firebush

Milkweed bug: feeds only on milkweed sap, reduces seed production

Lady bug: eats aphids

Grasshopper: matchweed, firebush

Aphids: passion vine, milkweed, firebush

Garden spider: white peacock butterfly, zebra longwing, cassius blue butterfly

Anole: white peacock butterfly, zebra longwing, cassius blue butterfly

Mockingbird: eats fruit and disperses seed of passion vine and firebush, nests in Wildt Tamarind lysiloma and Live oak, white peacock butterfly and zebra longwing.

Blue jay: nests in live oak and eats acorns, disperses acorns, nests in lysiloma, sphinx moth, anole, grasshopper

Warbler: cassius blue butterfly, lysiloma moth, migratory bird that does not nest here

Squirrel: nests in live oak and eats acorns, disperses acorns by storing them, grasshoppers, sphinx moth, firebush fruit

Hawk: warbler, mockingbird, blue jay, squirrel

Sample Food Web Destruction Scenarios

1. Milkweed disease suddenly strikes and milkweed dies out.

2. Black olive tree and ixora is planted so two plants that grow in the sun are shaded out. The passion vine is killed by the planting of the ixora. Mocking bird feeds on ixora fruit. Is this a good trade?

3. Firebush is dug for someone's garden - firebush associates die.

4. A cat kills the anole, squirrel and half of the birds at random (except the hawk, which might

5. Pest control kills all of the insects. Remember that some pollinate flowers of match weed, milkweed, and firebush so these plants die out.

6. Ladybugs die so the population of aphids grows and reduces the seed production of plants affected by aphids. One plant dies at random.

7. Brazilian pepper, an invasive exotic plant, crowds out all of the plants except the tall trees.

8. Hurricane knocks down and kills the trees and their epiphytes, sun kills the plants that need shade, one bird and one butterfly species is killed at random

9. Severe drought kills off one fourth of the plants at random.

10. Bulldozer kills all of the plants to build a shopping center so the animals and insects die or move away in search of another home.

Note: Emphasize that hurricanes, droughts and fires are natural events sculpting plant communities. Ecosystems thrive on these natural changes / disruptions as they create mosaics of habitats that increase diversity.

Adapted from Fairchild Tropical Garden: A Living Classroom