

Dear Teachers,

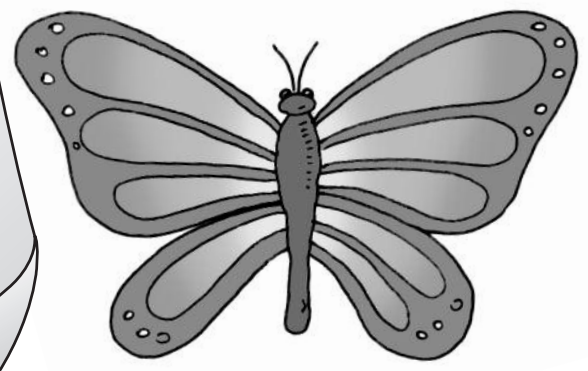
The following pages have been designed with you in mind. Flip through this book to find exciting, hands-on ideas for teaching about food chains with a pocket chart! (LER 2206)

Pocket Chart Science – Food Chains has been developed to provide creative teaching ideas and reproducible activities to support the use of a pocket chart. Suggested activities are designed to attract all types of learners. They encourage listening, speaking, observing and manipulating words and pictures to teach children how energy passes from one living thing to another. In addition, this book contains 162 ready-to-use cards to aid you in teaching about food chains and food webs. The cards display illustrated pictures and/or words to use within each lesson, and are color-coded for handy organization. For easy reference, a Cards-At-A-Glance chart is located in the back of the book. It shows what is pictured and provides labels for the types of living things on each card. Also included is a Reading List to help you build a classroom library filled with food chain concepts.

This book quickly becomes a compact storage file! Tear out the sheets of cards along the perforated lines. Laminate the cards for extra durability, cut them, and store them in the pocket provided on the back cover of the book. As you use them, tear out the blackline master pages for photocopying, then use the folder pocket on the inside front cover for storage.

Pocket Chart Science

Food Chains

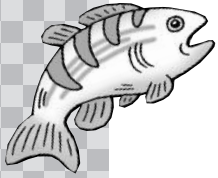


Introduction Strategies:

1. Do an introductory art activity with the class. Cut out a strip of construction paper for each student, and have each child write his or her name on it. Encourage students to write down something they already know about food chains, or a question about food chains they would like to have answered during this unit. Then have students link and glue the strips together, and hang your classroom chain in a highly visible place. Let this project serve as a visual reminder of the links in a food chain during this unit. When the unit is finished, invite kids to read their questions and see if they can provide the answers.
2. Ask children if they have ever observed an animal eating something. Have them share examples with the class (a robin eating a worm, a squirrel eating seeds, a cow eating grass, or a spider eating a fly). Then ask, "What benefits do animals get from eating?" (Students may respond that eating makes them stronger, or helps them grow and live longer.) Explain that animals eat other animals or plants in order to survive. The plant or animal they eat provides energy for them to live. Such examples are links in what is called a **Food Chain**. All living things are "linked" together in various food chains, and each plays an important part in passing energy from one living thing to another.

Teaching Notes: Ecosystems

Cards needed: (E)



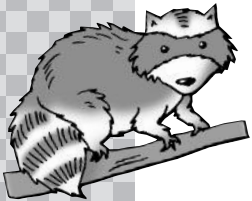
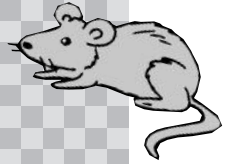
Ecosystems	Freshwater	Prairie	Desert	Backyard
Savannah	Rainforest	Forest	Ocean	

Presenting the concept:

Place the *Ecosystems* title card in the pocket chart. (You may want to write the definition **bolded** below on sentence strips and place it in the pocket chart as you read.)

Ask children, "What is an **ecosystem** (EE-co-SIS-tem)?" Take all answers, then explain, "**an ecosystem is an area that includes all the living and natural non-living things within it** (animals, plants, rocks, soil). All living things play an important role within their ecosystem." Ask children to name an ecosystem. Use the subtitle cards shown above to help you display various ecosystems in the pocket chart as you say, "Examples are **rainforests, deserts, prairies, freshwater ecosystems, oceans, savannahs, forests**, or even your own **backyard!**" Talk about what each ecosystem provides for the living things within it (food, homes, and protection). Use picture cards to show an animal or plant that lives in each ecosystem.

