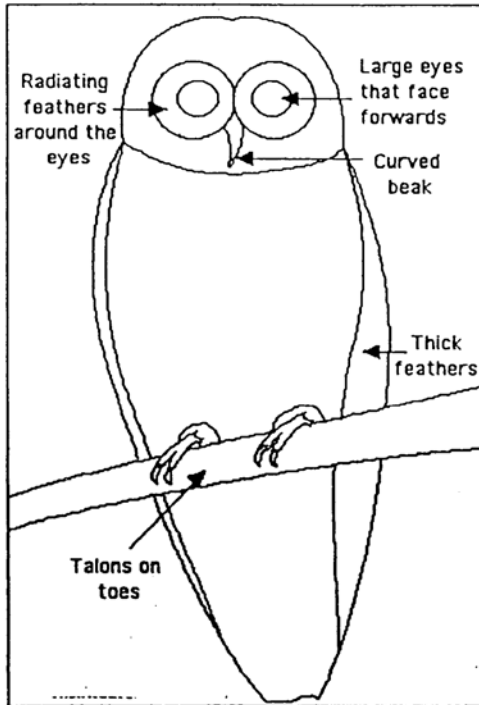


Amazing Owl Pellets



There are about 162 different species of owls alive today, inhabiting a huge variety of ecological niches around the world, from rain forests to the tundra.

Smallest and Largest: The smallest owl in the world is the Elf Owl (*Micrathene whitneyi*), which is about 6.1 inches (16 cm) long, has a wingspan of 15 inches (38 cm), and weighs about 1.5 ounces (4g). The largest owls are the Great Gray Owls (*Strix nebulosa*) [which are about 33 inches (84 cm) long, have a wingspan of about 5 feet (152 cm), and weigh about 3 pounds (1450 g)], the Eurasian Eagle Owls (*Bubo bubo*) [which are about 28 inches (71 cm) long, have a wingspan of about 5.2 feet (160 cm), and weigh up to 9.8 pounds (4200 g)], and the Great Horned Owls (*Bubo virginianus*) [which are about 25 inches (63 cm) long, have a wingspan of about 5 feet (152 cm), and weigh about 4 pounds (1800 g)].

Eyes: Owls have a large head and large eyes that face forwards (unlike other birds, whose eyes are on the sides of their head). This eye placement gives them binocular vision and very precise depth perception. Also, there are circles of radiating feathers surrounding each eye, giving them a wide-eyed, alert look.

Owls cannot move their eyes within their sockets like we can. In order to look around, they have to move their entire head, which has a range of movement of about 270°.

Diet: Owls are **carnivores** (meat-eaters). Most are nocturnal and hunt at night. They use a keen sense of sight to find prey in the dark (owls see mostly in black and white). They have an acute sense of hearing which also helps in finding meals. Owls are stealth hunters; they can easily sneak up on their prey since their fluffy feathers give them almost silent flight. Owls hunt and eat rodents, insects, frogs, and birds. The owl is at the top of the food web; it has no major predators.

Lesson 1: Observing an Owl Pellet

1. Show the children an owl pellet. Encourage them to observe it closely. Ask them if they know what it is. Explain what an owl pellet is and the part the owl pellet plays in the life of an owl (see Teacher Information, page 36).
2. Place the observed owl pellet onto an overhead projector and compare the size of an owl pellet to a paper clip (placed next to the owl pellet). Have the children make verbal observations about the size difference.
3. Prepare to dissect an owl pellet for demonstration, doing so directly on the overhead projector. Demonstrate how you must carefully pull apart the pellet using tweezers and toothpicks. Remind them that they will need to take great care when they do the same so that they will not break or destroy the bones in their pellets.
4. After the owl pellet has been dissected, have the children try to identify the bones and classify the bones (slip the Bone Identification Key transparency under the bones on the overhead projector). Have the children try to determine the size(s) of the animal(s) in the pellet.
5. Using the Vole Skeleton Chart overhead transparency, "pour" the bones from the Bone Identification Key transparency onto the Vole Skeleton Chart transparency. Do any of the bone sizes match? Discuss how owls eat a variety of animals which may explain the "extra" bones. Brainstorm other animals that the owl may have eaten.
6. As a closure to this lesson, discuss the benefits of having birds of prey such as owls. (Owls help to maintain the balance of nature by eating rodents that reproduce rapidly and destroy farmers' crops. Rodents can also carry disease, especially when they overpopulate an area.) A review of the Food Chain Chart (page 74) would help students retain these facts.

