



## *Russell Cave Owl Pellet Program Outline*

### Concepts:

1. Owls have acquired physical and behavioral adaptations to be successful in their environments.
2. Dissecting owl pellets provides information about owls' habits and their role in nature.
3. Learning about owls helps people understand how owls work in their habitat.

### **I. Preparation before Activity (10 min.)**

### **II. Introduction (10 min.)**

- A. Greeting, Grabbing, and Purpose
- B. Activity Description
- C. Behavior Guidelines
- D. Russell Cave Owls
- E. Task Analysis/ Learning Assessment

### **III. Owl Adaptation (10 min.)**

### **IV. Owl Movie (25 min.)**

### **V. Owl Pellets (30 min.)**

- A. Small Mammal Review
- B. What are owl pellets
- C. Dissecting a Pellet
- D. Owl Pellet Dissection Data Sheet
- E. Creating a Skeleton

## V. Native American facts about owls

## VI. Appendix

A. Equipment

B. Glossary

# Owl Pellets

## I. Preparation Before Activity

In this owl pellet program, you will be educating the students on how owls impact the environment and the animal food chain. Read through the lesson plan prior to the activity and talk to the teacher for any questions or concerns.

### A. Introduction: Greeting and Purpose

Greet the students and let them know who and where you are from. Ask them what do they know about the owls in the area. Give them the introduction worksheet to further the knowledge if what they know about owls. After answering questions place the students into groups.

### B. Grabbing Questions:

1. Name the smallest owl at Russell Cave National Monument.

A. Barn Owl

**B. Eastern Screech Owl**

C. Northern Saw-Whet Owl

**B. The Eastern Screech Owl 5 to 6 inches tall.**

2. The smallest owl in North America is?

- A. Elf Owl
- B. Ferruginous Pygmy
- C. Northern Pygmy Owl

**A. The Elf Owl is about 5 ¾ “tall and lives in Arizona and Mexico**

3. T/F The Screech Owl’s call sounds like a loud screech.

**False. Despite its name, the Screech Owl’s call does not sound like a screech. Its primary call sounds like a horse’s whinny.**

4. What is the largest standing owl at Russell Cave?

- A. Barred Owl
- B. Short Eared owl
- C. Great Horned Owl

**C. The Great Horned Owl stands at over 25 inches tall and has a wingspan of over 60 inches.**

5. T/F Owls can turn their heads all the way around.

**False. An Owl’s head can rotate 270 degrees at a time.**

6. T/F Do all owls hunt at night?

**False. Species like Great Grey Owls hunt primarily during the day.**

7. If an owl was as large as a human its eyes would be the size of?

- A. Orange
- B. Grapefruit
- C. Watermelon

**B. Grapefruit. The eyes of an owl are about the same size of a human eyes. Compared to their head and body size, their eyes are extremely large.**

8. Which owl is generally larger: The male or the female?

**Female owls are larger and stronger.**

- C. Activity Description:** In this activity, students will learn about owls and spend time dissecting an owl pellet. The first ten minutes will be spent introducing you and the topic to the students and getting a better understand of what they know about owls. After the introduction you will share knowledge of an owl's adaptation to its environment. To get a further understanding a 25 minute movie will be shown to the class. Once the movie is over the children will dissect an owl pellet. Using the chart the students will use the items found in the pellet to construct the prey that the animal consumed. Get the students to use the dissection data sheet to evaluate the pellets. With the remaining time answer questions and clean up the areas.
- D. Russell Cave Owls:** Russell Cave has three different species of owls. Eastern Screech-Owls live in deciduous woodlands, parklands, and around streams and river beds. Eastern screech owls live mainly in natural cavities of large trees in the open sky.
- The Great Horned Owl lives in several different places from city parks to dense woodlands. Great Horned Owls have even been noticed roosting in the same area as the Red tailed Hawks that live at Russell Cave.
- The Barred Owl is a nocturnal bird that lives in dense foliage during the day. They are very aggressive when defending their nest.
- E. Behavior Guidelines:** Discuss with the students what behavioral situations you will deal with and not deal with. Explain to the students about the correct use of tools and class time.
- F. Task Analysis/ Learner Assessment.** What helps owls hunt successfully in complete darkness?

