

Animal Classifications and Food Chains (So What's Eating You?)

Grade Level: First Grade

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Length of Unit: Four Lessons (Even though there are only four lessons, the number of days required for each lesson will be widely varied. An estimated time of completion would be two weeks.)

I. ABSTRACT

This first grade unit will cover special classifications of animals and their place in the food chain. The students will learn how plants and animals are all parts of a gigantic puzzle in which the pieces all fit together, but like a kaleidoscope, are forever changing. The puzzle pieces we will study are plants, herbivores, omnivores, and carnivores and how all these pieces fit into food chains.

II. OVERVIEW

A. Concept Objectives

1. Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment. (C.S.S. #3)
2. Students know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and with their environment. (C.S.S. #3.1)
3. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations. (C.S.S. #1)

B. Content

1. Food chains
2. Plants
3. Herbivores
4. Omnivores
5. Carnivores

C. Skills

1. Students will be able to choose and match appropriate definitions with the correct vocabulary words.
2. Students will be able to comprehend word meanings.
3. Students will be able to tell in their own words all the key vocabulary words.
4. Students will be able to identify and differentiate between a food chain and a food web.
5. Students will be able to track through a food chain cycle by describing and replicating each sequential step.
6. Students will be able to comprehend the overall big picture that food chains play in our environment.
7. Students will be able to explain the roll that plants and animals specifically play in the food chain pyramid.
8. Students will predict outcomes in experimentation.
9. Students will identify the processes involved with the interactions between plants, nutrients, water, soil, air, and sunlight.
10. Students will be able to differentiate between predator and prey.
11. Students will be able to identify the different animal classifications by the characteristics of their teeth.

12. Students will demonstrate an understanding of the inter-dependence of animals within ecosystems through role -playing and in environmental simulation.

III. BACKGROUND KNOWLEDGE

- A. For the teacher:
 1. Nature's Great Balancing Act in our Own Backyard, by E. Jaediker Norsgaard
 2. What are Food Chains and Webs?, by Bobbie Kalman and Jacqueline Langille
 3. The Food Chain, by Malcolm Penny
- B. For the student:
 1. Prior knowledge of kindergarten content:
 - a. Plants and Plant Growth
 - b. Animals and their Needs

IV. RESOURCES

- A. Nature's Great Balancing Act in our Own Backyard, by E. Jaediker Norsgaard
- B. What are Food Chains and Webs, by Bobbie Kalman and Jacqueline Langille
- C. The Food Chain, by Malcolm Penny

V. LESSONS

Lesson One: Vocabulary Introduction (Days One and Two)

- A. *Daily Objectives*
 1. *Lesson Content*
 - a. This lesson will be an introduction of the key vocabulary of animal classifications and food chains.
 2. *Concept Objectives*
 - a. Students know and understand the characteristics of living things the diversity of life, and how living things interact with each other and with their environment. (C.S.S. #3.1)
 3. *Skill Objectives*
 - a. Students will be able to choose and match appropriate definitions with the correct vocabulary words.
 - b. Students will be able to comprehend word meanings.
 - c. Students will be able to tell in their own words the key vocabulary.
- B. *Materials Needed*
 1. A food chain pictorial display, i.e. a poster, a chart, or a bulletin board display that clearly depicts and defines the food chain process
 2. Various colors of paper cut into strips
 3. Two large paper bags, one labeled "WORD" and one labeled "DEFINITION"
 4. Book: *Yum, Yum!*
- C. *Background Notes*
- D. *Key Vocabulary*
 1. Food chain – A chain of living things in which each link in the chain feeds on a link below it and is fed upon by the link above it.
 2. Food web – Two or more food chains that connect when a member of one food chain eats a member of another food chain and becomes the total combination of all the individual food chains.
 3. Herbivores – Animals that eat plants.
 4. Omnivores – Animals that eat both plants and animals.

5. Carnivores– Animals that eat other animals.
6. Producers– Green plants which are the first food makers in a food chain.
7. Consumers – Living things that must eat other living things for food and energy.
8. Primary consumer – A consumer on the first level of the food chain.
9. Secondary consumer – A consumer on the second level of the food chain.
10. Tertiary consumer – A consumer on the third level of the food chain.
11. Quaternary consumer – A consumer on the fourth level of the food chain.