Lesson 2: Dissecting the Owl Pellet

1. The children can work individually or in pairs. Have the children cover their work area with paper towels. Review the use of the materials for the dissecting activity (see Lesson 1, Step #3, above).
2. Describe what the activity of dissecting owl pellets entails. Explain that an owl pellet is not feces, but they will need to wash their hands thoroughly when the lesson is finished. (If you prefer, provide plastic gloves for the children to wear during this lesson.)
3. Have the children gently pull apart the owl pellets using the tweezers and toothpicks. The children should very carefully feel for bones among the fur. When bones are found, encourage the children to remove the bones and place them in the provided plastic container. (**Note:** Toothpicks can be used to clean the fur from areas such as the skull(s) and vertebrae. The skull(s) may have to be put in water and washed a bit. Have the children study the bones closely by viewing them through magnifying glasses.)

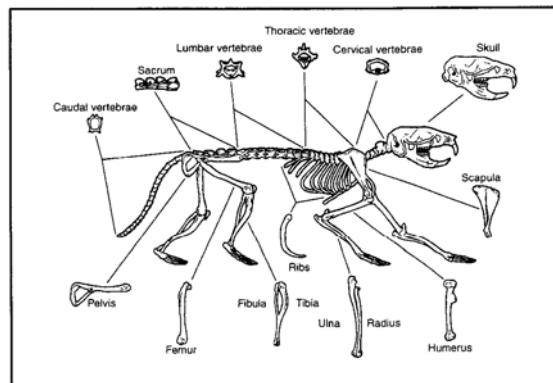
Lesson 2: Dissecting the Owl Pellet *(cont.)*

4. Give a sheet of tagboard to each child or group of children. Have them pour their discovered bones onto the tagboard. Have them classify them by shape. After the children have classified their bones, have them circulate to view other groups' discoveries. Lead a large group discussion about what the owls ate. Record the ideas generated on a chart. (Do make certain the children realize that one owl pellet does not necessarily represent one meal. An owl can be forming an owl pellet in its stomach for a period of time during which it will have eaten three or four meals before regurgitating the pellet.) Have them complete the Pellet Observation sheet (page 39).
5. Have the children carefully store the contents of their pellets in the plastic containers for the next lesson.

Lesson 3: Reconstructing a Skeleton from the Owl Pellet Remains

Note: When the children begin to reconstruct the bones of the animal from the owl pellet they should be aware of the fact that not all of the bones of an animal will be present. The owl would have digested the softer bones. Only the hard bones, fur, uneaten portions of an animal, and, occasionally, feathers will be left in the pellet.

1. Distribute the Bone Identification Key (page 40) to the children, along with their owl pellet remains. Have the children begin to identify their bones as well as what type of animals were eaten by comparing the bones illustrated on the Bone Identification Key. (The task of sorting the bones may be difficult for some children so encourage them to use the tweezers and place the bones directly onto the Bone Identification Key illustrations.)
2. Have the children try to say the names of the bones. To motivate the children towards success, demonstrate using an overhead projector and the Bone Identification Key transparency so all can see the process. If you have them in your owl-pellet remains, locate a femur (leg bone) and a pelvis (hip bone), match them to the key and pronounce the names of these bones.
3. Have the children try to reconstruct an animal by using the reproduced tagboard Vole Skeleton Charts (page 41). Once they have matched as many of the bones as possible, have the children glue down the bones to the matching illustrations. (The glue will dry clear so the bones will be visible.) Have the children glue down any "extra" bones around the edges around the chart.
4. After the glue has hardened, have the children wrap their charts carefully with plastic wrap for preservation purposes. Display the charts for all to observe.



Pellet Observation

1. In the box below, sort the bones from your owl pellet by shape and then print in pencil what part of the body you think the bones came from.

Sorting Box

2. Did all these bones come from one animal? _____ How do you know? _____
3. How many bones in all did you find in your pellet? _____
4. What kinds of animals do you think the bones came from? (Check the boxes.)



