Virginia Zoo
Education Department
Pre-Activity Worksheet

Food Webs and Chains

Overview: This activity sheet will familiarize your students with food webs and chains, along with the changes that can happen when parts of the food web are altered.

Why is Studying Food Webs Important: Each animal plays a critical role in their habitats. That role may be as a key part of the food web. The removal or change of any one aspect of the food web in an environment can change the entire structure of an ecosystem.

Vocabulary:

- *Adaptations-* The physical(structural) and behavioral traits that help animals survive.
- *Ecosystem-* The relationship between living(biotic) and non-living(abiotic) things within a certain area.
    - *Niche-* An animal's role within its ecosystem, an animal's "job". For example, a parrot's job or niche is to spread seeds throughout the rainforest by being a messy eater.
    - *Communities-* All living things within a specific area or ecosystem.
    - *Populations-* All animals of the same species living in a specific area or habitat.
- *Flow of Energy-* The movement of energy around an ecosystem by biotic(living) and abiotic(non-living) means.
- *Food Chain-* A representation of the way in which one organism is eaten by another in a single path or flow of energy. The food chain describes who eats whom in the wild.
- *Food Web-* The representation of the often-complex flow of energy through an ecosystem or habitat by showing the predator and prey relationships between animals and plants. A food web consists of all the food chains in a single ecosystem.
    - *Carnivore-* An animal that only eats meat (other animals).
    - *Consumer-* An animal that cannot produce its own food and must eat plants or other animals for energy.
    - *Decomposer-* Organisms that break apart dead organic matter into simpler inorganic materials, "recycling" them into nutrients for producers.
    - *Detritivore-* An organism that feeds on dead and decomposing organic matter.
    - *Herbivore-* An animal that only eats plants.
    - *Omnivore-* An animal that eats both plants and meat (other animals).
    - *Predator-* An animal that is hunting another animal for food.
    - *Prey-* An animal that is being hunted for food by another animal.
    - *Producer-* An organism that makes its own food.

Additional Resources: Learn more about the food web by using the resources below.

- Animeals Videos (https://www.youtube.com/playlist?list=PLUFcuJ3gCvHGt6ftbu261vQT8HgWxa7ME) The videos in this playlist will let you watch some of the animals at the Virginia Zoo get their daily diets. Some of the videos will discuss how we make those diets fun and enriching as well.
- Animeals: Chef's Special (https://www.youtube.com/watch?v=q6HoqwCWAVc&list=PLUFcuJ3gCvHGt6ftbu261vQT8HgWxa7ME&index=15) Learn how our resident chef prepares the diets for our over 700 animals here at the Virginia Zoo.
- Virginia Zoo Animals (https://virginiazoo.org/animals-gardens/) Discover the animals that call the Virginia Zoo home. Each entry should include the natural habitat and diets of each animal.

Try it out!

Use the following worksheets to learn more about the flow of energy in the South American Rainforest.

FOOD CHAINS AND FOOD WEBS

PRE-ACTIVITY

FOOD CHAINS

The term food chain refers to the sequence of events in an ecosystem, where one organism eats another and then is eaten by another organism. For each group of animals below, make a food chain. Draw or write the animal into the correct place in the path and use arrows to show the flow of energy.

EXAMPLE: SUN, LEAVES (PRODUCER), SLOTH (HERBIVORE), BOA (CARNIVORE), COCKROACH (DETRITIVORE)