E. *Procedures/Activities*

1. Activity One: Cumulative Introduction
 - a. Use the pictorial display to introduce the vocabulary and give an overall picture of the content. Cover the content of the background notes to describe an overall picture of the food chain.
2. Activity Two: Vocabulary Introduction
 - a. Read and discuss the book, *Yum, Yum!*, and review the vocabulary.
 - b. Play the vocabulary game as described in the subsequent steps.
 - c. Write the vocabulary word and the definition on a strip of paper.
 - d. Cut the vocabulary word apart from the definition so when the children match them, the colors of the words and the definitions will go together.
 - e. Put all the definition strips in one paper sack labeled “Definitions” and all the vocabulary words in another sack labeled “Words”.
 - f. Have one child come and draw a vocabulary word.
 - g. Ask another child to draw a definition. If they match, place them together in a pocket chart or find some way to display them.
 - h. Continue until all the vocabulary and definitions have been completed.

F. *Evaluation/Assessment*

1. Teacher observation.

G. *Standardized Test/State Test Connections*

1. Students know and understand the characteristics of living things the diversity of life, and how living things interact with each other and with their environment. (C.S.S. #3.1)

Lesson Two: Food Chains and Food Webs (Days Three, Four, and Five)

A. *Daily Objectives*

1. *Lesson Content*
 - a. Lesson two will include the content of food chains, food webs and the inter-relational processes that occur between the composite characteristics of all segments involved.
2. *Concept Objectives*
 - a. Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment. (C.S.S. #3)
3. *Skill Objectives*
 - a. Students will be able to identify and differentiate between a food chain and a food web.
 - b. Students will be able to track through a food chain cycle by describing and replicating each sequential step.
 - c. Students will be able to comprehend the overall big picture that food chains play in our environment.
 - d. Students will be able to explain the role that plants and animals specifically play in the food chain pyramid.

B. *Materials Needed*

1. Yellow hula hoop
2. Yarn
3. Construction paper in these colors: green, yellow, red, blue, and purple
4. Glue
5. Markers

C. *Background Notes*

D. *Key Vocabulary* (All Key Vocabulary for this lesson is listed in Lesson One)

E. *Procedures/Activities*

1. Activity One: Food Chain Pyramid

- a. In preparation before class, take ten clean, empty milk cartons (quart or half-gallon size is best) and measure one edge (from point to point) of the bottom of a carton. Measure that same distance again up the side of the carton from the side of the bottom and mark that. Measure the same distance again from the mark and mark that. Cut a carton all the way around at each mark, until you have two square-shaped boxes (one will be open at both ends).
- b. Take the box that is opened at both ends, turn it sideways and stuff it into the other box to make a cube. Tape both ends closed.
- c. Repeat with the other cartons until you have ten cubes or “blocks”. If desired, and for easier decorating, wrap each box with scrap drawing paper (like a gift).
- d. Take four of the blocks and decorate with pictures of the sun on all sides.
- e. Take three blocks and decorate with pictures of grass, plants and seeds cut from magazines or drawn with markers.
- f. Take two blocks and decorate with pictures of plant-eating animals, such as people, rabbits, mice, cows, squirrels, chickens, etc.
- g. Take the last block and decorate with pictures of meat-eating animals, such as people, owls, hawks, foxes, etc. (*As an extension, instead of the teacher preparing and decorating the blocks, the children could decorate the pyramid blocks.)
- h. After completing the set of blocks, let your children build a food chain pyramid: the four sun blocks act as the base, three plant blocks on top of those, two plant-eater blocks next, and finally the meat-eater block on top. Explain to your class why the blocks are arranged this way.
- i. Manipulate the pyramid, make observations and discuss with the children the scenario possibilities in the food chain pyramid. Possible questions could be:
 - 1) *What happens if you take away a plant block from the pyramid?* (The pyramid, or at least part of it, will collapse.)
 - 2) *What happens when you take a sun-block away?*
 - 3) *Does the pyramid collapse if you take away the meat eaters?* (Blocks do not fall, but it is no longer a pyramid.)
 - 4) *Why are meat-eaters important to the food chain?* (To keep the plant-eaters from overpopulating an area and eating all the plants.)
- j. Explain to your children that this pyramid of many plants, fewer plant-eaters and even fewer meat-eaters is how nature maintains population in any given area.

