

## Photo Description

A big brown bug sits on a tree branch. The bug has clear wings and big eyes. It looks like it is resting in the sun.



## Scientific Phenomena

This image shows a cicada emergence phenomenon - when cicadas come out of the ground after living underground for years. The cicada has recently emerged from its nymph shell and is now an adult with wings. This happens because the cicada has completed its life cycle transformation (metamorphosis) from a ground-dwelling nymph to a flying adult. The timing is triggered by soil temperature and the cicada's internal biological clock.

## Core Science Concepts

1. Life Cycles: Animals go through different stages as they grow and change
2. Animal Habitats: Some animals live underground, others live on trees and in the air
3. Animal Body Parts: Different animals have different body parts that help them survive (wings for flying, strong legs for digging)
4. Seasonal Changes: Some animals appear at certain times of year

### Pedagogical Tip:

Use concrete, hands-on experiences when teaching about life cycles. Having students act out the different stages of a cicada's life (underground nymph, climbing up, adult with wings) helps make abstract concepts tangible for kindergarteners.

### UDL Suggestions:

Provide multiple ways for students to explore this concept: tactile experiences with toy insects, visual life cycle charts with pictures, and audio recordings of actual cicada sounds to engage different learning preferences and abilities.

## Zoom In / Zoom Out

1. Zoom In: Inside the cicada's body are special muscles that make the wings move very fast and create loud buzzing sounds that we can hear from far away.
2. Zoom Out: Cicadas are part of a big forest community where they provide food for birds, and their empty shells add nutrients to the soil when they decompose.

## Discussion Questions

1. What do you notice about this bug's body parts? (Bloom's: Observe | DOK: 1)
2. How do you think this cicada uses its wings? (Bloom's: Apply | DOK: 2)
3. Why might the cicada choose to sit on this tree branch? (Bloom's: Analyze | DOK: 2)
4. What would happen if there were no trees for cicadas to live on? (Bloom's: Evaluate | DOK: 3)

## Potential Student Misconceptions

1. Misconception: "The cicada is a butterfly because it has wings"

Clarification: Cicadas are different from butterflies - they have clear wings and make buzzing sounds, while butterflies have colorful wings and are silent.

2. Misconception: "Cicadas are scary and will hurt me"

Clarification: Cicadas are gentle insects that don't bite or sting people - they only eat tree sap.

## NGSS Connections

- Performance Expectation: K-LS1-1 Use observations to describe patterns of what plants and animals need to survive
- Disciplinary Core Ideas: K-LS1.C Organization for Matter and Energy Flow in Organisms
- Crosscutting Concepts: Patterns

## Science Vocabulary

- \* Cicada: A large insect that lives underground and comes out to fly and make loud buzzing sounds
- \* Wings: Body parts that help insects and birds fly through the air
- \* Insect: A small animal with six legs and three body parts
- \* Underground: Below the ground where we walk
- \* Life cycle: The different stages an animal goes through as it grows up

## External Resources

### Children's Books:

- Cicadas! Strange and Wonderful by Laurence Pringle
- Waiting for Wings by Lois Ehlert
- Are You a Cicada? by Judy Allen

### YouTube Videos:

- "Cicada Life Cycle for Kids" - Simple animation showing how cicadas grow from underground nymphs to flying adults: <https://www.youtube.com/watch?v=R0ys8Tksz00>
- "What Do Cicadas Sound Like?" - Real recordings of cicada calls with kid-friendly explanations: <https://www.youtube.com/watch?v=mah26og11ms>