

**TEACHING KATE  
TEACHING KIDS ABOUT THE ENVIRONMENT**

**WHO GIVES A HOOT?**

**Grade Level: 3-6**

**Time Required: 7-8 class periods**

**SC Science Standards**

This lesson plan was correlated with only the grade level specified unless otherwise noted.

**Grade 3:**

- I. A. 2. a
- I. A. 4. a
- II. A. 1. b
- II. C. 1. a, b
- II. C. 2. b

**Grade 4:**

- I. A. 2. a
- I. A. 4. a
- II. A. 2. c
- II. A. 3. c
- II. B. 2. a

**Grade 5:**

- I. A. 2. a
- I. A. 4. a
- II. B. 2. a, b
- II. B. 3. a, b

**Grade 6:**

- I. A. 1. b, 2
- I. A. 7. a

**Purpose**

Students will explore owls. They will learn to identify the bone structure of owls. Students will construct a food chain of an owl. Students will learn the role of owls in an ecosystem.

**Skills**

Analyzing data, classification, comparison, identifying relationships, inference, observation, written and verbal communication.

**Concepts**

Every organism is important in maintaining a natural balance in ecosystem; a predator is the owl's niche in the ecosystem; any broken link in the food chain will change the ecosystem.

## Materials Needed

bone sorting charts (1 per group)	owl pellets (1 per group)
owl pellet kit teacher's guide	black construction paper
diagram of food web	diagram of food chain
diagram of owl skeleton	poster board
diagram of prehistoric raptor skeleton	copy of <i>Owls in the Family</i> by Farley Mowat

## Definition of Terms

<u>Caenozoic</u>	Meaning modern life, it is the era in geologic history spanning from 65 million years ago to present time. Marked by the rapid evolution of mammals, birds, grasses, shrubs and higher plants. (Cenozoic.)
<u>Diurnal</u>	Functioning or active during the day; antonym for nocturnal.
<u>Ecosystem</u>	The interaction of both living and nonliving things in an environment.
<u>Food Chain</u>	The linear sequence of organisms in an ecosystem through which energy and materials are transferred, in the form of food, from one trophic level to the next.
<u>Food Web</u>	An interlocking pattern of food chains.
<u>Fossil</u>	The remains or an impression or trace of an organism preserved in mineralized or petrified form.
<u>Mammals</u>	Warm-blooded vertebrates, usually with hair, whose young are fed by milk secreted from their mother.
<u>Nocturnal</u>	Functioning or active at night; antonym for diurnal.
<u>Ornithology</u>	The study of birds.
<u>Owlet</u>	A young owl.
<u>Owl Pellet</u>	Owls swallow their prey whole. The bones and fur, which cannot be digested, are gathered together and formed into a smooth pellet (1/2" X 1") which can be coughed up.
<u>Predator</u>	Animals which kill and eat other animals.

<u>Prey</u>	An animal hunted by another animal for food.
<u>Raptor</u>	A bird of prey.
<u>Rodents</u>	The order of gnawing mammals which includes rats, mice, squirrels, beavers, etc.
<u>Talons</u>	The claws of a bird of prey.
<u>Trophic Level</u>	A step in the movement of energy through an ecosystem. All organisms that are the same number of energy transfers away from the original source of energy (e.g., the sun) are said to be at the same trophic level. For example, all producers (plants) belong to the first trophic level and all herbivores (plant eaters) belong to the second trophic level.
<u>Vertebrate</u>	Animals with backbones.

### **Before the Session**

Obtain enough owl pellets so that each group of 2-3 students may have one. Owl pellets and owl pellet kits may be purchased or obtained from the Education Section of South Carolina Department of Natural Resources. Draw an example of a food web and food chain. Acquire a copy of *Owls in the Family* by Farley Mowat. Contact one of the Educational Specialists at the SCDNR to visit the class with a live owl.

### **Background Information**

An owl is a type of bird. Birds are vertebrates. They are warm-blooded and have feathers. All birds have wings but not all can fly. Birds have two legs and a beak or bill. They hatch their young from eggs. Their bones are hollow which makes their body weight low for flying.