2. Activity Two: Create a Food Chain

- a. Read and discuss the book, *Hungry Animals*.
- b. Discuss several different variations of food chains. Here are some examples:
 - 1) Coral Reef Food Chain- phytoplankton (producer/plant) to zooplankton (herbivore) to parrot fish (omnivore) to barracuda (carnivore)
 - 2) Rain Forest Food Chain – forest plants, moth (herbivore) to frog (omnivore) to snake (carnivore)

- 3) Fresh Water Food Chain – water plant (producer) to snail (herbivore) to fish (omnivore) to eagle (carnivore)
- c. Cut one inch wide strips of colored construction paper, one color for each category. Make enough so each student will have one of each of these colors:
 - 1) plants – green
 - 2) herbivores (plant eaters) – blue
 - 3) omnivores (plant and animal eaters) – purple
 - 4) carnivores (animal eaters) – red
 - 5) sun connection - yellow
 - d. Have the children draw or paste cutout pictures on the strips of a food chain they choose to depict using plants, herbivores, omnivores, and carnivores.
 - e. When completed, show everyone the yellow hula hoop as a representative of the sun. Ask everyone to look carefully at their food chains and decide if the sun needs to be added to them. (YES!!)
 - f. Let the children link their food chains to your large ring with yellow strips.
 - g. Next display the chains by hanging them (with the sun in the middle) to create a food chain canopy.
 - h. Look carefully at all the food chains to see if any of the independent food chains can be linked together to create a food web.
 - i. To link the food chains together, run yarn from one link to another so that the web will hang nicely when completed.
- F. *Extension Activity*
1. Using the class model created by the children, discuss and apply the terms producer, primary consumer, secondary consumer, tertiary consumer, and quaternary consumer.
- G. *Evaluation/Assessment*
1. Create a grading rubric for the food chains the students complete.
 2. Have the students draw and explain a food chain.
- H. *Standardized Test/State Test Connections*
1. Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment. (C.S.S. #3)

Lesson Three: Plants (Day Six to assemble, but more than that to actually observe.)

A. *Daily Objectives*

1. *Lesson Content*
 - a. Plants:
 - 1) Nutrients
 - 2) Water
 - 3) Soil
 - 4) Air
 - 5) Sunlight
2. *Concept Objectives*
 - a. Students understand the processes of scientific investigation and design, conduct, communicate about and evaluate such investigations. (C.S.S. #1)
3. *Skill Objectives*
 - a. Students will predict outcomes of the experiment.
 - b. Students will identify the processes involved with the interactions between plants, nutrients, water, soil, air, and sunlight.

B. *Materials*

1. Six lima beans
2. Three containers
3. Soil
4. Dark area and bright area
5. One jar
6. Two pieces of lined paper (8 1/2 x 11)
7. One piece of construction paper (8 1/2 x 11)
8. Stapler
9. Pencil/crayons

C. *Background Notes*

D. *Key Vocabulary*

1. photosynthesis – making things from light
2. chlorophyll – the green chemical in a plant
3. oxygen – a colorless, odorless gas that is part of air and which humans, animals, and plants need to breathe in order to survive.
4. carbon dioxide – a colorless, odorless gas that plants give off and is part of the air

E. *Procedures/Activities*

1. Activity One: Vocabulary Book
 - a. Give each child one piece of construction paper and two pieces of lined paper.
 - b. Fold in half to make a book.
 - c. Staple together.
 - d. Write the vocabulary word and discuss possible meanings.
 - e. Look up the words in the dictionary.
 - f. Write definition of word or draw a picture of it, whatever applies.
 - g. Make a cover for the book.
 - h. Either talk about or practice the words daily so the students may become familiar with them.
2. Activity Two: Plant Experiment
 - a. Soak seeds in water overnight.
 - b. Place two seeds in each of the three containers.
 - c. Place one container in a dark place and the other two containers in a light place.
 - d. Water the soil of the container in the dark and only one of the containers in the light when they get dry. Do not water the soil of the other container in the light
 - e. Have the children predict by drawing what they think will happen in each container.
 - f. After one to two weeks, look at each plant. See if the children's predictions were correct.
 - g. Separate one seedling from each container and look at the root system.
 - h. Talk about photosynthesis (plants using light to make food).
 - i. Place the unhealthy plants in the sun, adding water when needed and after one week see if there are any changes.
 - j. Put all the healthy plants into one container and put a jar over the plants overnight. Condensation will collect in the jar. This is water vapor emitted by the plant when it exchanges water for carbon dioxide.

F. *Evaluation/Assessment*

1. Draw a picture showing what a plant would look like that had enough food and water. In contrast draw a plant that has not had enough sun and water. Dictate a sentence that summarizes what they learned about plants.

G. *Standardized Test/State Test Connections*

1. Students understand the processes of scientific investigation and design, conduct, communicate about and evaluate such investigations. (C.S.S. #1)

Lesson Four: Herbivores, Omnivores, Carnivores (Days Seven, Eight, Nine, and Ten)

A. *Daily Objectives*

1. *Lesson Content*

- a. This lesson addresses the roles and relationships herbivores, omnivores, and carnivores play in the food chain.

