**Lesson 3: Owl Pellet Dissection (Part 2)**

**Lesson Summary:** Students will continue dissecting their owl pellets, compare the bones that were found in their investigation to charts, and determine what and how many prey items were eaten by their owl. Students will reconstruct an animal skeleton and

**Materials:**

* Owl pellets
* Petri dishes
* Tweezers
* Ziplock bags

**Knowledge and Skills developed:**

* Recognition of an owl as a carnivore.
* Predict/hypothesize an owl’s diet.
* Sort/identify bones found in an owl pellet.
* Owl pellets provide information about owls’ habits, diets, and owls’ position in the food web.

**Next Generation Science Standards**

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| * **Practices** ☐Asking questions ☐Developing and using models  **x** Planning / carrying out investigations ☐Analyzing / interpreting data ☐Math / computational thinking  **x** Constructing explanations ☐Engaging in argument from evidence ☐Obtaining / evaluate / communicate | **Crosscutting Concepts** ☐ Patterns **x** Cause and effect: Mechanism / explanation ☐ Scale, proportion, and quantity  **x** Systems and system models  **x** Energy / matter: Flows, cycles, conservation ☐Structure and function ☐Stability and change |
| **Disciplinary Core Ideas and Concepts**  5-LS2.A: Interdependent Relationships in Ecosystems  MS-LS2.B: Cycle of Matter and Energy Transfer in Ecosystems | |

**Environmental Literacy Strands**

1. Understand the physical and biological world and our interdependent relationship with it

3. Sense of place, region, nation, and global community

**Teacher Background Information:** Owls are not the only birds that produce pellets – there are over 300 species of birds that produce pellets. However, owl pellets are unique in that they contain more bones and other interesting evidence of what the birds have eaten. Why?

Most birds of prey have a loose sac in their throats called a crop, where they store food to eat and digest at a later time. Owls don’t have a crop, so what they catch and eat is what they digest – right away. Owls catch their prey and swallow it whole. Hawks, eagles, and other birds of prey keep pellet in their digestive system for twice as long as owls and they also have more acidic stomachs so their pellets contain skeletons that are much more broken up &/or fully digested. Since owls’ digestive juices are less acidic than those of other raptors, they break down hard food less efficiently, so their pellets contain more fur and other materials. Finally, because owls don’t have crops to hold excess food, they must regurgitate pellets more frequently.

You’ll usually find more than one prey individual in a single owl pellet because the bird eats many times in a single evening. Many bones collect in the owl’s gizzard and are formed into a single pellet. As students continue to investigate their owl pellets, they may find that their owl was not a picky eater – there will likely be multiple animals’ bones in the pellet!

**Introduction:**

Let students know that they are going to continue investigating their owl pellets to determine how many and what type of animals their owl ate. Today, students will be using bone charts to help them better identify prey species.

1. Provide students with ‘Owl Pellet- Bone ID Sheet’ and have them compare the groupings they created in the last meeting with the ones pictured in the bone chart.
2. After comparing their groupings to the chart, students use the chart to make any necessary regrouping of individual bones.
3. Encourage students to look closely at the relationship of form and function (e.g., ball/socket joint, size and thickness of hind limb bones), and how this might relate to the animal’s movement. Allow ample time for them to complete the investigation and record the findings.
4. Have students compile their findings with others in the class and record the different prey species that were found in each pellet onto the “Owl Pellets Handout”

* *What did you find in your pellets?*
* *How many prey animals did your owl eat in one night? How do you know?*
* *Why is it hard to know with certainty the number of prey animals in each pellet?*
* *Any surprises?*

1. Assume that an owl forms 1 pellet each day. Take the class average of the number of animals found in each owl pellet. Use this number as an average of how many animals an owl consumes each night. How many animals would an owl eat in a week? Month? Year?
2. Draw a food web of the community that includes the owl. Include at least 3 trophic levels. Use the ‘Barn Owl Food Web” poster as an example.
3. Have students choose one of the prey animals that they found and conduct research on it. Have students present about their prey animal to the rest of the group. Describe how that animal moves, what the animal eats, etc.
4. Play *Mice and Munchies* game

**Resources:**

*Barn Owl Food Pyramid Investigation*: Carolina Biological

<http://www.carolina.com/teacher-resources/Interactive/barn-owl-food-pyramid-investigation/tr30177.tr?question=barn%20owl%20food%20pyramid%20investigation>

*Owl Puke: The Book* by Jane Hammerslough (2004)