**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_**

**Investigation: What Can an Owl Pellet Reveal About Diet?**

Owl pellets are masses of bone, teeth, hair, feathers and exoskeletons of various animals

preyed upon by raptors, or birds of prey. Pellets are produced and regurgitated no only by

owls, but hawks, eagles and other raptors that swallow their prey whole of in small pieces.

Owls feed early in the evening and regurgitate a single pellet approximately 20 hours after

eating. Unlike snakes, the protein enzymes and strong acids which occur in the digestive

tract of raptors do not digest the entire meal. The relatively weak stomach muscles of the

bird form the undigested fur, bones, feather etc. into wet slimy pellets. In this process even

the most fragile bones are usually preserved unbroken.

The owl pellets that you will be examining in this lab have been collected and fumigated

from common barn owls. Owl pellets themselves are ecosystems, providing food and shelter

for communities which may include cloths moths, carpet beetles and fungi. Clothes moth

larvae are frequently abundant in pellets, feeding on fur and feathers. The black spheres

about the size of Periods (.) that are found in the pellets are the droppings of the caterpillars.

The larvae metamorphose near the surface of a pellet in cocoons made of fur.

**Materials**

* Owl Pellets
* Dissecting Needle/ toothpicks & tweezers
* Construction paper, file folders o other paper for mounting bones
* Bone Chart (Owl Pellet Bone Chart grid.pdf

*Warning: Pellets are sterilized prior to shipment, but they have been known to still harbor salmonella (and other) bacteria. Sterilize area and wash hands after lab.*

**Procedure:**

1. Place a pellet on a sheet of white paper and gently pull the pellet apart using the toothpicks provided.

2. Clean the bones of debris and sort them according to type (skull, vertebrae, leg, etc.) Use the keys

provided to help you sort the bones properly. Clean the bones as thoroughly as possible since these

are the best bones for identifying the prey.

3. Use the “Owl Pellet Bone Chart” key to identify the type of bones.

4. Record your information on the data table provided.

5. Complete the Owl Pellet Dissection Data Sheet also provided.

6. Examine the bones that have been separated out and grouped according to type. Lay these bones out

corresponding to their positon in the natural skeleton ( use the example to help you out). Glue thse

bones on the card stock provided and label the mammal.

|  |  |  |
| --- | --- | --- |
| **BONE** | **TYPE** | **Number** |
| Skull |  |  |
| Jaw |  |  |
| Scapula |  |  |
| Forelimb |  |  |
| Hindlimb |  |  |
| Pelvic Bone |  |  |
| Rib |  |  |
| Vertebrae |  |  |

Now, dissect your pellet and record the following data:

**1.** **Record the number of skulls**: **2.** **Record the number of other bones:**

\_\_\_\_\_\_ Rodent \_\_\_\_\_ Ribs \_\_\_\_\_ Humerus

\_\_\_\_\_\_ Shrew \_\_\_\_\_ Jaws \_\_\_\_\_ Vertebrae

\_\_\_\_\_\_ Mole \_\_\_\_\_ Pelvis \_\_\_\_\_ Other

\_\_\_\_\_\_ Bird \_\_\_\_\_ Scapula

\_\_\_\_\_\_ Other

**3. Assume that an owl forms one pellet each day. Using the total number of skulls found in your pellet, how many animals would your owl eat**:

… in a week? \_\_\_\_\_\_\_\_

… in a month? \_\_\_\_\_\_\_\_

… in a year? \_\_\_\_\_\_\_\_

***Hint: 7 days per week, 30 days per month, and 52 weeks or 365 days in a year.***

**Record the following from the whole class**:

4. Total class skulls: 5. Now calculate the percentages of the owls’ diet:

\_\_\_\_\_ Rodent \_\_\_\_\_ % Rodent

\_\_\_\_\_ Shrew \_\_\_\_\_ % Shrew

\_\_\_\_\_ Mole \_\_\_\_\_ % Mole

\_\_\_\_\_ Bird \_\_\_\_\_ % Bird

\_\_\_\_\_ Other \_\_\_\_\_ % Other

***Example*:** ***If your class had 50 skulls total and 10 were from Shrews, then 20% of the owls’***

***diet was made up of Shrews.***

**Owl Pellet Handout**

**Weight, Length, Width and Number of Skulls Chart**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Weight, Grams** | **Length,**  **Millimeters** | **Width,**  **Millimeters** | **Number of Predicted Skulls** | **Number of Observed Skulls** |
| **PELLET**  **1** |  |  |  |  |  |
| **PELLET**  **2** |  |  |  |  |  |