2. *Concept Objectives*

- a. Students know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and with their environment. (C.S.S. #3.1)

3. *Skill Objectives*

- a. Students will be able to differentiate between predator and prey.
- b. Students will be able identify the different animal classifications by the characteristics of their teeth.
- c. Students will demonstrate an understanding of the interdependence of animals within ecosystems through role playing in an environmental simulation.

B. *Materials*

1. Paper
2. wildlife magazines suitable to cut up
3. scissors
4. safety pins
5. glue
6. construction paper
7. bulletin board/ butcher paper
8. paper bags (4"x 8")
9. pictures of various animals
10. red modeling clay
11. popcorn kernels
12. black and brown crayons

C. *Background Notes*

D. *Key Vocabulary*

1. Herbivore – animals that eat plants.
2. Omnivore – animals that eat both plants and animals
3. Carnivore – animals that eat other animals (flesh-eaters)
4. Producer - a green plant, which is a food producer in a food chain
5. Consumer – animals that eat other living things.
6. Digest – break down
7. Browsing – eating leaves and shrubs
8. Grazing – eating grass and other ground plants
9. Camouflage – a disguise or behavior an animal uses to hide itself or fool an enemy
10. Predator – animals that catch and kill other animals

11. Prey – the animal that a predator catches and/or kills

E. *Procedures/Activities*

1. Activity One: Prey/Predator Game

- a. Explain a hunting animal uses their skill to try to catch their prey. The prey tries to escape by using different defenses. This struggle is one of the factors that control animal population. When the prey population declines, many predators die. Then the prey population will grow again so the food chain will stay balanced. The whole idea is a successful predator lives to reproduce and their numbers will expand. A fast, elusive prey will reproduce and their numbers will expand.
- b. Find a rectangular play area.
- c. Select one third of the group to be predators and the rest are prey.
- d. The predators stand in the middle. When a signal is given the prey run from one side of the field to the other.
- e. The prey that are caught join the predators.
- f. The prey that make it, pick a predator that didn't catch any prey.
- g. If all the predators caught someone then the prey just runs again without picking anyone.
- h. If all the prey team is caught they become extinct and the game is over.
- i. If the predators are wiped out then just chose prey to replace them.

2. Activity Two: Herbivore, Carnivore, Omnivore Game: *Can You Guess Who I Am?*

- a. Create enough animal picture cards for each student in the class.
- b. Pin one card per child on their back.
- c. Call one child up and have that child ask "yes" and "no" questions of the students in the class as they try to figure out what animal they are. For example:
 - 1) Am I a carnivore?
 - 2) Am I larger than a squirrel?
 - 3) Do I have a large mouth?
- d. When the child correctly guesses what animal he/she is choose another student to be "it".

3. Activity Three: Herbivore, Carnivore, Omnivore Mural

- a. The students will be creating a classroom mural that will display pictures cut from wildlife magazines according to their category.
- b. Briefly review with the class different types of herbivores. For example, rabbits, camels, elephants, cows, horses, buffalo, zebras, mice, hippos, rhinos, and deer.
- c. Cut a large piece of butcher paper and label at the top in large block letters **HERBIVORES**.
- d. Have the children look through the wildlife magazines. As they find a herbivore picture, have them explain to you what the animal is and verify whether or not it is a herbivore.
- e. The child will then glue the picture to the mural.
- f. Complete the activity by repeating the above steps with omnivores and carnivores.

4. Activity Four: Animal Teeth

- a. Bring in pictures of teeth and have the children tell whether they belong to an omnivore, herbivore, or carnivore.
- b. Use the paper bag and lay it down with the flap facing you.
- c. Draw a raccoon's face on the top part of the bag.
- d. Lift the flap and glue two strips of clay on the bag; one on the top and one on the bottom. These will be the raccoon's gums.

- e. Place corn kernels in the clay to be the raccoon's teeth. The front teeth will be sharp and the back teeth will be smooth and round. To make sharp teeth, place the round edge of the kernel in the clay. To make the round teeth, place the pointed edge of the kernel in the clay.

F. *Evaluation/Assessment*

1. Create a grading rubric for animal teeth.

G. *Standardized Test/State Test Connections*

1. Students know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and with their environment. (C.S.S. #3.1)

VI. CULMINATING ACTIVITY

- A. Trip to the zoo. Discuss all the animal characteristics described in this unit along with habitats, resident continent, endangered species, etc.

VII. HANDOUTS/WORKSHEETS – None

VIII. BIBLIOGRAPHY

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