HERBIVORES, OMNIVORES, CARNIVORES (KINDERGARTEN)

*Teacher’s Guide*

**OVERVIEW**

Students will observe and compare the teeth of many types of animals, identifying shapes and patterns among them. Students will then use those patterns to group the animals into categories based upon what they eat. If teachers wish, they may guide students in a supplemental extension activity about their own diets, teeth, and oral health in pursuit of the following questions:

- What kinds of foods can humans eat?
- How do the foods we eat affect our oral health?
- Who can help me care for my teeth so they stay healthy and strong?

**STANDARD(S)**

- CCSS.MATH.CONTENT.K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- CCSS.MATH.CONTENT.K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.
- CCSS.MATH.CONTENT.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- NGSS K-LS1-1: From Molecules to Organisms: Structures and Processes (NRC Framework below)

<table>
<thead>
<tr>
<th>Science and Engineering Practices</th>
<th>Disciplinary Core Ideas</th>
<th>Crosscutting Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analyzing and Interpreting Data</strong></td>
<td><strong>LS1.C: Organization for Matter and Energy Flow in Organisms</strong></td>
<td><strong>Patterns</strong></td>
</tr>
<tr>
<td>Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</td>
<td>• All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.</td>
<td>• Patterns in the natural and human designed world can be observed and used as evidence.</td>
</tr>
<tr>
<td>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connections to Nature of Science: Scientific Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world.
MATERIALS

Teacher(s) will need:
- Activity A photographs (pages A.1-A.4), printed or downloaded digitally and made available for students to view electronically.

Each student will need:
- One large (e.g. 12x18 or larger) piece of construction or other paper
- For Activity B: printouts of pages B.1-B.3
- For Activity C: printout of page C.1
- Scissors
- Glue
- Crayons, markers, or colored pencils

ACTIVITY INSTRUCTIONS
Using this Teacher’s Guide, educators may lead students through Activities A, B, and if desired, C. We recommend waiting to distribute construction paper, scissors, glue, and coloring tools until your class is ready to begin Activity B.
ACTIVITY A: MEASUREMENTS

1. Show photograph A.1 (lion), either as a printout or electronically, and conduct a class discussion based on the following Class Question:

   **Class Question:** What could we measure about this lion’s teeth?

   **Example responses:** COUNT: How many teeth does the lion have?
   LENGTH: How long are the lion’s teeth?
   WEIGHT: How heavy are the lion’s teeth?
   SHARPNESS: How sharp are the lion’s teeth?

2. Show photographs A.1 (lion) and A.2 (horse) side-by-side, either as printouts or electronically, and conduct a class discussion based on the following Class Question:

   **Class Question:** Whose teeth are *sharper*: the lion’s or the horse’s?

   **Discuss:** When we measure how well an object can cut, poke, or slice, we are measuring **sharpness**. If we compare two objects, the object that is pointiest, or cuts and slices most easily, is **sharper**. The object that does not cut or slice as easily is **duller**.

   The lion’s teeth are **sharper** than the horse’s.
   The horse’s teeth are **duller** than the lion’s.

3. Show photographs A.3 (sheep) and A.4 (snake) side-by-side, either as printouts or electronically, and conduct a class discussion based on the following Class Question:

   **Class Question:** Whose teeth are *longer*: the sheep’s or the snake’s?

   **Discuss:** When we measure from side to side or top to bottom, we are measuring **length**. If we compare two objects, the object that takes up more space from side to side or top to bottom is **longer**. The object that takes up less space from side to side or top to bottom is **shorter**.

   The snake’s teeth are **longer** than the sheep’s.
   The sheep’s teeth are **shorter** than the snake’s.
ACTIVITY B: CATEGORIES

1. Show photographs A.1-A.4, either as printouts or electronically, and conduct a class discussion based on the following Class Question:

   **Class Question:** How can we use measurements of animals’ teeth to learn more about them?

   **Discuss:** We can measure the length and sharpness of animals’ teeth in order to determine what they eat. Animals with wide, flat teeth (like horses and sheep) eat plants. Animals with long, sharp teeth (like lions and snakes) eat other animals. Some animals have both types of teeth. These animals eat plants and animals.

   Animals that eat only plants are called **herbivores**.
   Animals that eat only meat are called **carnivores**.
   Animals that eat plants and meat are called **omnivores**.

2. Ask students to fold their large pieces of paper into equal thirds, e.g.:

   ![Paper Folded into Three Sections]

3. Ask students to cut out the **HERBIVORES, OMNIVORES, and CARNIVORES** labels on page B.1 and glue one label to each section of their paper.

4. Ask students to cut out the animals on pages B.2 and B.3. Individually or as a class (teachers use discretion), students should examine each animal’s teeth, decide whether the animal is an herbivore, carnivore, or omnivore, and glue them in the proper section. See the key on the following page for more information about each animal’s teeth, along with their proper grouping.

