

Web of Life

Objectives:

1. To be introduced to local and non-local wildlife.
2. To understand the differences between mammals and birds, warm and cold blooded as evidenced by placing animals in the correct category.
3. To improve observation skills related to identification of birds, reptile, amphibians, insects, plants, fungi and mammals.
4. Explain that living things, such as plants and animals, differ in their characteristics, and that sometimes these differences can give members of these groups (plants and animals) an advantage in surviving and reproducing.
5. Look at the food web and identify the different components within it.

Key Vocabulary:

1. **Carnivore** = An animal that lives by eating mainly or completely meat.
2. **Omnivore** = An animal that lives by eating both plants and meat.
3. **Herbivore** = An animal that lives by eating only plant food.
4. **Predator** = An animal that actively hunts down or eat other live animals.
5. **Prey** = An animal that is hunted/eaten for food
6. **Endotherm** = An animal that keeps itself warm through metabolism (warm-blooded animals).
7. **Ectotherm** = An animal whose temperature changes with its surroundings (cold-blooded animals).
8. **Producer** = An organism that produces it's own food through a chemical process, usually photosynthesis (usually if it is a plant or green then it is a producer).
9. **Consumer** = An organism that must consume other organisms for food and energy.
10. **Decomposer** = An organism that breaks down dead plants or animals.

Equipment:

Nature Center displays, bird nests, bones, skulls, feathers, Bird Beak stations and beak tools (see attached suggested stations and tools), thermometers, jars, disposable gloves or plastic bags, large bowl of ice-cold water, shortening (Crisco), spoon, animals and plants comprising a food web with their corresponding information cards (there do not have to be all the animals for one full food web, but make sure there are different plants and animals for the different places in the food web, five to seven stations is good).

Pre-Class Procedures:

1. Assemble needed equipment for Bird Beak game, Blubber Mittens and Food Web subjects.
2. Set up Food Web plants and animals (along with information cards about each) in stations so that students can rotate through in groups to different tables, no need for chairs at the tables since they are only going to be at each station for 3 min.
3. Lay out the different stations for the Bird Beak game outside so that children can rotate easily through the stations. Separate out the tools so that the children will

- be broken into groups of no more than four and so that none of the students in one group will have the same tools.
4. Set large cooler or tray with ice nearby. Set up Blubber Mittens near the experiment to use while the temperatures adjust.

Procedures:

First: Relax and have fun, you don't have to have all the answers; you are facilitating a fun learning experience.

1. Introduction (5min)

- Outside the Nature Center, do introductions and go over rules:
 - Please don't touch the living or dead animals (stuffed).
 - No running or yelling
 - They have 5 min to look around.

2. Vocabulary (5min)

- Review Carnivore, Omnivore, and Herbivore. Have students give examples of each.
 - i. True Carnivores are cats and weasels (they only have sharp cutting teeth for meat).
 - ii. Omnivores are dogs, people, bears, rodents and many more (they have sharp teeth for cutting meat and flat teeth for grinding plants).
 - iii. Herbivores are cows, horses, deer and others (they have teeth designed for grinding up their plant food).
- Review Ectotherm (warm-blooded, making their own body heat) and Endotherm (cold-blooded, needing outside heat to warm their body). Have students give examples of each.
- Review Producer (plants), Consumer (anything that eats), and Decomposer (anything that eats dead stuff)

3. Rotate through the Food Web (15min)

- Divide the students into even groups around the 5-7 different stations.
- Have students fill out the worksheet about each of the different animal or plant subjects they encounter. Drawing a picture or sketch of it in the box.
- Remember that a food chain always starts with the Sun.
- If students are not sure what it is have them read the info card about the animal or plant and look at the definitions again.
- Every three minutes have the students rotate to the next station, until finished.

4. Play beak game (15min)

- Set up four different stations, each with a special "food" that fits one type of beak. Label the stations to tell what type of food is represented.
 - Station 1:** Rice on a log to represent ants or small bugs crawling on wood.
 - Station 2:** Gummy worms in a large coffee can filled with dry oatmeal to represent worms buried in the dirt.

--**Station 3:** Mini-marshmallows thrown up in the air (by an adult) to represent flying insects.

--**Station 4:** Mini-marshmallows inside a log to represent insects in wood.

