Hummingbird

Life Science | Lesson Guide

3rd Grade

Photo Description

This image shows a tiny hummingbird hovering in mid-air near bright pink flowers. The hummingbird has a long, thin beak, shimmering green feathers, and its wings are moving so fast they're blurry. You can see two flowers on green stems—one smaller and one larger and fuller—that the hummingbird is visiting to drink nectar.

Scientific Phenomena

Anchoring Phenomenon: How does a hummingbird stay floating in the air while it drinks from flowers?

Why This Happens: Hummingbirds have special adaptations that allow them to hover. Their wings beat 50+ times per second (much faster than other birds), creating an upward force that keeps them suspended in the air. This rapid wing movement allows the hummingbird to stay still while feeding on nectar, a sugary liquid inside flowers. The hummingbird's long, thin beak is perfectly shaped to reach deep into flowers to drink the nectar, which gives the bird energy for its incredibly fast movements.

Core Science Concepts

* Adaptation and Survival: Hummingbirds have special body parts (long beaks, fast wings, small size) that help them survive by getting food from flowers.

* Energy and Food: Hummingbirds drink nectar from flowers because it contains sugar that gives them the energy they need to fly and stay warm.

* Relationships Between Living Things: Hummingbirds and flowers help each other—the hummingbird gets food, and the flower gets pollinated (moved pollen between flowers) when the bird visits.

* Movement and Force: The rapid beating of hummingbird wings creates an upward force that allows the bird to hover in one place, unlike most other birds that must move forward to stay in the air.

Pedagogical Tip:

Third graders learn best through concrete observation and hands-on experiences. Consider showing a slow-motion video of hummingbird wings before this lesson so students can actually see the wing motion, since it's invisible to the naked eye at normal speed. This bridges the gap between abstract concept and observable reality.

UDL Suggestions:

To support diverse learners, provide multiple means of representation: show the image, play a slow-motion video, and use a hand-drawn diagram of a hummingbird with labels. For action and expression, allow students to choose between drawing, writing, or acting out how a hummingbird moves. For engagement, connect to student interests by asking which flowers grow in their neighborhood and what animals they've seen visiting those flowers.

Discussion Questions

1. What special body parts does the hummingbird have that help it drink from flowers? (Bloom's: Understand | DOK: 1)

2. Why do you think the hummingbird's wings need to beat so fast? (Bloom's: Analyze | DOK: 2)

3. How do you think the hummingbird and the flower help each other? (Bloom's: Analyze | DOK: 2)

4. If a hummingbird couldn't hover in the air, how would that change the way it gets food? (Bloom's: Evaluate | DOK: 3)

Extension Activities

1. Wing Beat Measurement: Have students hold a pencil vertically and see how many times they can tap the table with the eraser in one second. Then explain that a hummingbird's wings beat about 50 times in that same one second! Students can draw pictures showing the difference and label them "My wings" and "Hummingbird wings."

2. Flower Nectar Simulation: Mix sugar and water to make a simple "nectar" solution. Let students use a straw (like a hummingbird's beak) to drink the mixture, then discuss how this gives them energy, just like it does for hummingbirds. Connect this to why the hummingbird needs to eat so frequently.

3. Hummingbird Habitat Design: Provide students with colored paper, markers, and scissors to design and create flowers that a hummingbird might visit. Students can display their flowers and explain why the hummingbird would choose them (color, shape, size).

NGSS Connections

Performance Expectation: 3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Disciplinary Core Ideas:
- 3-LS1.B Growth and Reproduction of Organisms
- 3-LS4.C Adaptation

Crosscutting Concepts:
- Structure and Function (hummingbird beak and wings are shaped for their specific function)
- Patterns (hummingbirds visit flowers in patterns; flowers bloom in patterns)
- Energy and Matter (nectar contains energy that moves through the hummingbird)

Science Vocabulary

* Nectar: A sweet liquid made inside flowers that hummingbirds and other animals drink for energy.

* Adaptation: A special body part or behavior that helps an animal survive and get what it needs.

* Hover: To stay in one place in the air without moving forward or backward.

* Pollination: The movement of pollen from one flower to another, which helps make new flowers and seeds.

* Beak: The hard, pointed mouth part of birds used for eating and drinking.

External Resources

Children's Books:

- Hummingbirds by Gail Gibbons (National Geographic Little Kids)
- The Hummingbird by Gerda Muller
- Ruby the Hummingbird by Amelia Stewart

YouTube Videos:
- "Hummingbird in Slow Motion" by National Geographic Kids — Shows real hummingbird wing beats slowed down so you can see the incredible movement. https://www.youtube.com/results?search_query=national+geographic+kids+hummingbird+slow+motion

- "How Do Hummingbirds Hover?" by Crash Course Kids — Explains the physics of hummingbird flight in a kid-friendly way with animations. https://www.youtube.com/results?search_query=crash+course+kids+hummingbird+hover