

County Implementation Award Program (CIAP) Math and Science Lesson

Unit Title: Animal Adaptations
Lesson Title: Who Eats Here?
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Grade Level: 1st Grade
Time Frame: 1 hour
<p>Targeted Standard(s): 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p> <p>CCSS.MATH.CONTENT.1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p>
<p>Short Description of Targeted Phenomenon: Share with students the video of shorebirds eating. https://www.youtube.com/watch?v=sOFzc1LuTY8 Ask them to share what they notice and wonder.</p> <p>You may want to share a variety of videos of different birds eating from different environments that show birds digging their beaks into the sand and getting food, diving into the water and pecking into a tree.</p>
<p>Three Dimensions of NGSS</p>
<p>Science & Engineering Practice/s (SEP): Constructing Explanations and Designing Solutions <i>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</i> <i>-Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</i></p> <p>Crosscutting Concept/s (CCC): Patterns: <i>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</i></p> <p>Structure and Function: <i>The shape and stability of structures of natural and designed objects are related to their function(s).</i></p> <p>Connection to Engineering, Technology, and Applications of Science: <i>Influence of Engineering, Technology, and Science on Society and the Natural World:</i> <i>-Every human-made product is designed by applying some knowledge of the natural world and is built by using materials derived from the natural world.</i></p>
<p>Disciplinary Core Idea/s (DCI): LS1.A: Structure and Function: <i>All organisms have external parts.</i></p>

Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS1.D: Information Processing: *Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)*

Language Supports:

Students will need to be introduced to certain words like: environment, beak, habitat.

Teacher should create anchor charts using these vocabulary words and with sentence frames to guide discussions.

- “I think the _____ beak will work best in the _____ habitat because _____.”
- “The _____ beak did/did not work well in the _____ habitat because _____.”

Materials Needed:

Buckets to create the environments: filled with sand, grass, water, dirt.

Food: gummy worms, seeds, spaghetti

Beaks: large spoon, tweezers, ladle, nutcracker, chopsticks **any kitchen utensils found at the dollar tree would work**

Creating their tool: tape, scissors, popsicle sticks, chopsticks, rubber bands

**It is important to remember that any “tool” can be used as the different beaks as long as you know which beak you want it to represent.

Objective(s): Students will be able to:

1. Identify the adaptations of the different beaks that help each bird in their environments.
2. Identify the different lengths of the beaks using unifix cubes or other measuring tools.
3. Compare two different lengths (two different numbers).

How Math and Science concepts/skills/practices were integrated in this lesson:

In this lesson, students are asked to explore the different environments and “beaks”. The students will compare the beaks, trying to find explanations into why certain beaks work better for survival and food collection in different environments. The length and size of the different beaks is an essential part of understanding how they are best suited for their environment. Measuring these beaks will help students to truly understand their function.

Possible Challenges /Misconceptions:

Some beaks may work in different environments and it’s important to have conversations to

determine why this might be the case. It's not just one beak per environment.

Formative Assessment:

Teacher will walk around throughout the lesson, having discussions, asking questions and observing students. They will listen for appropriate use of vocabulary and will watch students measure and compare the "beaks" using unifix cubes.

Lesson Opening

Teacher Actions

Teacher will show YouTube video(s) of different birds collecting food in their different habitats. Click [here](#) to view "Beaks: Bird Feeding Adaptations" on YouTube.

Teacher will begin discussion on what they noticed in the video(s).

Teacher will write the student responses on an anchor chart.

Student Actions

Students will watch the video(s).

Students will participate in a discussion using "I wonder" and "I notice" statements.

Lesson Introduction

Teacher Actions

Teacher will create an anchor chart showing the different kinds of beaks. Teacher can either draw or print pictures of different beaks.

Student Actions

Students will put pictures or draw pictures of the different beaks in their science notebook (or on a blank piece of paper).

Body of Lesson

Teacher Actions

Teacher will lay out different "habitats", different "beaks" and different "food" as stations throughout the classroom.

1. Sandy beach environment
2. Desert environment
3. Ocean/lake (water) environment
4. Grassy environment

Teacher will ask students to measure the different lengths of the beaks using unifix cubes. Teacher will ask them to record the lengths and compare them.

Student Actions

Students will move throughout the centers however the teacher wants (all move at the same time or as they finish). They will explore how different "beaks" work better or worse in the different environments. They will also explore how different "animals" or "food" are easier to pick up depending on the beak and environment.

Students will use unifix cubes to measure the different lengths of the different beaks. Students will record the lengths (how many cubes?) and compare.

<p>Teacher will bring students together (either at the carpet or at their seats) and review. The teacher will have student-led discussions about why different beaks worked better. The teacher will explicitly explain the different beaks and tell students which type of bird they belong to and which environment that bird lives in. The teacher will write this/add this on to the anchor chart.</p> <p>Teacher will then ask students to think about what happens when they eat Cheetos. They will discuss how their fingertips get dirty. The teacher will put out materials (rubber bands, chopsticks, popsicle sticks, ribbon/string, tape) and ask students to create something they can use to get their Cheetos without getting their hands dirty.</p>	<p>Students will participate in a discussion with the teacher and other students about their exploration. Students will listen appropriately as the teacher explains the different birds, beaks and environments. Students will add to their worksheet or science notebook, copying down the notes and labels the teacher wrote on their anchor chart.</p> <p>Students will work in small groups to create a tool to get their Cheetos out of the bag.</p>
Lesson Closure	
<p>Teacher Actions</p> <p>Teacher will bring the students back to the carpet and have a discussion. Teacher will prompt the students to explain why their tool worked well and how that relates to different bird beaks. Teacher will explain that it is not a “one size fits all” and that different situations, environments, types of food all need different tools (beaks).</p>	<p>Student Actions</p> <p>Students will share out their successes and challenges in creating their tool. Students will also share out about the different beaks and why they work in their different environments and with different types of food.</p>
<p>Summative Assessment: The students will complete a matching worksheet that matches the different beaks to their environment.</p>	
<p>Other Teaching Resources:</p>	
<p>Lab Safety: Teacher must explain the appropriate use of these “tools”. Some of the materials that represent beaks may be sharp. Students must learn where to hold and how to pass the materials.</p>	
<p>Extensions (if any):</p> <p>Teacher can show videos of humans using tools like chopsticks, nutcrackers, and ladles. They can have a discussion about how those different tools work best with the different types of food. To connect back to the Performance Expectation, have students design a solution to a human problem connected to the learning done in this lesson, such as developing a tool used for eating in</p>	

space based on one of the structures they have observed. (Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.)