Earthworm

Life Science | Lesson Guide

2nd Grade

Photo Description

This image shows an earthworm on grass and soil. You can see the earthworm's long, tube-shaped body divided into ring-like segments. The earthworm is brown in color and appears to be moving across the ground where it naturally lives.

Scientific Phenomena

Anchoring Phenomenon: Why do earthworms live in soil and come out on wet days?

Earthworms are living creatures that need moisture to survive. Their skin must stay wet to breathe, since earthworms absorb oxygen through their skin rather than using lungs like humans do. When soil gets too dry, earthworms move deeper underground or come to the surface to find moist areas. This behavior helps them find the conditions they need to live and thrive in their habitat.

Core Science Concepts

* Living Things Have Basic Needs: Earthworms need moisture, soil, and organic matter (decomposing plants and animals) to survive, just as all living things need food, water, and shelter.

* Habitats Support Living Things: Soil and leaf litter are the earthworm's habitat—the place where it finds food and shelter. Different animals live in different habitats.

* Organisms Have Observable Features: Earthworms have segmented bodies (ring-like sections), no legs, and moist skin that help them move through soil and breathe.

* Decomposition and Nutrient Cycling: Earthworms eat dead plant material and break it down, returning nutrients to the soil so new plants can grow. This makes earthworms important helpers in nature.

Pedagogical Tip:

Second graders learn best through concrete, hands-on observation. Rather than just showing this photo, consider bringing in live earthworms in a clear container so students can observe them moving, burrowing, and responding to light and moisture. This multisensory experience deepens understanding of how earthworms behave and interact with their environment.

UDL Suggestions:

To support diverse learners, provide multiple means of representation: (1) Use large, labeled diagrams showing earthworm body parts for visual learners; (2) Offer tactile experiences like feeling moist soil and observing earthworm movement for kinesthetic learners; (3) Create a "vocabulary word wall" with pictures and simple definitions for English Language Learners. Allow students to demonstrate understanding through drawing, verbal explanation, or physical modeling rather than written responses only.

Discussion Questions

1. What do you think the earthworm's ring-like body parts help it do? (Bloom's: Analyze | DOK: 2)

2. Why do you think an earthworm needs to stay in moist soil? (Bloom's: Understand | DOK: 2)

3. How does the earthworm help the plants and soil in a garden? (Bloom's: Evaluate | DOK: 3)

4. If you found an earthworm on dry pavement, what would you predict would happen to it, and why? (Bloom's: Predict/Analyze | DOK: 2)

Extension Activities

1. Earthworm Habitat Observation Box: Create a "worm farm" in a clear plastic container with layers of soil, sand, and leaf litter. Add 3-4 earthworms and observe them for two weeks. Have students draw pictures daily of where the worms are, what they're doing, and how the soil layers change. This shows how earthworms tunnel and mix soil.

2. Soil Exploration Walk: Take students outside to a garden, park, or natural area. Have them gently dig in the soil (with permission) to find earthworms and other decomposers. Students can count the worms, observe their size and color, and discuss what they find nearby (leaves, plant roots, other insects). This builds awareness of earthworms as part of a real ecosystem.

3. Life Cycle Drawing and Sequencing: Show students pictures of earthworms at different life stages and have them draw and arrange them in order (egg, baby worm, adult worm). Discuss how living things grow and change, connecting to the earthworm life cycle.

NGSS Connections

Performance Expectation:
2-LS2-1: Plan and conduct investigations to provide evidence that plants get the materials they need for growth chiefly from air and water, and that animals get the materials they need from food.

Disciplinary Core Ideas:
- 2-LS1.A Structure and Function: All organisms have external parts. 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.
- 2-LS2.A Interdependent Relationships in Ecosystems: Plants depend on animals for pollination or seed dispersal, and animals depend on plants for food and other materials.

Crosscutting Concepts:
- Structure and Function The earthworm's segmented body structure allows it to move through soil efficiently.
- Systems and System Models Earthworms are part of a soil ecosystem where living and nonliving things interact.

Science Vocabulary

* Earthworm: A small animal with a long, soft body divided into rings that lives in soil and eats dead plants.

* Segments: The ring-like sections that make up an earthworm's body.

* Habitat: The place where an animal lives and finds food, water, and shelter.

* Decompose: To break down dead plants and animals into smaller pieces that help make soil rich for new plants.

* Organism: Any living thing, like an animal, plant, or insect.

* Moist: A little bit wet; damp.

External Resources

Children's Books:
- Diary of a Worm by Doreen Cronin, illustrated by Harry Bliss (engaging narrative from a worm's perspective)
- The Worm Family by Tony Johnston, illustrated by Jill McDonald (story about earthworm family life)
- Wonderful Worms by Linda Glaser, illustrated by Loretta Holland (informational picture book about earthworm ecology)

YouTube Videos:
- "What Do Worms Eat? | Animal Facts for Kids" (2:45) – Simple explanation of earthworm diet and role in soil. URL: https://www.youtube.com/watch?v=jxqWJmPc6vE

- "The Life Cycle of a Worm" (3:30) – Animated video showing how earthworms grow from eggs to adults. URL: https://www.youtube.com/watch?v=qjBv1w-fBho

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Teacher Notes: This lesson works best when paired with hands-on observation and outdoor exploration. Second graders are naturally curious about small creatures, so encourage careful, respectful handling of earthworms. Emphasize that earthworms are helpful partners in nature, not something to fear.