SUN, FRUIT, TOUCAN, JAGUAR, WORM

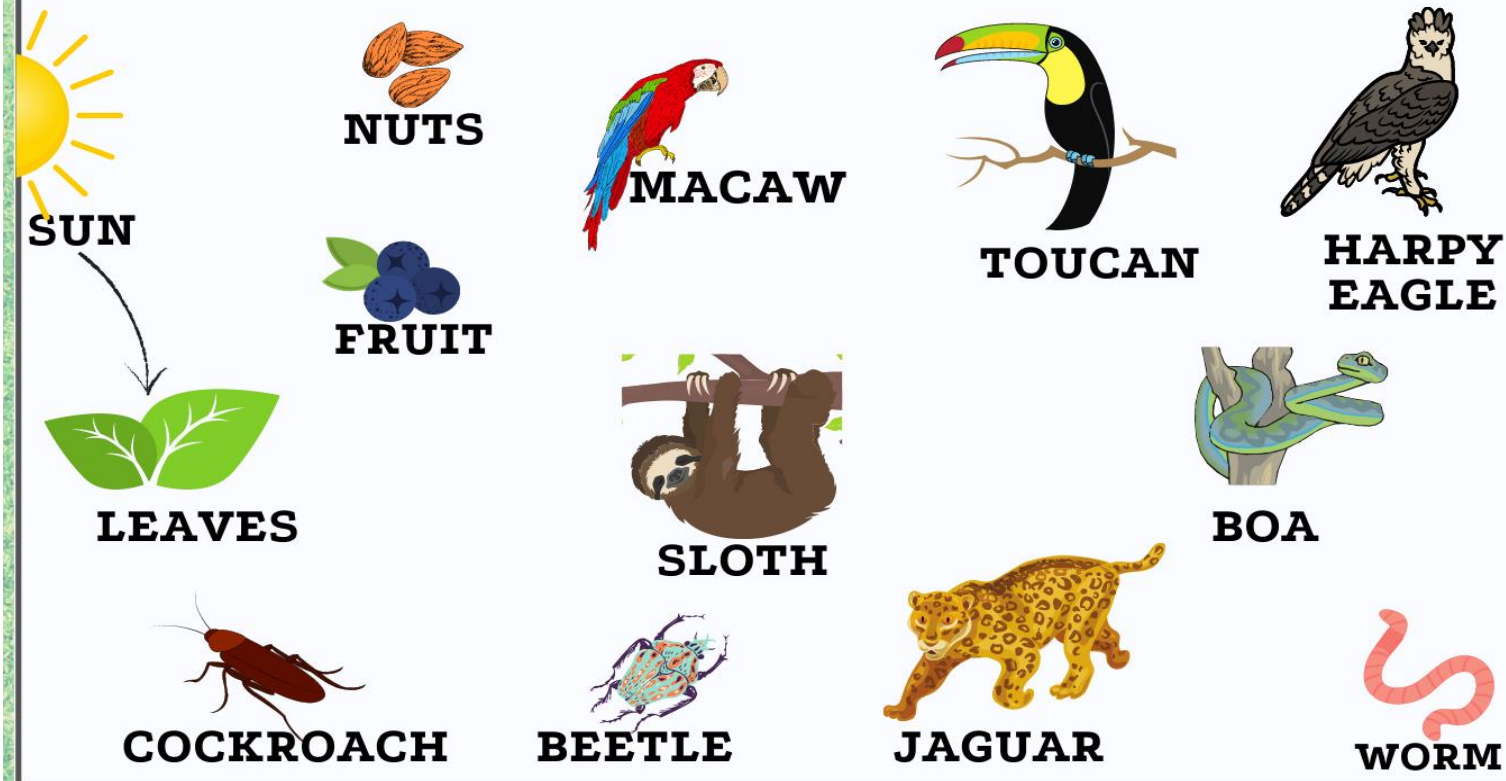
SUN, NUTS, MACAW, HARPY EAGLE, BEETLE

FOOD CHAINS AND FOOD WEBS

PRE-ACTIVITY

FOOD WEBS

Animals in an ecosystem form a food web. Each of the food chains made above, can be placed into a more complex food web. In the illustration below, use arrows to map out the energy transfer between organisms. The first one has been added as an example. Remember, more than 1 arrow can be added to each.



Name two producers in the food web above.

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_____

Name three consumers in the food web above.

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_____

_____

What is the difference between food chains and food webs?

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Virginia Zoo
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Post-Activity Worksheet

Food Chains and Food Webs

Overview: This activity sheet should be completed after attending the "Food Chains and Food Webs" program. We encourage participants to further their understanding of an animal's place within the food web by applying the concepts learned during the pre-activity worksheet and animal presentation.

Put what you learned to the test: Draw or build a food chain with at least one of the animals presented during the program and investigate how these animals may be placed into a food web.

- Follow the instructions on the next page to help you create the food chain for one of the animals presented.
- Keep going by building a web including other animals from the same habitat.
- Examine the ecosystem you have created. How does the energy flow in this ecosystem?

Take what you have learned a step further:

Think of what plants and animals live close to you and draw a food web for a local community near you.

- Remember to begin your flow of energy with the sun.
- What are the producers? Consumers? Decomposers?
- Are there multiple arrows leading to each part of your food web?

You can help your local food webs by getting involved with Community Science.

Community (also known as citizen) science is the practice of the general public being trained on and collecting data for scientific research projects. Community science helps get everyone involved in science and allow scientist to collect more data than they could by themselves. Here are a few great community science projects that you can participate with to help conserve animals and their natural habitats:

- Caterpillars Count!: In 2020, the Virginia Zoo started participating in Caterpillars Count! To help scientists at NC State collect data to answer questions about the effect of climate change on the natural world. Visit https://www.caterpillarscount.unc.edu to learn more about how you can participate in this community science program.

- Project FeederWatch: Do you like bird watching? Then this is the project for you! Join Project FeederWatch to help scientist collect data on bird in your area. Visit https://feederwatch.org/ for more information

FOOD CHAINS AND FOOD WEBS

POST ACTIVITY

FOOD CHAINS

Create a food chain for one of the animals you saw during the animal presentation.

Is your animal a producer, consumer, or decomposer?

_____

FOOD WEBS

Draw a food web with one of the animals presented and any others you may find in that same habitat. Remember energy in a food web begins with the sun.

Are there multiple arrows leading to each part of your food web? What would happen to the food web if something is missing?

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