Vole



Rat



Mouse



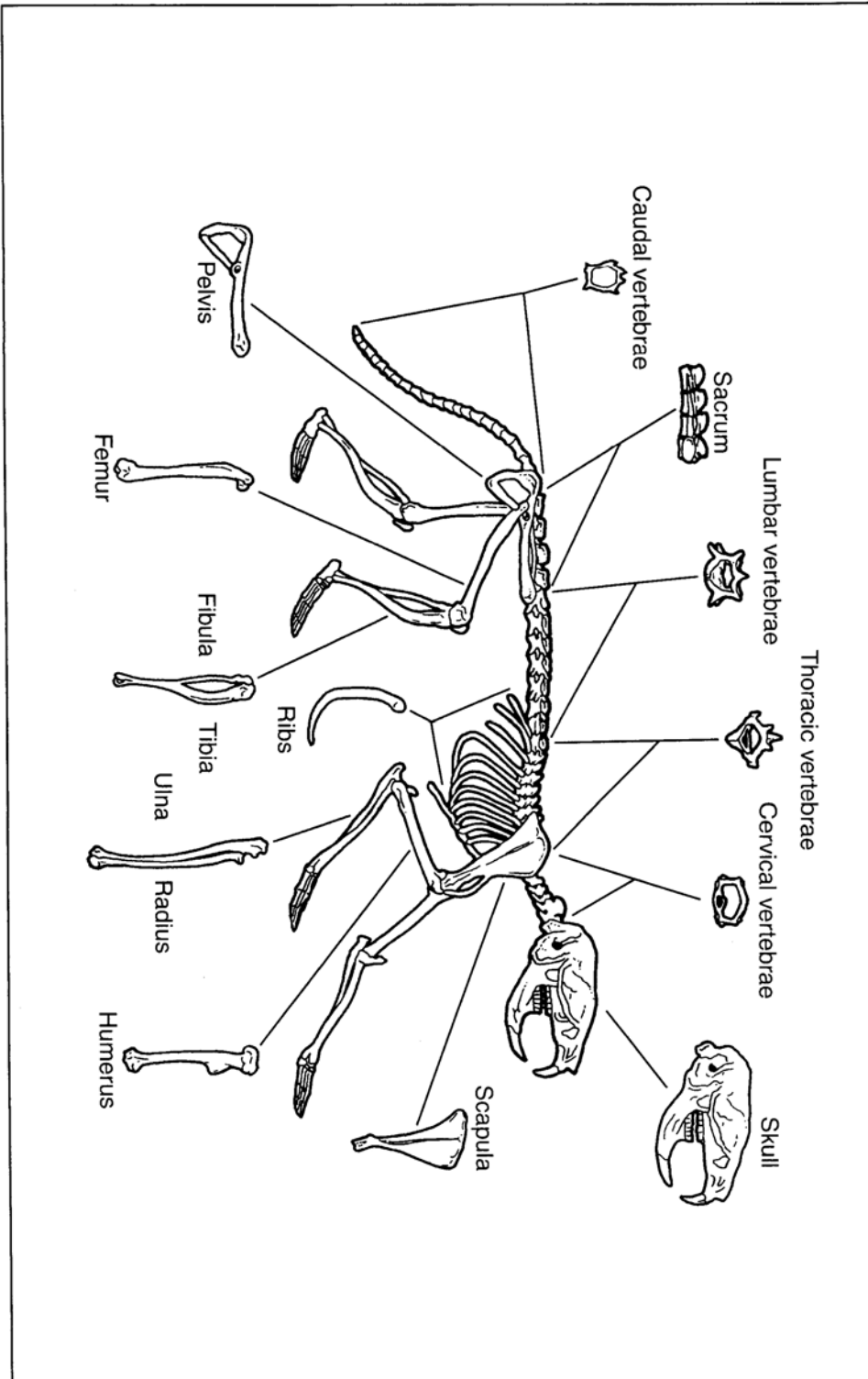
Shrew

















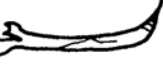






Bird

5. Did you find things besides bones in your pellet? If so, what do you think they are? _____

Vole Skeleton Chart



Bone Identification Key

	Voles and Rats	Mice	Shrews	Birds
Skull and Jaws	  Teeth	  Tooth	  Tooth	   No Teeth
Hips (Pelvis)				
Shoulder (Scapula)	 <p>The shoulder blade is similar in all of these animals.</p>			
Other	Mole Skull and Jaw 	Beetle Wings  Insect Leg 	Fish Bones  Scales 	Bird Breastbone  Wing Bone 