Note to teacher: Ecosystems are labeled by color icons on each picture card. The plants and animals chosen in this book are "typical" to the ecosystem in which they live. Some living things may be found in more than one ecosystem, however. Be sure to discuss other possibilities for each ecosystem, as there are additional living things which have not been pictured.



Freshwater: red ☀️

Backyard: orange ☀️

Savannah: yellow ☀️

Rainforest: lime green ☀️

Prairie: dark blue ☀️

Forest: light pink ☀️

Desert: purple ☀️

Ocean: light blue ☀️

Other classifications indicated with an icon are:

Scavengers and Decomposers: black ☀️

Adaptations and Survival Terms: hot pink ☀️

Humans in food Chains: green ☀️

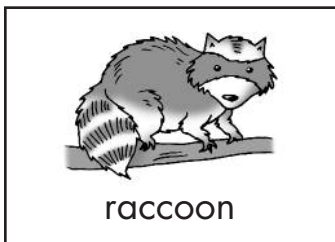
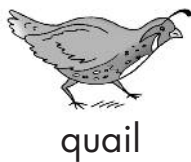
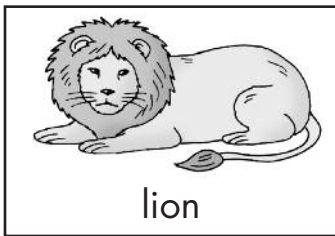
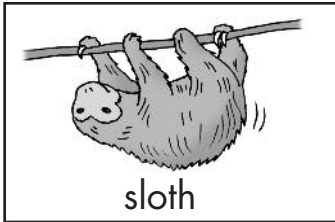
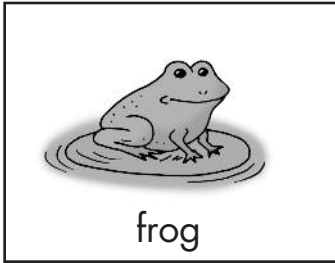


Name _____

Activity 1

Ecosystems

Directions: Draw a line from each picture to the ecosystem in which it lives.



savannah

desert

backyard

forest

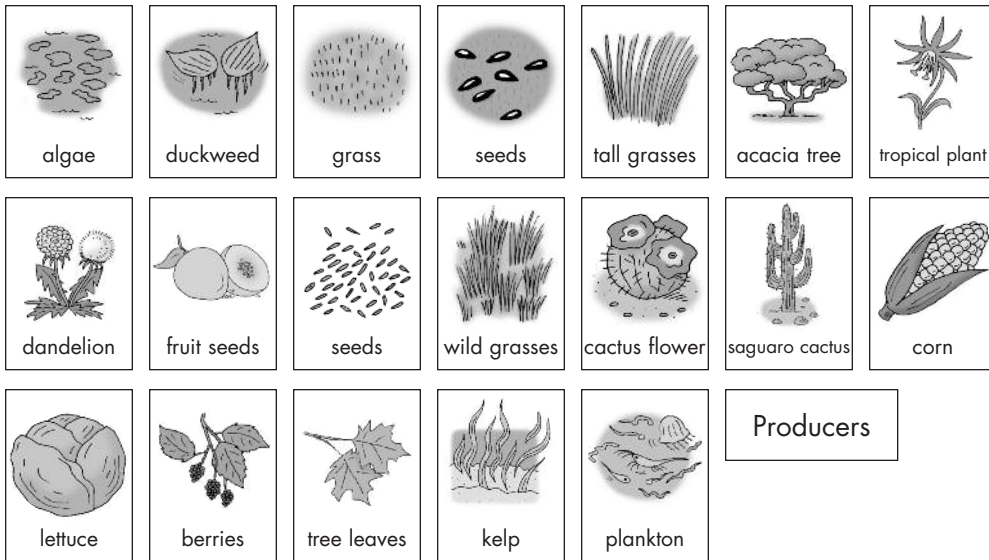
ocean

freshwater

rainforest

Teaching Notes: Producers

Cards needed:(from all ecosystems)



Background information:

Every living thing needs energy to survive. **Nutrients** (NU-tree-ents) are substances found in food that promote good health and growth, and give us **energy** (EN-er-gee). Energy allows us to move and breathe, which we need to do to survive. Imagine how dull the world would be if nothing moved!