### **III. Owl Adaptations**

Owls are carnivorous bird called raptors. Other raptors include hawks, eagles, and falcons. Most raptors hunt small mammals, birds, amphibians, and reptiles. All raptors use their agile flying, sharp talons, and keen eyesight to capture their prey. Owls share similar characteristics but they have adapted to a nocturnal lifestyle.

Explain the adaptations that owls have made in order to survive a nocturnal lifestyle.

- 1. Eyesight.** Owl's eyes are so large that there is little room for muscles inside their eye sockets. To compensate owls are able to move their heads 270 degrees. Since most owls hunt at night, their eyes have several rod cells: therefore, they can only see in black and white.
- 2. Hearing.** Owls have large, oval-shaped ear openings bordered in the front with a fleshy, raised flap called an operculum. This is similar in function to a hand cupped over the front of a person's ear to capture and amplify sound from the rear.
- 3. Silent Flight.** Owls can see and hear their prey, but their prey cannot hear them coming. The owl has a lightweight body and a large wing area, which allows it to fly using a slow, controlled wing-beat. Soft, comb-like serrations on the wing feathers and frayed edges on the tips of the tail feathers break up the air flow and muffle sound, enabling nearly silent flight.
- 4. Talons and Beak.** Talons are used for capturing and grasping prey. Owls tear up prey with their sharp beaks and swallow the flesh in large chunks.
- 5. Behavior.** Some owls migrate if their winter habitat is too harsh. But like other migrant birds they will return to the same area. Owls develop a keen sense of their habitat and hunting range. Sometimes researchers have seen them using the same perch trees to find prey.
- 6. Diet.** Each owl has its own variation of diet. Some owls can eat everything from insects to small mammals like skunks. Other owls like the Flammulated Owl eat only insects.

#### **IV. Owl Pellets/Owl Movie (25 minutes)**

##### **A. Small Mammal Review.**

1. **Pygmy Shrew:** Alabama shrews are the size of about 5 ½ inches and weighs less than an ounce. Shrews have poison in their saliva and are thought to use echolocation.
2. **Cotton Mouse:** The cotton mouse is typically a woodland dweller. They also live around waterways with stumps and tangled vines.
3. **Northern Short Tailed Shrew:** Northern Short Tailed Shrews have several habitats such as forests, marshes, and grasslands. They are active year around day and night.
4. **Woodland Vole:** Woodland voles are approximately 4 ½ inches in length and spend most of their time in their tunnel systems.
5. **White Footed Mouse:** Deer mice are 5 to 8 inches in length and are one of the most common rodents at Russell Cave. They live in abandoned stumps and burrows around the hills on Russell Cave.
6. **North American Deer Mouse:** The deer mouse has the most extensive range out of any rodent in North America. They also rarely leave their homes during the daytime.

**B. What Are Owl Pellets** Owl pellets provide important information that ornithologists (scientist who studies birds) use to understand the habits of owls. Scientists can figure out what owls are eating in their habitat by using owl pellets. Owl pellets also shows scientists what kind of prey animals live in the area.

Unlike most birds owls consume their meals whole, but can only digest the soft tissue of the prey. Byproducts like bones, teeth, and fur are too dense to be converted into energy. The harder material is formed into a pellet by the gizzard muscles about twelve hours later.

## **V. Native American Beliefs on Owls**

Among the Northwestern Native American people, the belief is that the owl speaks the names of the people that will die soon. To the Sioux a giant owl called Hin-Han protects the entrance to the Milky Way. The souls of the dead need to

pass through this entrance to encounter the spirit land. If an individual does not pass the inspection of Hin-Han due to the lack of the right tattoo, will be banished into a bottomless pit. The Southwestern Pima Indians viewed the owl as a symbol of the souls of the dead. A feather was given to a dying person to help them get to the next world.

## VI. Appendix

### A. Equipment (per kit)

- Owl Pellet lesson plan
- Owl pellet
- Tweezers
- Dissecting Probes
- Owl Trivia Sheet
- Pencils
- CD of owl calls
- Owl Skull

### B. Glossary

**Rod Cell-** A light sensitive cell important for seeing in low light, it cannot distinguish color.

**Operculum-** The ear openings of a bird

**Habitat-** The place where an animal lives

**Pellet-** Undigested parts of prey

**Regurgitate-** Cough up material through the mouth

**Nocturnal-** Active at night

### C. Reference/ Resources

## Works Cited

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