- Explain to the students that all animals have adaptations that help them survive in the Food Web. Have the students brainstorm some adaptations that different birds have (ability to fly, beaks for different purposes, feet for different purposes). Describe some of the great variety of body plans and internal structures other animals and plants have that contribute to their being able to make or find food and reproduce.
- Break the students into groups of four and give each one in a group a different tool to use. Use tweezers, chopsticks, kitchen strainers, and nutmeat picks for the activities. The each student will have their tool and they will use it for the remainder of the activities. If there are 3 in a group you can eliminate any of the other tools except the strainer and still complete the activities with some degree of success.
- Line up the teams.
- Tell them it is a timed race against the other groups you will see and you are timing how long it takes everyone to get done.
- Each person can only do one task each (unless the team as less than 4 then someone will have to do 2 tasks).
- The team must decide before the game begins who is doing what task and line up to do station 1-4 in order.
- Once someone completes their station the next person can not go until they are tagged and a team does not win until they are all back.
- Discuss with all of them which tool they found the most successful at each station and why? Also ask them to identify birds they know that may use their bills in the same way.
 - Tweezers = Nuthatches and creepers eating bugs under bark and rocks.
 - Chopsticks = Woodcock and birds on the sea shore eating worms.
 - Kitchen strainer = Nighthawk, whippoorwill and pelican eating bugs and fish.
 - Nutmeat pick = Woodpeckers eating bugs inside wood.

Conclusion: (10min)

5. Play Food Web Game

- Form the group in a circle. Hand out name cards, one to each person. Introduce the terms consumer, producer, decomposer, food web and food chain.
- Have each person go around and say their animal and whether it is a producer, consumer, decomposer and predator or prey.
- Give ball of string to someone and have them hold the string and choose someone who is holding a card that affects them. The ball of string is then passed to that person (the first person keeps hold of the loose end of the string). Example: wolf (predator/consumer) throws it to a deer (prey/consumer). Repeat this as often as you wish. As the string gets passed

from one student to another they should identify if they are the predator or the prey (or decomposer) and what the person they are throwing it to is in relation to themselves.

Optional:

You might choose to do one or both of the optional closing activities.

1. Play a review game of mammals and birds (5 min)

- Divide the group into two sections. One group will be the “Birds” and the other will be the “Mammals”. Designate 2 “bases” or trees that the students will be running to. The instructor calls out two feature, designating one tree with one feature and the other tree with the other feature (one tree is warm-blooded and the other is cold-blooded, then the kids run to the tree that has a feature that is relevant to them; in this example the “Birds” and the “Mammals” should run to the warm-blooded tree). This game can be adopted for other classifications. If there are kids that seem to be at the wrong tree ask them why they went to that tree, or maybe include a tree that is designated as “Both” (“Live young and Eggs” for instance there are at least 2 mammals that lay eggs, platypus and spiny anteater, so both Mammals and Birds have animals that lay eggs, but there are not birds that have live young; so Mammals could run to the “Live young” tree and the “Both” tree but birds would just be at the “Eggs” tree).

-Fur and Feathers

-Teeth and Beak

-Fly and Not Fly

-Vertebrate and Invertebrate

-Live young and Eggs

-Meat-eater and Plant-eater

2. Take a short hike (10min)

- Have the students point out different examples of the vocabulary words we discussed (from the beginning of the lesson).

Standards:**Indiana-Science****2nd Grade**

- 2.4.1 Observe and identify different external features of plants and animals and describe how these different features help them survive in different environments.
- 2.4.3 Observe and explain that plants and animals both need to take in water, animals need to take in food, and plants need light.
- 2.5.6 Explain that sometimes a person can find out a lot (but not everything) about a group of things, such as insects, plants, or rocks, by studying just a few of them.

3rd Grade

- 3.4.1 Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group.
- 3.4.2 Explain that the features used for grouping depend on the purpose of the grouping.
- 3.4.4 Describe that almost all kinds of animals' food can be traced back to plants.
- 3.4.6 Explain that people need water, food, air, waste removal, and a particular range of temperatures, just as other animals do.

4th Grade

- 4.4.2 Investigate, observe, and describe that insects and various other organisms depend on dead plant and animal material for food.
- 4.4.3 Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
- 4.4.4 Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
- 4.4.5 Observe and explain that most plants produce far more seeds than those that actually grow into new plants.
- 4.4.6 Explain how in all environments, organisms are growing, dying, and decaying, and new organisms are being produced by the old ones.

5th Grade

- 5.3.10 Investigate that some materials conduct heat much better than others, and poor conductors can reduce heat loss.
- 5.4.6 Recognize and explain that most microorganisms do not cause disease and many are beneficial.
- 5.4.7 Explain that living things, such as plants and animals, differ in their characteristics, and that sometimes these differences can give members of these groups (plants and animals) an advantage in surviving and reproducing.

6th Grade

- 6.4.1 Explain that one of the most general distinctions among organisms is between green plants, which use sunlight to make their own food, and animals, which consume energy rich food.
- 6.4.2 Give examples of organisms that can not be neatly classified as either plants or animals, such as fungi and bacteria.

- 6.4.3 Describe some of the great variety of body plans and internal structures animals and plants have that contribute to their being able to make or find food and reproduce.
- 6.4.8 Explain that in all environments, such as freshwater, marine, forest, desert, grassland, mountain, and others, organisms with similar needs may compete with one another for resources, including food, space, water, air, and shelter. Note that in any environment, the growth and survival of organisms depend on the physical conditions.
- 6.4.9 Recognize and explain that two types of organisms may interact in a competitive or cooperative relationship, such as producer/consumer, predator/prey, or parasite/host.
- 6.4.10 Describe how life on Earth depends on energy from the sun.