Plants are interesting life forms. They are the only living things that make their own food. **Chlorophyll** (CLOR-o-fil), the green material in their leaves, catches the energy of the **Sun**. When water from the ground and carbon dioxide from the air combine with the Sun's energy, a plant undergoes a process called **photosynthesis** (FO-toe-SIN-thuh-sis). This process allows plants to produce sugar as food. Because they are the only living things to make (or produce) their own food, they are called **producers** (pro-DO-serz). Because they make their own food, producers are always the first thing eaten, or the first source of energy in any food chain. Oftentimes, animals eat the "products" of a producer: the seeds, leaves, fruit, and flowers of the plant.

Presenting the concept:

Place the title *Producers* in the top of the pocket chart. Pass out the picture cards shown above, plus a few others, to students. Invite them to name what is pictured on the card they are holding, and to place it in the pocket chart if it is a producer. When every student has had a chance to participate, review the term **producer** and the pictures in the pocket chart together.

Follow-up activity:

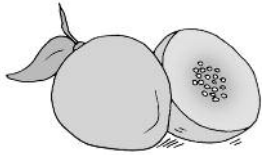
Read books and show videos about plants. Invite children to make posters on the process of photosynthesis. Review the bold vocabulary words, asking students to illustrate a plant and label the parts that are involved in the food-making process (Sun, leaves, chlorophyll, carbon dioxide, sugar).

Name _____

Activity 2

Producers

Directions: Look at the pictures below. Put an X through the living things that do not produce their own food.



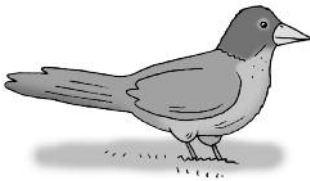
fruit



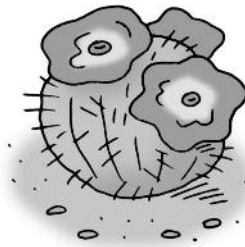
algae



wildebeest



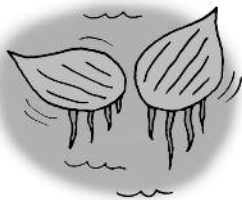
robin



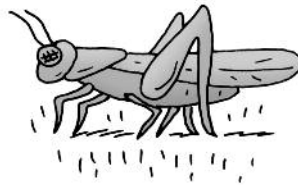
cactus



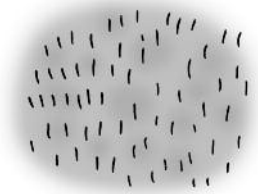
acacia tree



duckweed



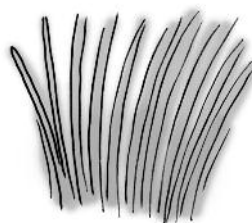
grasshopper



grass



tropical plant



tall grasses












fish









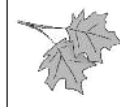
Teaching Notes: Consumers

Cards needed:

orange (☀️) Backyard

 raccoon	 grass	 grasshopper
 field mouse	 seeds	 robin
 chipmunk	 dandelion	 bull snake

pink (☀️) Forest

 white-tailed deer	 owl	 snail	(C) Consumers
 dead leaves	 earthworm	 rabbit	Carnivores
 eagle	 berries	 tree leaves	Herbivores
			Omnivores
			Producers

Background information:

Children have learned that plants produce their own food for energy. Animals, on the other hand, need to eat plants or other animals in order to get energy. For this reason, they are called **consumers** (con-SOO-merz). They must consume food from outside their bodies to get the energy and nutrients they need for survival. Animals that eat plants are called **herbivores** (HER-buh-vorz). Animals that eat meat (other animals) are called **carnivores** (CAR-nuh-vorz). Still other animals that eat both plants and meat are called **omnivores** (OM-nih-vorz). Humans are omnivores, because most of us eat both plants and animals.

When an animal hunts or stalks another animal, the hunter is called a **predator** (PREH-duh-ter). Most carnivores are predators. The animal being hunted by a predator is called **prey** (PRAY). A lion is an example of a predator. A zebra is an example of its prey.