Owls are raptors, birds of prey. The earliest records of owls date back to the Cenozoic Era. The first owl fossil to be recorded was called *Protomix mimica*. Its remains were uncovered along Ten Mile Creek in Wyoming. Owls belong to the order Strigiformes and are broken down into two families, Strigidae and Tytonidae. The Tytonidae family includes the cosmopolitan barn and Afro-Asian bay owls. The over one hundred remaining species belong to the family Strigidae. Owls hunt their food primarily at night; however, they are not restricted to night hunting. An owl's average life expectancy is 3 years. Because owls are nocturnal animals, there are fewer studies of these birds.

One of the most fascinating features of the owl is its visual abilities. An owl's eyes are located on the front of its head whereas most other birds eyes are on either side of its skull. The total visual field of an owl is about 110°. Between 60° and 70° is binocular vision. Binocular vision is what is seen by both eyes at the same time. This aids the owl in its perception of depth. The owl also has the ability to turn its head 270°. Owls have 14 neck bones as opposed to man who has 7. Barn Owls, which are found in South Carolina, find their prey by using sound; their facial feathers are formed in a disc shape which aid in capturing sound waves. Owls also have feathers with a more rounded shape. They have four toes with sharp claws on the ends called talons. These special features give owls sufficient abilities as hunters to capture fast moving rodents for food. They use these talons to grab their prey and squeeze it to death. Next, they eat their prey whole. The bones and fur, which can not be digested, are gathered together and formed into a smooth pellet. About 6-8 hours after eating, they expel (cough up) an owl pellet.

An owl may lay 3-5 eggs, these eggs are laid about two days apart. It takes about 30 days to hatch the young owls from the eggs. They hatch in chronological order.

### **Suggested Lesson Plan**

#### Day 1

1. Students will identify an owl and its distinguishing characteristics.
2. View different types of owls.
3. Students will write a descriptive paragraph describing the characteristics of an owl.
4. Begin reading *Owls in the Family* by Farley Mowat.

**Follow-Up:** Students may view a video on owls.

#### Day 2

1. Read *Owls in the Family* by Farley Mowat.
2. Instruct the students that the book was written over 30 years ago. It is illegal to keep many species of wild animal without a permit in most parts of the country, including South Carolina. (In South Carolina there are exceptions for some game species captured during legal hunting seasons). Discuss with students that animals kept in captivity are often unable to care for themselves when returned to their natural habitat because they have not mastered the hunting and self-defense skills needed for survival.

3. Discuss animal protection laws and the issue of keeping wild animals as pets.
4. Divide the class into four groups to debate the question “Should wild animals be kept as pets?” Allow two groups to prepare arguments for the pro position and two groups for the con position. Instruct the groups to list their major points on poster board to present to the class.

**Follow-Up:** Have each student write a letter to Farley Mowat giving his or her opinion on keeping wild animals as pets.

### Day 3

1. Define the terms predator and prey.
2. Display a food web and food chain. Identify the animals and their prey noting that owls are predatory animals. (See examples of food web and food chain.)
3. Identify behavioral patterns between predatory animals and their prey noting that owls are predatory animals.

### Day 4

1. Have an Education Specialist from SCDNR visit and speak to the class about common owls in South Carolina. Ask the speaker to bring a living example if possible.

### Day 5

1. Explore the skeletal structure of an owl. (See diagram of owl skeleton.) Compare the skeletal structure of an owl with a prehistoric raptor such as the Velociraptor.
2. Lead a discussion on the relationship of owls to dinosaurs. Have students write a paragraph comparing prehistoric raptors to owls.

### Day 6

1. Introduce students to owl pellets. (**Note:** Allow two class periods (two days) for this activity.)
2. In cooperative groups of 2-3 each, allow students to separate bones from fur and feathers. Give each group a copy of a bone sorting chart. (Usually comes with owl pellets.) Let students classify bones using bone sorting chart. After completing this task, leave owl pellets in an area where they will not be disturbed overnight.

3. Read more of *Owls in the Family* by Farley Mowat.

#### Day 7

1. Distribute owl pellets. Allow students to reassemble and glue a skeleton taken from the owl pellet onto black construction paper.
2. Have students write an expository paragraph on how to dissect an owl pellet.
3. Conclude the reading of *Owls in the Family* by Farley Mowat.

