Cicada

Life Science | Lesson Guide

2nd Grade

Photo Description

A large cicada sits on a tree branch with red leaves. The cicada has big clear wings with dark lines and a brown body. You can see its big round eyes on its head.

Scientific Phenomena

This image shows the Anchoring Phenomenon of cicada emergence and life cycle completion. The cicada has recently emerged from its underground nymph stage after living in the soil for several years. It has undergone metamorphosis, shedding its old skin to reveal its adult form with fully developed wings. The cicada is now in its brief adult stage where it will mate, lay eggs, and complete its life cycle before dying within a few weeks.

Core Science Concepts

1. Life Cycles: Cicadas go through incomplete metamorphosis with three stages - egg, nymph, and adult
2. Animal Structures: Cicadas have specialized body parts including large wings for flying, compound eyes for seeing, and strong legs for gripping
3. Seasonal Changes: Many animals change their behavior and appearance as seasons change
4. Habitat Needs: Animals need specific places to live that provide food, water, shelter, and space

Pedagogical Tip:

Use real cicada shells (exoskeletons) if available in your area, as students can safely handle these and observe the eye holes, leg attachments, and body segments up close.

UDL Suggestions:

Provide multiple ways for students to explore cicada life cycles through hands-on manipulatives, digital simulations, and movement activities where students act out each life stage.

Zoom In / Zoom Out

1. Zoom In: Inside the cicada's body, special muscles attached to hollow chambers vibrate rapidly to create the loud buzzing sounds male cicadas make to attract mates.

2. Zoom Out: Cicadas are part of a larger forest ecosystem where they serve as food for birds, spiders, and other predators, while their underground nymphs help aerate soil and their adult emergence provides nutrients to the forest floor.

Discussion Questions

1. What body parts help this cicada survive in its environment? (Bloom's: Analyze | DOK: 2)
2. How might a cicada's life be different in summer compared to winter? (Bloom's: Apply | DOK: 2)
3. What do you think would happen if there were no cicadas in the forest? (Bloom's: Evaluate | DOK: 3)
4. What patterns do you notice about the cicada's body parts? (Bloom's: Remember | DOK: 1)

Potential Student Misconceptions

1. Misconception: Cicadas are harmful or dangerous to humans
   Reality: Cicadas are completely harmless - they don't bite, sting, or damage plants

2. Misconception: The loud buzzing sound comes from their wings flapping
   Reality: Male cicadas make sounds using special vibrating body parts called tymbals, not their wings

3. Misconception: Cicadas are the same as locusts
   Reality: Cicadas and locusts are completely different insects with different life cycles and behaviors

NGSS Connections

- Performance Expectation: 2-LS4-1 - Make observations of plants and animals to compare the diversity of life in different habitats
- Disciplinary Core Ideas: 2-LS4.A - 1-LS1.A
- Crosscutting Concepts: Patterns - Structure and Function

Science Vocabulary

* Cicada: An insect that lives underground as a baby and comes out with wings as an adult
* Life cycle: The different stages an animal goes through as it grows and changes
* Metamorphosis: When an animal changes form as it grows from baby to adult
* Nymph: The young form of some insects before they become adults
* Habitat: The place where an animal lives and finds everything it needs to survive

External Resources

Children's Books:
- Cicadas! Strange and Wonderful by Laurence Pringle
- Waiting for Wings by Lois Ehlert
- The Very Quiet Cricket by Eric Carle

YouTube Videos:
- "Cicada Life Cycle for Kids" - Simple animation showing the three stages of cicada development with kid-friendly narration: https://www.youtube.com/watch?v=example1
- "Amazing Cicada Sounds in Nature" - Real footage of cicadas in trees with close-up views and natural sound recordings: https://www.youtube.com/watch?v=example2