Presenting the concept:

Place the *Consumers* title card in the pocket chart. Under it, place the subtitle *Backyard* or *Forest*. Under that, place the words *Producers*, *Herbivores*, *Carnivores*, and *Omnivores*. Hand out the Forest or Backyard picture cards. Ask students to determine if the item in each picture is a producer, herbivore, carnivore, or omnivore, and place each card under the correct heading. Ask students to explain their reasons by looking at traits on each picture. For example, sharp teeth may indicate a carnivore. (Answers are labeled on the Card Chart on page 32.) Repeat this activity with other ecosystems. Challenge students to determine the consumer type for animals that are not pictured on the cards:

Carnivores: falcon, wolf, coyote, badger, lynx, weasel, cheetah, harpy eagle, flamingo, heron

Herbivores: fruit bat, monkey, caterpillar, elephant, gazelle, antelope, giraffe, rhinoceros, kangaroo

Omnivores: skunk, pig, opossum



Name _____

Activity 3

Consumers

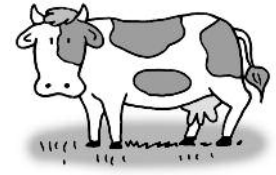
Directions: Look at the following pictures. Label the living thing H for herbivore, C for carnivore, or O for omnivore.



dragonfly



raccoon



cow



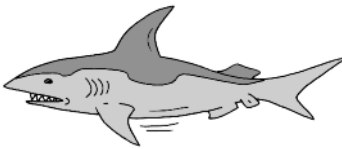
human



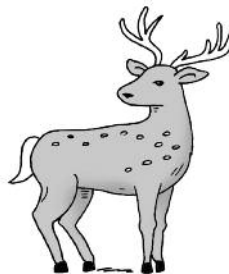
hummingbird



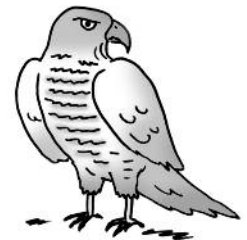
zebra



shark








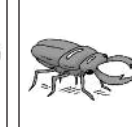



white-tailed deer



hawk

Teaching Notes: Scavengers & Decomposers

Cards needed: (black ☀️)

Scavengers		scavenger		Decomposers		decomposer		
								
hyena	vulture	raven	eagle	dung beetle	staghorn beetle	earthworm	snail	ant

Background information:

Students have learned that all living things need energy in order to survive. *Producers* are plants that make their own food, and *consumers* are animals that eat plants or other animals for energy.

There are still other types of consumers: animals that feed on things that were once living. **Scavengers** (SCAV-en-gerz) are larger animals like vultures or ravens, which feed on dead animal flesh and bones. For example, a vulture will wait for a lion to kill a zebra before tearing away at its remaining carcass. A scavenger does not hunt its food. It waits until predators kill it, it is killed by accident, or old age or disease kill it. Then it moves in to eat the remains.

Decomposers (de-com-PO-serz) are tiny consumers that live in the soil and eat dead plant or animal material to get their energy. Most decomposers are helpful to the cycle of life. They help break down dead plant and animal material on the ground, which returns nutrients to the soil. This in turn helps grow healthy plants. Examples of decomposers are earthworms, slugs, snails, mushrooms, beetles, ants, and bacteria.

Presenting the concept:

Place the titles *Scavengers* and *Decomposers* at the top of the pocket chart. Pass out the picture cards shown above to students, and ask them to identify the picture as a scavenger or a decomposer, and place the picture card under the correct heading in the pocket chart. As students place it in the pocket chart, ask them to tell the class in which ecosystem the animal lives.

Follow-up activity:

As a center activity, mix up the cards from this activity under the two titles. Invite students to rearrange the cards under the correct headings. Then have students list other living things that are *Scavengers* or *Decomposers*. Ask them to label each living thing as a producer, consumer, scavenger, or decomposer. Some examples (which are not shown on cards) are given to the right.

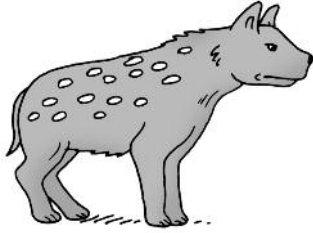
Scavengers:	Decomposers:
wild dog	mite
jackal	mushroom
crow	slug
fly	bacteria
opossum	slime mold

Name _____

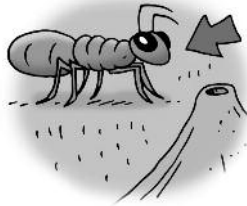
Activity 4

Scavengers and Decomposers

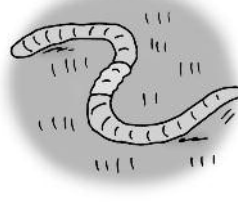
Directions: Look at the pictures. Write S under the living things that are scavengers, and D under those that are decomposers. Then write a definition for the terms at the bottom of the page.