#### **Application**

Owls are fascinating animals. They are also useful as they aid in the control of rodent populations. For this reason they are welcomed as residents or visitors around most homes and farms. Around a farm they can drastically reduce the population of rodents which could otherwise cause serious depletion of crops and/or stored feed.

#### **Extension**

Instruct students to draw and label a simple food chain for an owl. In cooperative groups, have students choose a North American owl to research and present findings to the class.

#### **Resources Available**

Mailbox Intermediate. February/March 1993.

Owls. 1989. John Sparks and Tony Soper. Facts on File, N.Y.

Owls of the World. 1973. John A. Burton. Dutton, N.Y.

Owl Pellet Kit, Teacher's Guide. 1986. Irwin Slesnick and South Carolina Department of Natural Resources/Project Wild.

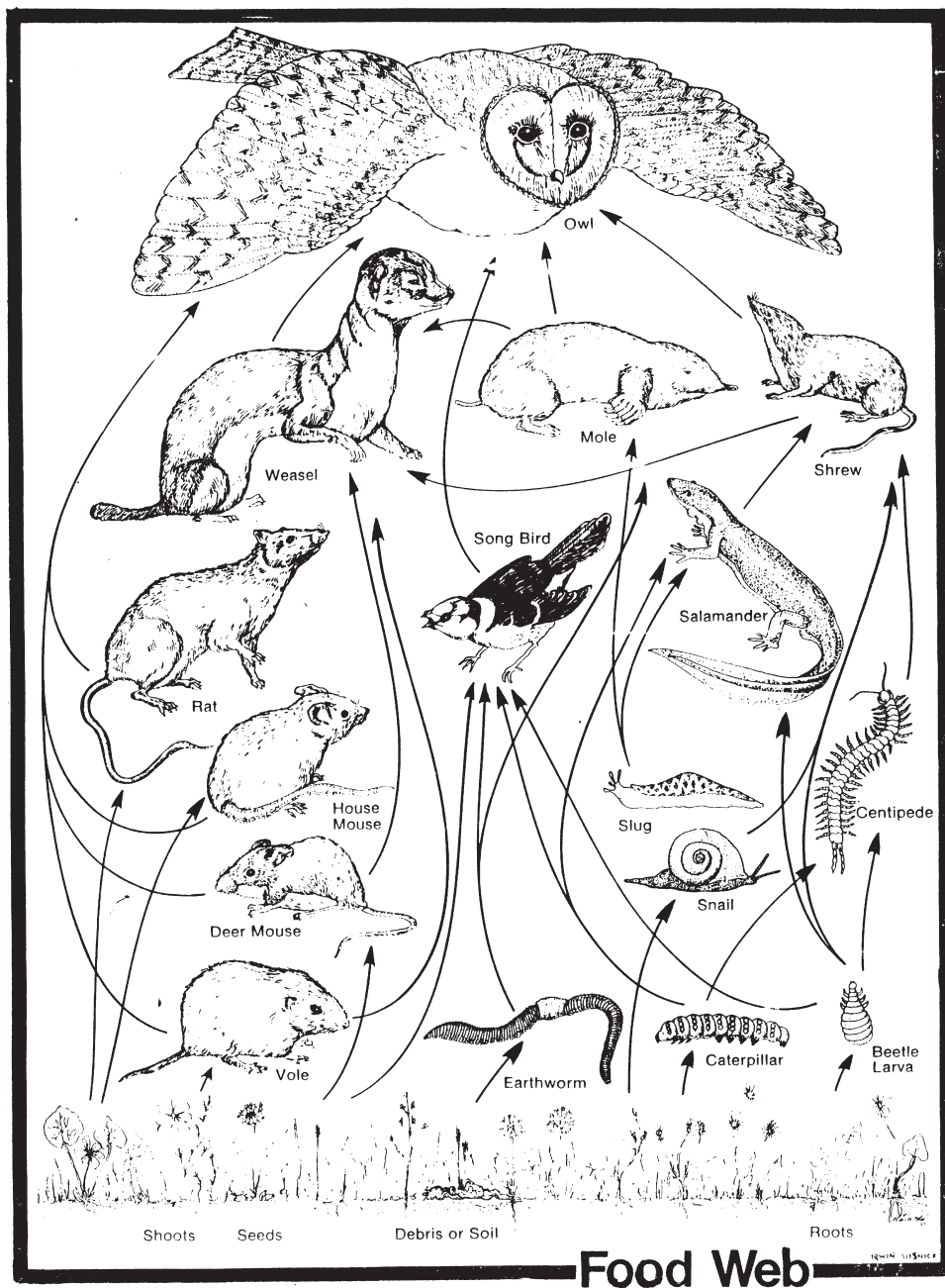
Project Wild. 1986. Western Regional Environmental Education Council.

