

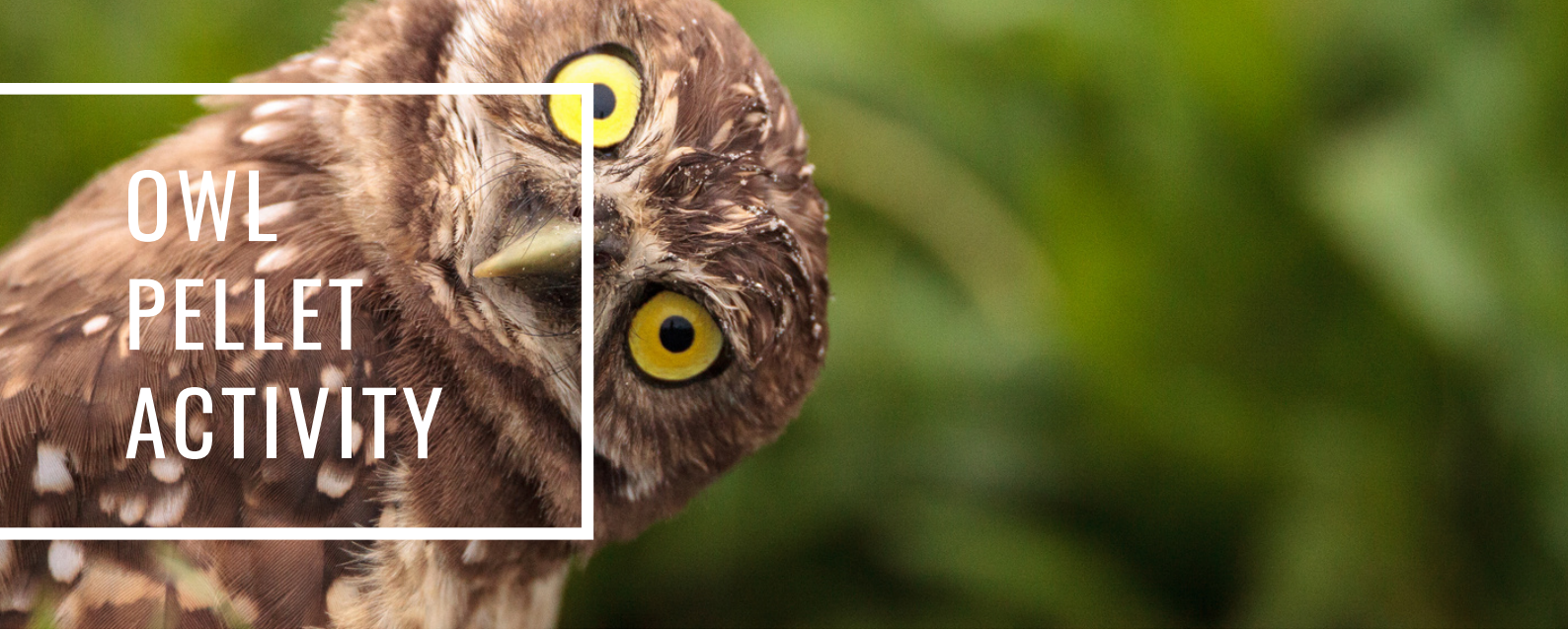
Owls & Owl Pellets

Teacher's Guide



SASKATOON
ZOO SOCIETY

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OWL PELLET ACTIVITY

Teacher's Guide

Background:

Owls are raptors. Raptors are meat-eating birds which include birds such as hawks, eagles, osprey, kites, harriers, vultures and condors. An owl's diet consists of a variety of items such as rodents, reptiles, amphibians, insects and even other baby birds and fish! Raptors, like owls, have special features that help them hunt their food. Razor-sharp talons help them catch, kill and carry their prey and help hold their food like a "fork". They also have a sharp, hooked curved beak that they use as a "knife" to slice the larger prey into pieces. In order to find their food, owls have a couple of things going for them. They have excellent hearing as well as large eyes that allow more light to enter into the eye. This is an advantage in low light conditions like dusk or dawn. When an owl swallows its food, all the fur, feathers, bones and juicy meat gets swallowed in large gulps! However, raptors are very much like us, they don't want to eat the fur, feathers or bones. This is where the organ called the gizzard comes into play! The gizzard separates the fur, feathers and bones from the meat and puts it into a neat "container" called an owl pellet. In the process of making an owl pellet, even the smallest, most fragile bones are left preserved. This is because the opening of the stomach into the intestine is very narrow and only the very finely divided material can pass through. As a result, an owl pellet usually contains a virtually complete skeleton of the animals the owl ate the night before! How cool is that?

Owl pellets are mini ecosystems themselves providing food and shelter for such species as moths, carpet beetles and fungi.

How to collect owl pellets

Owl pellets can be collected in old buildings, but as we don't have any Barn Owls here in Saskatchewan (some have been identified here, but rarely stay to nest), it is best to check out Aspen groves and look for nests or roosts of owls. Typically you will see a white-wash on the trees and if you look on the ground, you should spot owl pellets if there has been recent owl activity in the area. Pellets should be collected with gloves on and dried out and stored in a closed container. We recommend drying them out and then placing them in a sealed container or freezer bag and putting them in the freezer for storage until use.