hyena



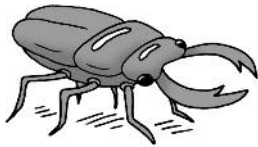
ant



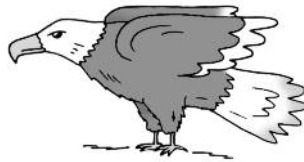
earthworm



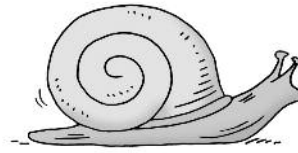
dung beetle



staghorn beetle



eagle



snail



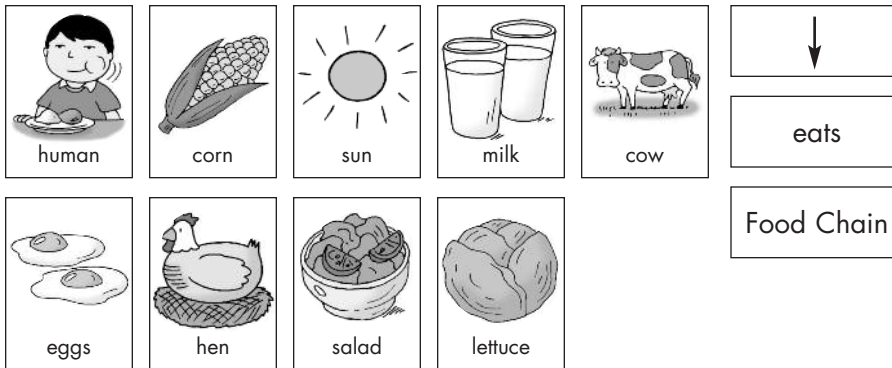
vulture

Scavenger:

Decomposer:

Teaching Notes: Humans in Food Chains

Cards needed: (green ☀️)



Presenting the concept:

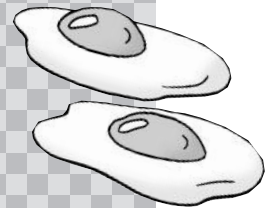
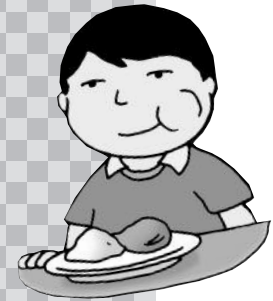
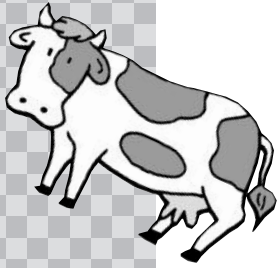
Introduce the lesson by asking students, "Are people part of food chains?" Invite them to think about this by giving examples of what they eat for breakfast. Ask if any of the foods they eat are plants (fruits, vegetables or grains), animal protein (bacon, eggs), or dairy foods (milk, yogurt, cheese). Discuss how these foods come from living things, and give us energy to live. Place the title card *Food Chain* at the top of the pocket chart. As you explain these examples, place picture cards below the title.

Example 1: The *milk* we drink comes from *cows* that get their energy from eating *grass* (plants). *Grass* can grow only with energy from the *Sun*, the origin of energy in all food chains. Drinking *milk* is beneficial for *humans*, as it gives us energy and strengthens our bones.

Example 2: We often eat *chicken* at meals. The chicken we eat was once living, and it fed on *corn* for energy. The *corn* is a producer, which grows using energy from the *Sun*. Eating chicken is beneficial for *humans*. It gives us energy and helps strengthen our muscles for movement.

Follow-up activity:

Invite students to illustrate cards in a food chain that includes humans. Tell them to think of something they eat that is part of a food chain, and research, if necessary, where the food comes from. HINT: Processed snacks may be more difficult to show in a food chain. It may be better to choose more natural, wholesome foods.

