

OWL EXPLORERS SNAPSHOT

DRIVING QUESTION: HOW CAN AN OWL'S SUPPER TELL US IF AN ECOSYSTEM IS HEALTHY?

Recommended Grades: K – 8; Adaptations for 9 – 12.

<i>Classroom or Center Activities</i>	<i>Outside or Larger Space Activities</i>	<i>Technology-Based Activities</i>	<i>Stem-to-Go Take Home</i>	<i>Field Work and/or Natural Area Needed</i>
X	X	X	X	X

Materials: Owl Pellets (1 pellet for 2 – 3 participants), paper plates or paper towels or newspaper, tweezers (forceps), and or toothpicks, participant handouts

Teacher Prep: <10 Minutes

Participant activity: 30 minutes to 1.5 hours

Teacher Tips: Exploring Owl Pellets

Objectives:

1. Use scientific keys to compare and contrast skeletons of prey animals. (K-8)
2. Classify organisms by the role they play in ecosystems/food webs. (K-8)
3. Graph the types of prey species found in owl pellets. (K-8)
4. Calculate energy transfer from prey to predator, as adapted from Carolina Biological's Owl Pellet Food Webs: A model of Energy and Mass Transfer for grades. (5-8)
5. Calculate and infer the vulnerability of owls' eggs from biomagnification of pesticides. (7– 12)

Video Link:

STEM Skills

S: Classify organisms

T: Use tools to dissect

E: Reconstruct skeletons of prey animals

M: Analyze and interpret data through graphs

Plan ahead: Order pellets 1 -2 weeks ahead of time.

Total prep: < 10 minutes to make copies.

Safety: Owl pellets that are purchased commercially have been sterilized to kill any bacteria/pathogens. Please note suggestions for the STEM To-Go owl activity for establishing boundaries and safe movement outdoors at night.

Sensory Integration Issues: Pellets are not “poop”, instead they are the indigestible parts of prey that the owls expel or “puke.” Participants who have cats may have seen hairballs that cats sometimes vomit, but owl pellets are not slimy. Pellets have no odor. Pellets are dry, crumbly, and feel like dryer lint with sticks inside them. Pellets generally come wrapped in foil, which may be a problematic sound/texture for some participants. Regarding the baby owl game, the hooting or calling might be overwhelming in a gym or echoing open area. Try prompting pairs to use “baby owl” voices or allow teams to hoot one pair at a time.

Cost: It is recommended that a group of 2- 3 participants share a pellet. Pellets usually cost around \$2 – \$3 dollars.

What else do I need? Participants can use their hands or tools like toothpicks and tweezers to break apart the pellets and separate out the bones onto a paper plate, paper towel, or newspapers.

Clean Up: At the end of the lab, everything can be disposed of directly into the trash, or bones can be glued to black construction paper (see X-Ray Art).

NC Cap's Unit Planner

Classroom or Center Activities	Outside or Larger Space Activities	Technology-Based Activities	Stem To-Go	Field Work and/or Natural Area Needed
Owl Pellet Dissection	Whoot Is It Game	Build a Bird http://projectbeak.org/adaptations/build.htm	Stem To-Go: Owl Explorers	STEM To- Go: Owl Explorers
X-Ray Art		Owl Nest Camera http://cams.allaboutbirds.org/channel/43/Barred_Owls/	Identify Owls by Their Calls: https://www.audubon.org/news/learn-identify-five-owls-their-calls	
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NC Essential Standards Correlations: Exploring Owl Pellets

K.L.1.1. Compare different types of the same animal (i.e., different types of dogs, different types of cats, etc.) to determine individual differences within a particular type of animal.

1.L.1.1: Recognize that plants and animals need air, water, light (plants only), space, food and shelter and that these may be found in their environment.

1.L.1.2: Give examples of how the needs of different plants and animals can be met by their environments in North Carolina or different places throughout the world.

1.L.1.3: Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there (e.g., reuse or recycle products to avoid littering).

1.L.2.2: Summarize the basic needs of a variety of different animals (including air, water, and food) for energy and growth.

2.L.1.1: Summarize the life cycles of animals:

- Birth
- Developing into an adult
- Reproducing
- Aging and death

2.L.1.2: Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies, or frogs

2.L.2.1: Identify ways in which many plants and animals closely resemble their parents in observed appearance and ways they are different.

4.L.1.1. Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.

5.L.2.2. Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).

5.L.2.3: Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.

6.L.2.3: Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra) affect the ability of organism to grow, survive, and/or create their own food through photosynthesis.

7.L.2.3: Explain the impact of the environment and lifestyle choices on biological inheritance (to include common genetic diseases) and survival.

8.L.3.2: Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions including

- Coexistence and cooperation

- Competition
- Parasitism
- Mutualism

8.L.3.3: Explain how the flow of energy within food webs is interconnected with the cycling of matter (including water, nitrogen, carbon dioxide, and oxygen).