Michigan- Science

2nd Grade

L.OL.02.14 Identify the needs of plants.

3rd Grade

L.OL.03.32 Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, claws).

L.EV.03.12 Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body covers).

4th Grade

L.OL.04.15 Determine that plants require air, water, light, and a source of energy and building material for growth and repair.

L.OL.04.16 Determine that animals require air, water, and a source of energy and building material for growth and repair.

L.EC.04.11 Identify organisms as part of a food chain or food web.

L.EC.04.21 Explain how environmental changes can produce a change in the food web.

6th Grade

L.OL.06.51 Classify organisms (producers, consumers, and decomposers) based on their source of energy for growth and development.

L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.

L.EC.06.21 Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).

L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.

L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.

Web of Life Review Sheet

Station 1:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

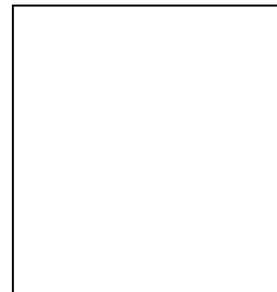
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

**Draw Picture
Here**



Station 2:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

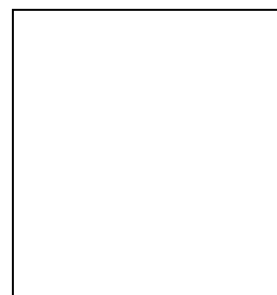
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

**Draw Picture
Here**



Station 3:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

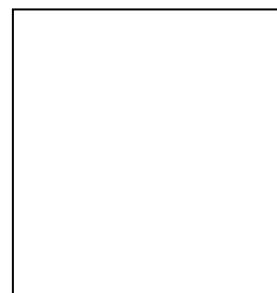
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

**Draw Picture
Here**



Station 4:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

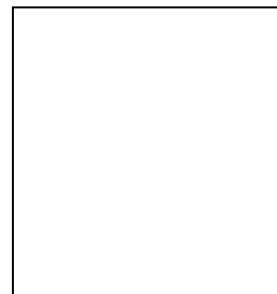
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

**Draw Picture
Here**



Station 5:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

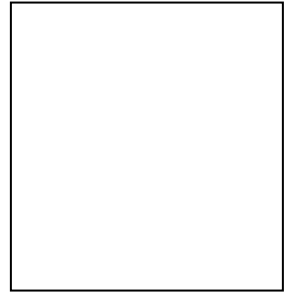
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

Draw Picture Here



Station 6:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

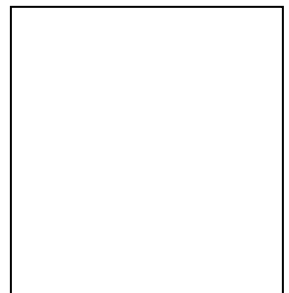
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

Draw Picture Here



Station 7:

(Circle one) It is a: **Producer** **Consumer** **Decomposer**

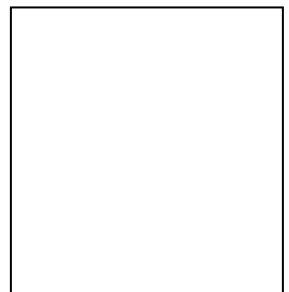
Is it a Predator: **Yes or No** Is it: **Warm or Cold Blooded**

(Circle one) Is it a: **Carnivore** **Omnivore** **Herbivore** **Plant**

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

Draw Picture Here



Where are humans in the food chain? _____ → _____ → **COW** → _____ → _____

What special adaptations or abilities do we have that help us to be in there on the food chain? (Think about it, I can count them on my fingers or say them out loud, hint hint).

Answer Example

Station 5:

(Circle one) It is a: Producer Consumer **Decomposer**

Is it a Predator: **Yes** or No Is it: Warm or **Cold Blooded**

(Circle one) Is it a: Carnivore Omnivore **Herbivore** Plant

Show a food chain with the plant or animal in it.

sun → plant → hissing cockroach → _____

Draw Picture Here

Hissing
cockroach

Station 6:

(Circle one) It is a: Producer Consumer Decomposer

Is it a Predator: Yes or No Is it: Warm or Cold Blooded

(Circle one) Is it a: Carnivore Omnivore Herbivore Plant

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

Draw Picture Here

Station 7:

(Circle one) It is a: Producer Consumer Decomposer

Is it a Predator: Yes or No Is it: Warm or Cold Blooded

(Circle one) Is it a: Carnivore Omnivore Herbivore Plant

Show a food chain with the plant or animal in it.

_____ → _____ → _____ → _____ → _____ → _____.

Draw Picture Here

Where are humans in the food chain? _____ → _____ → COW → _____ → _____

What special adaptations or abilities do we have that help us to be in there on the food chain? (Think about it, I can count them on my fingers or say them out loud, hint hint).

Intelligence