**1. Based on the relative weighs of each pellet, predict the number of skulls in your pellets**

**and record that number above.**

**2. Describe at least three physical characteristics of the pellet:**

**A. Smell:**

**B. Color:**

**C. Texture:**

**3. List any other materials found in your pellets other than fur/hair and bones.**

**Examples: feathers, seeds, insect skeletons, etc.**

**Use the numbers from page 3 to construct a graph showing the frequency distribution of animal skulls in this sample of owl pellets.**

**Frequency Distribution Graph of Animal Skulls per Pellet**

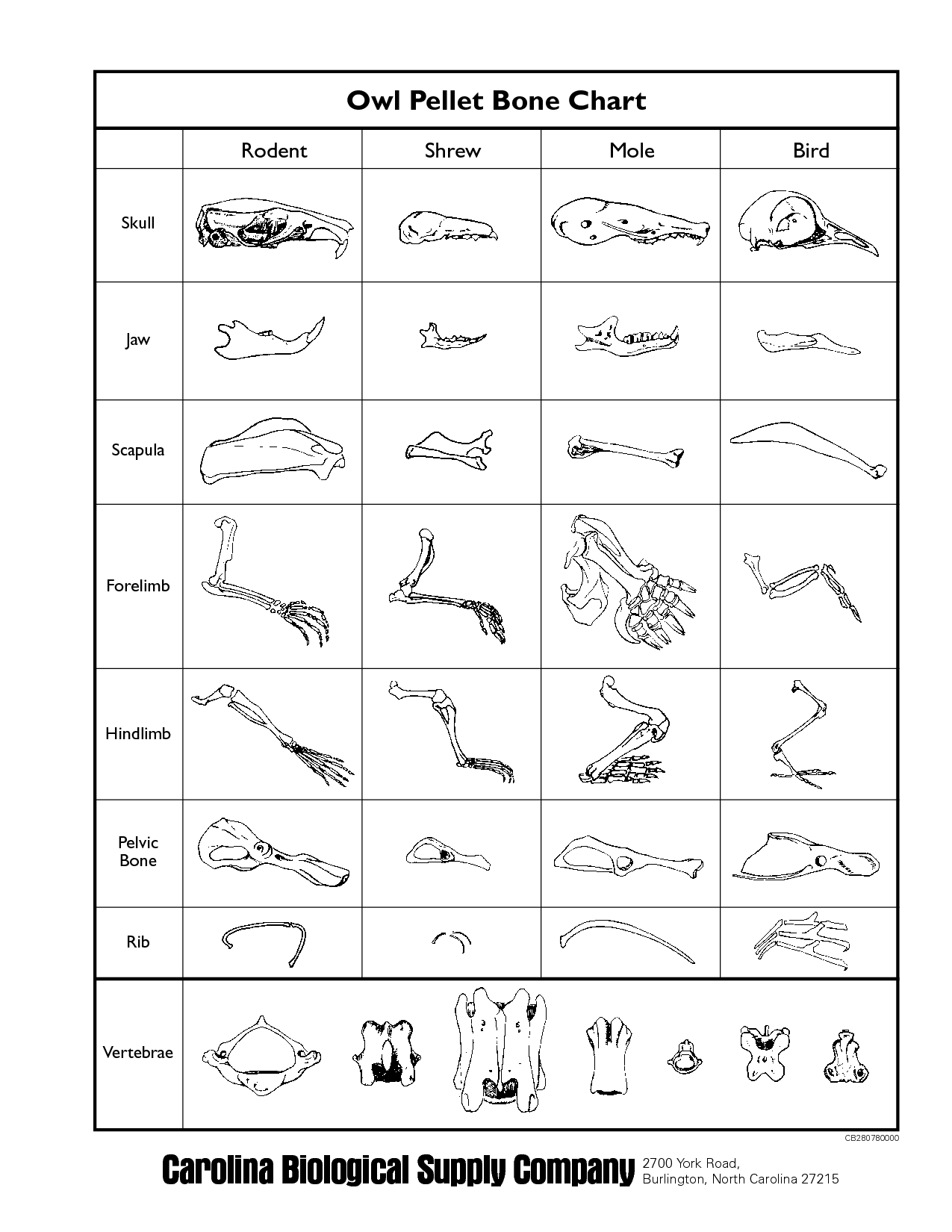
**Data from Page 3**

**10**

**8 6 4 2**

**0 1 2 3 4 5 6 7**

**Number of skulls per pellet**

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