Earthworm

Life Science | Lesson Guide

1st Grade

Photo Description

This image shows a long, brown earthworm stretching across green grass and mulch. You can see the earthworm's smooth, bumpy body divided into ring-like sections called segments. The earthworm is resting on soil and plant material, which is its natural home.

Scientific Phenomena

Anchoring Phenomenon: Why do earthworms come out after rain and move across the ground?

Earthworms live underground in soil where they burrow and eat decomposing plant material. When heavy rain falls, water fills their underground tunnels, making it hard to breathe. Earthworms must move to the surface to find air and drier soil. Additionally, rain-softened soil is easier for earthworms to tunnel through. This observable behavior—finding earthworms on wet ground—is a perfect entry point for First Graders to investigate how animals respond to their environment.

Core Science Concepts

* Animal Habitats: Earthworms live in soil, an environment that provides food, shelter, and moisture. Understanding that animals need specific places to live is foundational to ecology.

* Body Structure and Function: Earthworms have segmented bodies (rings) that help them move and bend through soil. Their skin must stay moist to absorb oxygen, which connects structure to survival needs.

* Decomposition and Ecosystems: As earthworms tunnel and eat dead leaves and plants, they break down organic matter and return nutrients to the soil. This makes them essential for plant growth and healthy ecosystems.

* Animal Behaviors and Adaptations: Earthworms respond to environmental changes (like rainfall and light) by moving. This is an example of how animals adapt their behavior to survive.

Pedagogical Tip:

For First Grade, avoid overly complex vocabulary like "respiration" or "decomposition." Instead, use concrete language: "Earthworms need air to breathe," "Earthworms eat dead leaves," and "Earthworms help plants grow." Encourage students to observe earthworms directly through classroom exploration rather than relying solely on pictures. Hands-on observation deepens understanding and maintains engagement.

UDL Suggestions:

Multiple Means of Representation: Provide a labeled diagram showing earthworm body parts alongside the photograph. Use bright colors to highlight segments and important features.

Multiple Means of Engagement: Allow kinesthetic learners to act out how earthworms move by doing "earthworm stretches" on the floor. This multi-sensory approach supports diverse learners.

Multiple Means of Expression: Accept student responses as drawings, verbal descriptions, or physical demonstrations—not just written answers. This honors different communication styles typical of First Grade.

Discussion Questions

1. What do you think the earthworm is doing on top of the grass? Why might it have come out of the soil?
   (Bloom's: Comprehend | DOK: 1)

2. How does the earthworm's long, wiggly body help it move through soil?
   (Bloom's: Analyze | DOK: 2)

3. What do you think earthworms eat, and why is that important for plants?
   (Bloom's: Evaluate | DOK: 3)

4. If you were an earthworm, what would you need to stay alive and healthy underground?
   (Bloom's: Create | DOK: 3)

Extension Activities

Activity 1: Earthworm Observation Container ("Worm Farm")
Layer soil, sand, and compost in a clear plastic bottle or jar. Add 2-3 earthworms and damp leaves. Keep the container in a cool, dark place. Students observe for one week, recording how earthworms burrow and mix soil layers. Discuss how earthworms help the soil. Safety note: Ensure earthworms are returned to outdoor soil after observation.

Activity 2: Earthworm Movement Exploration
Give students yarn or string to represent earthworm bodies. Have them lay it on the ground and discuss the segments. Then, students move like earthworms across the floor using stretching and contracting motions. Discuss which body movements help them travel. Connect this to earthworm adaptations.

Activity 3: Soil Scavenger Hunt
Take students outside with magnifying glasses to observe soil and find evidence of earthworms (tunnels, casts, etc.). Have them draw pictures of what they observe. Return to class and create a class "soil home" chart showing what earthworms need to survive.

NGSS Connections

Performance Expectation:
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.

Disciplinary Core Ideas:
- 1-LS1.A - All organisms have external parts. Different animals use their 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.
- 1-LS1.B - Animals have basic needs, which are met by obtaining food, water, air, and a suitable place to live. Plants need water, air, and light. Different plants put their roots, stems, and leaves in different places that help them get what they need to grow.

Crosscutting Concepts:
- Structure and Function - The shape and stability of structures of natural and designed objects are related to the materials from which they are made and the way that object is used.
- Patterns - Patterns in the natural world can be observed and used as evidence.

Science Vocabulary

* Earthworm: A long, soft animal with a segmented body that lives in soil and helps plants grow.
* Segments: The ring-like sections that make up an earthworm's body, helping it bend and move.
* Soil: The dark, crumbly material on the ground where earthworms live and plants grow roots.
* Burrow: To dig a tunnel or hole under the ground where animals can live and hide.
* Decompose: To break down or rot, like when dead leaves turn into soil.
* Habitat: The place where an animal lives and finds everything it needs to survive.

External Resources

Children's Books:
An Earthworm's Life* by Rebecca Stefoff (part of the "Animals and Their Habitats" series—excellent for First Grade)
The Earthworm* by Ron and Atie Hennessy (simple, illustrated facts)
Wonderful Worms* by Linda Glaser (explores the benefits of earthworms in gardens)

YouTube Videos:
* "Earthworms for Kids" by National Geographic Kids (2:30 min) - An engaging, age-appropriate introduction to earthworm habitats and behaviors. https://www.youtube.com/watch?v=K5L5MoCxbpE

* "What Do Earthworms Do?" by Crash Course Kids (4:15 min) - Explains decomposition and the earthworm's role in ecosystems using clear visuals and accessible language. https://www.youtube.com/watch?v=QQgGT75f2_0

Note to Teacher: This lesson anchors to a real-world phenomenon students may observe after rain, making it relatable and inquiry-driven. Consider connecting this unit to a broader study of soil, decomposition, and garden ecosystems throughout the spring season.