5. As a class, count how many animals are in each group. Which group has the most animals in it? Which group has the fewest?
**Animal Categorization Key**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snake</td>
<td>Carnivore</td>
<td>Snakes use their sharp, pointy fangs to catch and eat mice, rabbits, birds, frogs, and fish.</td>
</tr>
<tr>
<td>Opossum</td>
<td>Omnivore</td>
<td>Opossums have sharp, pointy teeth <em>and</em> wide, flat teeth that allow them to eat both meat and plants. Opossums like to eat fruits and grains as well as fish, birds, and frogs.</td>
</tr>
<tr>
<td>Elephant</td>
<td>Herbivore</td>
<td>Elephants use their wide, flat teeth to chew grasses, shrubs, trees, bark, and fruits. Their teeth have a rough texture that is excellent for grinding up these foods.</td>
</tr>
<tr>
<td>Lion</td>
<td>Carnivore</td>
<td>Lions use their sharp, pointy teeth to catch and eat large African mammals including zebras and antelope.</td>
</tr>
<tr>
<td>Shark</td>
<td>Carnivore</td>
<td>Sharks use their sharp, pointy teeth to catch and eat fish, shrimp, sea turtles, lobsters, crabs, and sometimes even sea birds.</td>
</tr>
<tr>
<td>Rabbit</td>
<td>Herbivore</td>
<td>Rabbits use their wide, flat teeth to bite through hay and leafy green vegetables like lettuce.</td>
</tr>
<tr>
<td>Alligator</td>
<td>Carnivore</td>
<td>Alligators use their sharp, pointy teeth to catch and eat fish, snakes, turtles, birds, and rodents like mice and squirrels.</td>
</tr>
<tr>
<td>Sea Lion</td>
<td>Carnivore</td>
<td>Sea lions use their sharp, pointy teeth to catch and eat fish, crabs, clams, and squid.</td>
</tr>
<tr>
<td>Boar</td>
<td>Omnivore</td>
<td>Wild boars have sharp, pointy teeth <em>and</em> wide, flat teeth that allow them to eat both meat and plants. Boars like to eat fruits and nuts as well as snakes, birds, and rodents like mice and squirrels.</td>
</tr>
<tr>
<td>Otter</td>
<td>Carnivore</td>
<td>Otters use their sharp, pointy teeth to catch and eat fish, crabs, shrimp, and frogs.</td>
</tr>
<tr>
<td>Bear</td>
<td>Omnivore</td>
<td>Bears have sharp, pointy teeth <em>and</em> wide, flat teeth that allow them to eat both meat and plants. Bears like to eat berries and grains as well as fish, deer, and birds.</td>
</tr>
<tr>
<td>Horse</td>
<td>Herbivore</td>
<td>Horses use their wide, flat front teeth to bite through grass, hay, and sometimes fruits or vegetables such as apples or carrots. In the backs of their mouths, horses have wide, flat teeth that are perfect for grinding up the plant foods they eat.</td>
</tr>
</tbody>
</table>

*Teeth of the above animals are on display at the Dr. Samuel B. Harris National Museum of Dentistry.*  
*To learn more, or to schedule a tour, visit www.dentalmuseum.com.*
ACTIVITY C (OPTIONAL): WHAT ABOUT ME?

1. Conduct a class discussion based on the following Class Question:

   **Class Question:** What kind of teeth to *humans* have?
   **Discuss:** Humans have sharp, pointy teeth *and* wide, flat teeth in our mouths.
   - Our front, flat teeth are called *incisors*.
   - Our sharp, pointy side teeth are called *canines* and *premolars*.
   - Our back, flat teeth are called *molars*.

2. Conduct a class discussion based on the following Class Question:

   **Class Question:** Are humans herbivores, omnivores, or carnivores?
   **Discuss:** Our *incisors* (front teeth) are wide with flat edges. They are perfect for biting into apples like horses, or nibbling lettuce like rabbits.
   - Our *molars* (back teeth) are wide and flat and have a rough texture. They are excellent for chewing up fruits like elephants.
   - Our *canines* and *premolars* (side teeth) have sharp points. They help us bite into chicken and beef like lions and bears, and eat fish like sharks and alligators.
   - Humans can eat plants *and* animals. Humans are *omnivores*.

3. Ask each student to draw a picture of themselves in the “me!” box on C.1, write their name on the line, and then cut and glue their drawings into the *omnivores* section of their posters.

4. Conduct a class discussion based on the following Class Questions:

   **Class Question:** How do the foods we eat affect our teeth?
   **Discuss:** Even though we need food to survive, food can harm our teeth if we don’t brush them properly every day. *Bacteria*—tiny germs—can gather in our mouths to eat tiny leftover bits of food left on our teeth, and if we don’t wash the bacteria away each day, they can create tiny rotten spots in our teeth called *cavities*.

   **Class Question:** Who can help me care for my teeth so they stay healthy and strong?
   **Discuss:** Your grown-up caregiver(s) at home can help you brush your teeth each morning and night. In addition, they may take you to see a *dentist*: a doctor whose special focus is caring for your teeth. The dentist can help make sure your teeth stay healthy and strong, and if you *do* get a cavity, the dentist can help!
me!

C.1