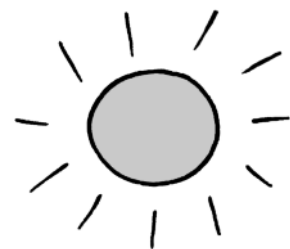
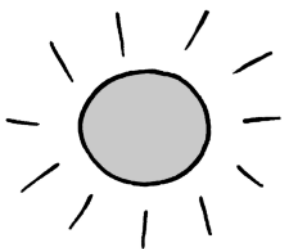
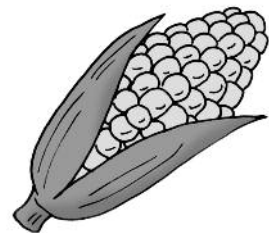
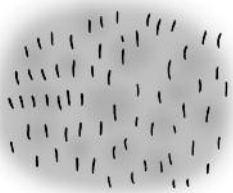
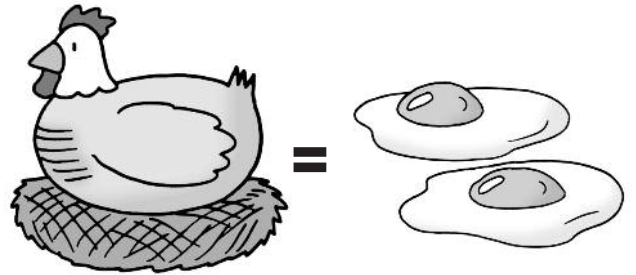
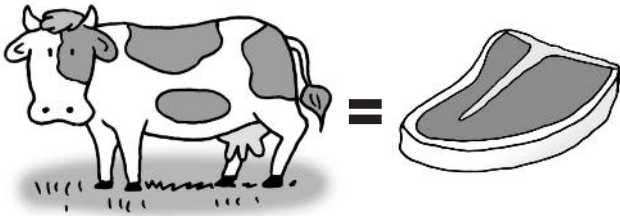


Name _____

Activity 5

Humans in Food Chains

Directions: Draw arrows indicating the flow of energy in these food chains.



Teaching Notes: Animal Adaptations and Survival

Cards needed: (hot pink ☀)

Animal			Adaptations			Reasons for			Non-Survival		
shell	color	fur				mankind	air pollution	deforestation			
teeth	claws	wings				disease	oil spills	weathering			
speed	poison	camouflage				overpopulation	drought	flood			
beak	gills	scales				acid rain	hunting	pesticides			

Animal Adaptation picture cards:



Background information:

Place the words *Reasons for Non-Survival* in the pocket chart, and explain, "Forces within an ecosystem can cause animals to die. The natural occurrence of the food chain affects many animals. Predators hunt prey to survive, and in turn, the prey adapt to survive their predator's attack. *Disease* and illness brought in by newcomers can be spread to other living things in the area, and cause a rapid decline in population. Also, *overpopulation* of a species may result if its predator species is killed off or hunted. Overpopulation leads to a lack of food, which causes a species to starve.

Other reasons for non-survival are natural occurrences like the weather. Lack of rain (*drought*), or too much rain (*flood*) can affect the living things in an ecosystem. Weather conditions can also break down the land or homes in which animals live. Rainwater, sleet, or snow may alter the landscape of a mountain or break down a sandy shoreline, and as a result, harm the animals that once made homes there (*weathering*).

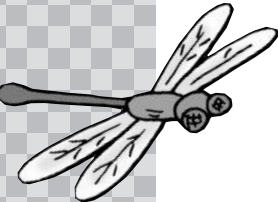
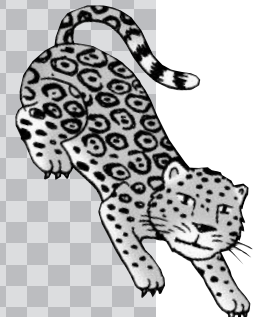
Finally, mankind is a major reason for animal non-survival. With the growth of economy and industry, forests are being cut down (*deforestation*), animals are being killed for industry or sport (*hunting*), chemicals are being used to produce better crops (*pesticides*), and transportation systems and factories are being built up to maintain a growing industry (*air pollution, oil spills, and acid rain*).

Review this information by placing the word cards shown above in the pocket chart.

Presenting the concept:

Place the words *Animal Adaptations* in the pocket chart. Place the card for each *italicized* word below in the pocket chart as you present this information to students. **Adaptations are characteristics that allow animals to better "survive" in their environment.** *Adaptations* evolve over time, and can include animals' behaviors, coverings (*fur, scales*), color (*camouflage*), or body parts (*claws, feet, beak, wings, gills, antlers, feathers, tails or horns*). *Adaptations* provide efficient ways for animals to obtain food, defend themselves from predators, or reproduce successfully.