OWL PELLET PROGRAM

SUBJECT:

Science, ELA

GRADES:

3 & up

CURRICULUM CONNECTIONS:

Grade 3 (CC3.2):

Use owl pellets as a method to communicate and gather information about a particular topic

Grade 4:

Habitat and Communities

Grade 5 (WE5.3):

Analyze the impact of weather on owls and how owl pellets can be a tool to study biodiversity

Grade 6:

Diversity of Living Things
Flight

Grade 7:

Interactions within
Ecosystems

Grade 8:

Optics and Vision: compare and contrast the eyes of humans compared to the eyes of owls

OVERVIEW

Owls are raptors and have many cool adaptations for survival. This program looks at the ecology of owls in Saskatchewan. Unlike other birds of prey, owls cannot digest their prey's bones. What is left behind is known as an owl pellet. Students will investigate an owl pellet and discover how these pellets are used by scientists to study the biodiversity of the owl's habitat.

OBJECTIVES:

1. Students will learn about different owls from Saskatchewan
2. Students will learn about owl adaptations
3. To discover what owls eat
4. To identify the bones found in an owl pellet
5. To learn about owl pellets and their role in studying biodiversity

KEY VOCABULARY:

Pellet: undigested material compressed into a rounded mass

Regurgitation: the return of partly digested food to the mouth

Gizzard: a muscular organ that serves as a filter to hold back indigestible food such as bones, fur or teeth

Talons: a sharp, hooked claw of a bird of prey

Facial Disc: a concave collection of feathers around an owl's eye that helps to direct sound waves into the ear openings

Cervical Vertebrae: neck bones or vertebrae - owls have 14 bones in their neck to assist with their head turns (compared to most mammals that have 7)

Nocturnal: Active at night (humans are diurnal)

INSTRUCTIONS FOR OWL PELLET DISSECTION:

1. Place a pellet on a sheet of white paper for each student. We find it is easier to have a crease down the middle of the paper to help carry the contents over to the garbage or preferably a compost bin.
2. Using their fingers, have students carefully separate the fur from the bones.
3. Once all bones are discovered, see if students can identify the types of bones and which animals they may have come from.
Note: Some students may prefer to wear disposable gloves

PRE-VISIT ACTIVITIES

Activity One

Research about birds in general:

- learn about the parts of a bird (crown, nape, throat, back, tail, etc as these all help to identify which species of bird you are seeing). There are lots of great bird part identification pictures on google.
- what are the similarities and differences between species of birds
- look at their feet and beaks. What are the differences and what do you think are the functions of the different shapes ,sizes and types?
- how do they fly (explore things such as their feathers, lift and drag, light and almost hollow bones)
- what do the different bird songs sound like and does each species vary their calls for different purposes (bird-sounds.net is a good place to start, but there are also apps that can be downloaded if you can take your students out for a walk in the park).

Activity Two

Research about pellets:

- what is a pellet and why do birds regurgitate them?
- Do birds other than owls and raptors regurgitate pellets? Some examples are crows, pelicans and some songbirds.
- Why do scientists and biologists prefer to study owl pellets? (owls tend to swallow their prey whole and have weaker digestive fluids than other birds that make it harder to digest most body parts)

POST-VISIT ACTIVITIES

Activity One

Record your owl pellet findings in a variety of ways:

First have your students predict how many bones they may find in their pellet and what types of bones or animals they may find.

If you want, have them measure the pellet both in length and width and if possible weigh the pellet.

Do they think different species of owls would have different sizes and weights of pellets?

Chart the types of bones found and then compare with the whole class: what's the minimum/maximum number of bones found in a pellet, what's the class average, how many animals do they think were consumed based on the number of skulls discovered in their pellet

Ask the following questions:

What does examining an owl pellet tell us about the diets of owls?

Based on the bones you found, do they give any clues about the habitat where the owl lives?

What would you expect to find in the pellet of an owl in other habitats (near an ocean, on the grasslands, in the boreal forest, etc)?

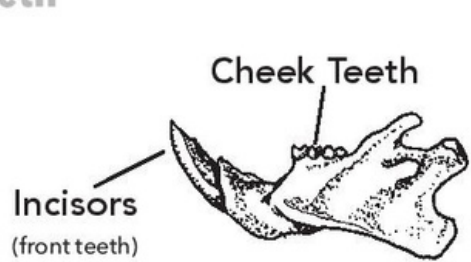
Activity Two

Research other raptors – eagles, falcons, hawks, vultures, etc. with your students.

Focus on eagles and look at the importance of the Eagle to First Nations peoples as symbols of strength. Compare that to owls being messengers of death for some First Nations peoples (if age appropriate). They can also explore the eagle as nature's recycler. As eagles eat carrion, they clean up the environment around them.

Bone Identification Chart

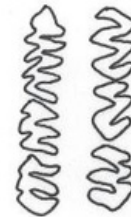
Teeth



Cheek
Teeth
Types



Lobed

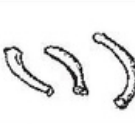
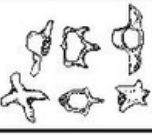


Angled



Pointed

Bones

	Rat	Vole	Mouse	Shrew	Mole	Bird
Skull & Mandible (jaw)						
Tooth Type	Lobed	Angled	Lobed	Pointed	Pointed	None
Scapula (shoulder blade)						
Pelvis (hip)						
Humerus (upper front leg)						
Radius/Ulna (lower front leg)						
Femur (upper hind leg)						
Tibia/Fibula (lower hind leg)						
Ribs						
Vertebrae (bones of back and tail)						

Rodent Skeleton Diagram