Prepared by: Terri Byrd

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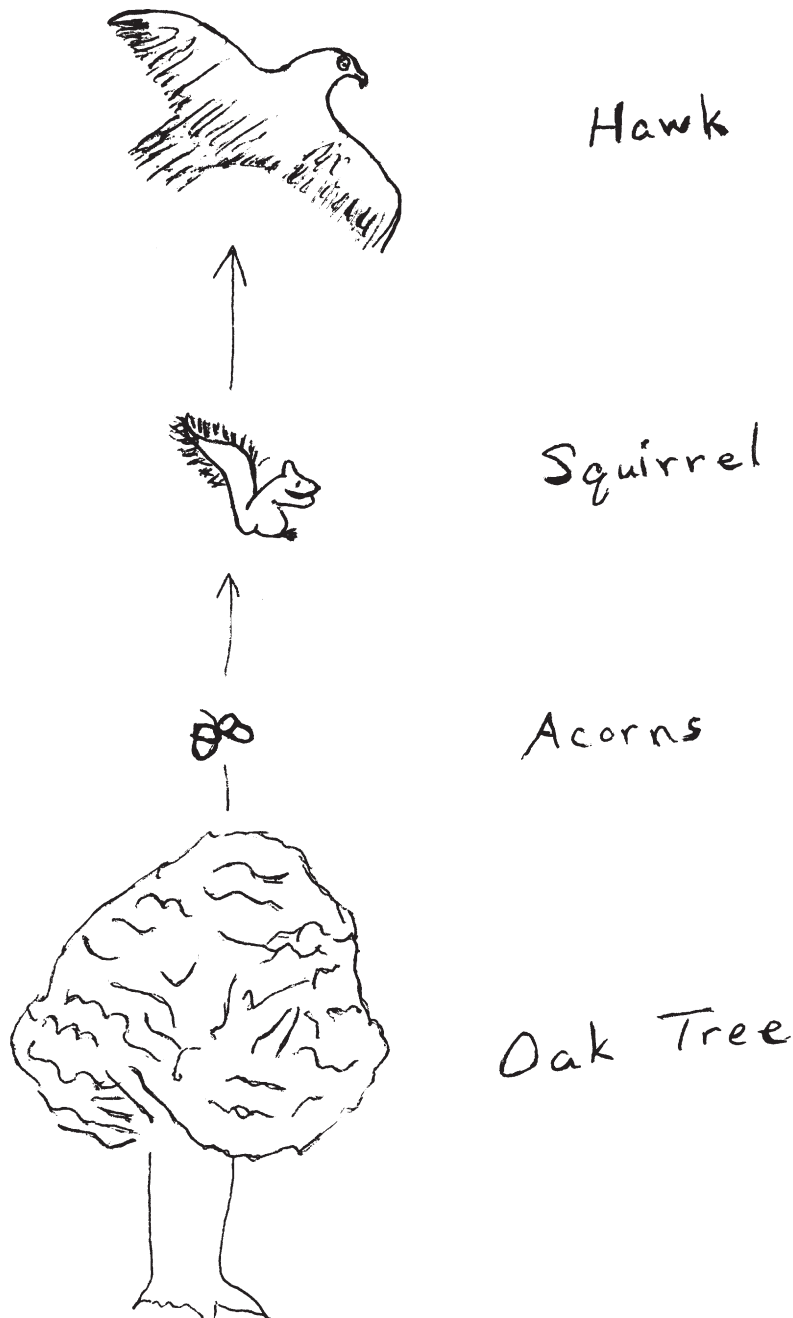
FOOD WEB



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FOOD CHAIN



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SKELETON OF A TAWNY OWL