Pass out the adaptation picture cards. Have students name the adaptation on the card, and place it in the pocket chart under the title *Animal Adaptations*. Be sure that they explain what the adaptation is, and how it helps the living thing survive. If students can come up with other adaptations, invite them to illustrate their own cards and place them in the pocket chart. (See page 32 for answers.)



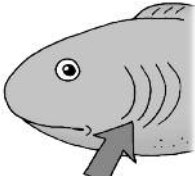
Name _____

Activity 6

Animal Adaptations and Survival

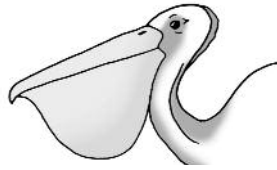
Directions: Look at the pictures below. Write the adaptation under each animal, and tell how it helps the living thing survive. Below, share some ideas you have for helping to increase the chances of animal survival.

fish



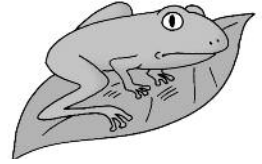
Adaptation:

pelican



Adaptation:

tree frog



Adaptation:

bear



Adaptation:

macaw



Adaptation:

albatross



Adaptation:

Humans can increase the chance of animal survival by:

Teaching Notes: Food Chains & Food Webs

Cards needed: E, W, and all picture cards (by ecosystem)

Freshwater	Desert	Savannah	Rainforest	Ocean	Forest
Prairie	Backyard	producer	herbivore	carnivore	omnivore
predator	prey	scavenger	decomposer	Food Chain	Food Web
				↓	eats

Background information:

Children have now learned that living things eat other living things to survive. As living things eat other living things, they pass energy from one to another. This pattern of passing energy from one animal to another is called a **food chain**. There are many, many food chains – too many to count, in fact. Since every ecosystem has different life forms, the animals have varied energy sources. Food chains are often depicted according to their ecosystem, with arrows showing the energy passing from one living thing to another. There has to be at least 2 living things in a food chain (humans eat lettuce), but sometimes the chain can grow to more than 5 living things! (A heron eats a bass eats a frog eats insects eats plants.)

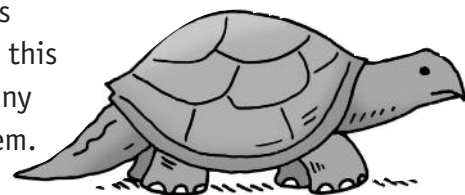
Within an ecosystem, there are many opportunities for one living thing to eat another. For example, a rabbit may eat berries or grass. A fox may eat a rabbit or a squirrel. Because each living thing can eat numerous other living things, the possibilities can be endless. When food chains within an ecosystem overlap like this, they form what is called a **food web**.

Presenting the concept:

Pass out the picture cards (by ecosystem) to children. Place an ecosystem title in the pocket chart, with a subtitle of *Food Chain* or *Food Web* underneath, and invite students to place pictures in the pocket chart that show a food chain or food web from that ecosystem. Use the picture cards and arrow cards to depict a sample food chain for students to see. Go over the order in which things are eaten (*herbivores* eat *producers*, *carnivores* eat *herbivores*, *omnivores* eat *carnivores*, *herbivores*, or *producers*), showing how energy passes from one living thing to another. Remember to always start with a *producer*. Use arrow cards to show the possibilities within a food web.

Follow-up activity:

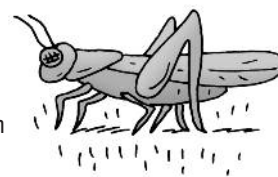
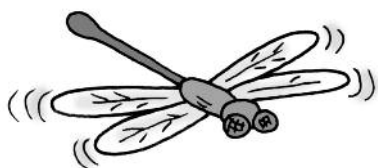
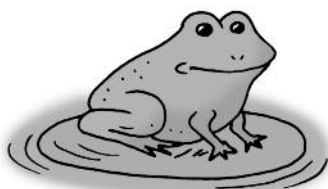
Pass out cards from one ecosystem to children. Invite a student to hold hands with another child who is holding a card that pictures something they eat. Form human food chains in this way, for the whole class to see. Observe how many different food chains are possible in an ecosystem.



Activity 7

Food Chains Crossword Review

Directions: Read the clues below to help you fill in the food chains crossword puzzle.



Across

- a living thing that is a plant-eater
- the first link in every food chain
- particular areas that includes all living and non-living things
- a living thing that makes its own food for energy
- something that is passed from one living thing to another in a food chain
- a living thing that eats plants or animals
- important substances found in food, which promote growth and good health

Down

- a number of food chains linked together
- a living thing that hunts or stalks its food
- a series of living things linked together by the fact that they eat or are eaten
- a living thing that does not make its own food
- The source of energy for all plants
- a living thing that eats dead or decayed matter for energy
- a living thing that eats meat
- a living thing that breaks down plant and animal matter for energy
- a living thing that is a victim of predators

Reading List

Chains, Webs & Pyramids
 Laurence Pringle
 Thomas Y. Crowell Company, NY: 1975

Desert
 Miranda Macquitty
 Alfred A. Knopf Publishers, NY: 1994

The Desert
 Joni Phelps Hunt
 Silver Burdett Press, NJ: 1995

The Food Chain
 Malcolm Penny
 Bookwright Press, NY: 1988

Food Chains: The Unending Cycle
 Margaret Anderson
 Enslow Publishers, NJ: 1991

Grasslands
 Rose Pipes
 Raintree Steck-Vaughn, TX: 1998

Habitats: Forests
 Anita Ganeri
 Raintree Steck-Vaughn, TX: 1997

Hungry Animals: My First Look at a Food Chain
 Pamela Hickman
 Kids Can Press, Ltd., Canada: 1997

The Hunt for Food
 Anita Ganeri
 Millbrook Press, CT: 1997

Lives Intertwined: Relationships Between Plants and Animals
 Allen M. Young
 Franklin Watts Publishing, NY: 1996

The Living Desert
 Randy Moore and Darrell S. Vodopich
 Enslow Publishers, NJ: 1991

The Magic School Bus Gets Eaten: A Book about Food Chains
 Joanna Cole & Bruce Degen
 Scholastic, Inc., NY: 1996

One Small Square: Backyard
 Donald Silver
 W.H. Freeman and Company, NY: 1993

One Small Square: Swamp
 Donald Silver
 Learning Triangle Press, NY: 1997

A Rain Forest Tree
 Lorien Kite
 Crabtree Publishing, NY: 1999

What are Food Chains and Webs?
 Bobbie Kalman
 Crabtree Publishing Company, NY: 1998

Who Eats What? Food Chains and Food Webs
 Patricia Lauber
 HarperCollins Publishers, NY: 1995













































































Wetland
 April Pulley Sayre
 Twenty-First Century Books, NY: 1996

Woodland Life
 Peter Reilly
 Grolier Educational Corporation, CT: 1991

Cards-At-A-Glance

Cards are shown as front-to-back pairs.

Labels indicate producers or types of consumer. See key below.

C			O			C			C	producer	hunting
C			P			P			P	producer	drought
H			O			C			C	herbivore	pesticides
O			P			O			D	herbivore	flood
P			H			P			H	carnivore	disease
P			H			C			C	carnivore	overpopulation
O			P			H			O	carnivore	deforestation
C			H			P			H	carnivore	mankind
P			H			D			O	omnivore	oil spills
H			H			S			C	omnivore	air pollution
O			P			H			C	scavenger	weathering
S			H			O			P	decomposer	acid rain
H			C			H			P	shell	Consumers
P			H			P			P	teeth	Producers
C			C			C			C	color	Carnivores

KEY:

C: carnivore	P: producer	D: decomposer
H: herbivore	O: omnivore	S: scavenger

producer	hunting
producer	drought
herbivore	pesticides
herbivore	flood
carnivore	disease
carnivore	overpopulation
carnivore	deforestation
carnivore	mankind
omnivore	oil spills
omnivore	air pollution
scavenger	weathering
decomposer	acid rain
shell	Consumers
teeth	Producers
color	Carnivores
claws	Herbivores
fur	Scavengers
wings	Omnivores
speed	Ecosystems
beak	Decomposers
poison	Food Web
gills	Food Chain
camouflage	prey
scales	predator
eats	Prairie
eats	Backyard
eats	Reasons for
eats	Non-Survival
eats	Animal
eats	Adaptations
↓	Freshwater
↓	Desert
↓	Savannah
↓	Rainforest
↓	Ocean
↓	Forest