Lake Landform

Earth & Space Science | Lesson Guide

3rd Grade

Photo Description

This image shows a peaceful lake surrounded by trees with beautiful fall colors—orange, red, and brown leaves. Along the sandy shore, a fallen tree trunk extends into the water, and the forest edges meet the water's surface. The photo captures how water, land, and living things interact in nature.

Scientific Phenomena

Anchoring Phenomenon: Why does water collect in low areas on Earth, and how do landforms like lakes change over time?

This image represents the natural process of water collection and erosion at work. Lakes form in low areas of land where water naturally flows and gathers. The fallen tree you see illustrates weathering and erosion—processes where rocks, soil, and wood break down and change shape over time due to water, wind, and weather. Trees fall into lakes due to wind, age, or soil erosion along the banks, demonstrating how living and nonliving things constantly reshape Earth's surface.

Core Science Concepts

1. Landforms and Water Bodies: Lakes are landforms (natural shapes of Earth's surface) that hold freshwater and are surrounded by land. They form in areas where the land is lower than surrounding areas.

2. Weathering and Erosion: Water, wind, and weather break down rocks and soil into smaller pieces and move them from one place to another. The fallen tree shows how erosion weakens banks and causes trees to fall.

3. Ecosystems and Habitats: Lakes provide homes for plants, animals, and microorganisms. The trees, water, soil, and creatures all depend on each other and create a complete living system.

4. Seasonal Changes: The autumn colors visible in the photo show how trees and plants change with the seasons, affecting the entire ecosystem.

Pedagogical Tip:

Rather than explaining erosion as a concept, have students observe and touch different materials (sand, clay, rocks) near a water source. Ask them to predict which materials water will move most easily. This sensory engagement helps Third Graders understand erosion as a visible, testable process they can witness themselves, not just an abstract idea.

UDL Suggestions:

Representation: Provide the image in multiple formats—printed color copy, digital version, and a simplified labeled diagram. Some students may benefit from a close-up photo of just the tree, while others need the full landscape context.

Action & Expression: Allow students to show their learning through drawing, building a model lake with sand/water, or dictating observations to a peer—not just written answers.

Engagement: Connect the image to students' own experiences: "Have you seen a lake or pond near your home? What did you notice?" Personal connections increase motivation and relevance.

Discussion Questions

1. What do you think will happen to this fallen tree over many, many years? (Bloom's: Predict | DOK: 2)

2. Why do you think the water collected in this low area instead of somewhere else? (Bloom's: Analyze | DOK: 2)

3. How might this lake be different in summer compared to fall, when this picture was taken? (Bloom's: Compare | DOK: 2)

4. If you could visit this lake, what living and nonliving things would you expect to find there, and how do they need each other? (Bloom's: Evaluate | DOK: 3)

Extension Activities

1. Sand and Water Erosion Model: Provide students with a shallow pan filled with sand, small pebbles, and soil. Let them pour water slowly onto a slope and observe what happens. Ask: "Which materials moved? Which stayed? Why?" Have them draw or photograph the changes. (Supports hands-on understanding of erosion.)

2. Landform Classification Walk: Take students on a nature walk around the school grounds. Have them sketch and describe different landforms they see (hills, flat areas, slopes). Discuss how water moves through or collects in these areas. Create a class chart comparing the landforms. (Builds observational skills and connects concepts to real environment.)

3. Lake Food Web Diagram: Have students research or brainstorm what lives in lakes (fish, frogs, plants, insects, birds). Create a large food web poster showing how lake organisms depend on each other. Include the water, sunlight, and soil as important nonliving parts. (Integrates ecosystem concepts with visual learning.)

NGSS Connections

Performance Expectation:
3-ESS2-1: Represent data in tables and pictographs to show that Earth's surface is made up of different landforms that can be classified by their physical attributes.

Disciplinary Core Ideas:
- 3-ESS2.A Earth's materials (rocks, soil, water, air) have properties that can be observed and described
- 3-ESS3.B Humans depend on Earth's resources, including water, and change the environment in ways that can be helpful or harmful

Crosscutting Concepts:
- Systems and System Models (the lake ecosystem functions as a system)
- Stability and Change (erosion and weathering cause slow, observable changes to landforms)

Science Vocabulary

* Landform: A natural shape or feature of Earth's surface, like a mountain, hill, valley, or lake.

* Erosion: The slow process where water, wind, or ice wears away rocks and soil and moves them to a new place.

* Weathering: The breaking down of rocks and soil into smaller pieces by water, wind, ice, or sunlight.

* Ecosystem: All the living things (plants and animals) and nonliving things (water, air, soil) in an area that depend on each other.

* Habitat: The natural home or place where a plant or animal lives.

External Resources

Children's Books:
- A River Ran Wild by Lynne Cherry (shows how water shapes land and communities)
- Who Lives Here? Pond by Marianne Berkes (introduces pond/lake habitats and creatures)
- Erosion: Wearing Away Earth by Rebecca L. Johnson (accessible explanation of weathering and erosion)

YouTube Videos:
- "Weathering and Erosion for Kids" by Crash Course Kids — Clear, animated explanation of how Earth's surface changes over time. Duration: ~4 minutes. https://www.youtube.com/watch?v=X7zGDDK6XFw

- "What is an Ecosystem?" by National Geographic Kids — Shows real ecosystems including lakes, with engaging visuals and age-appropriate narration. Duration: ~3 minutes. https://www.youtube.com/watch?v=nzWeEPfEfEY

Teacher Tip: This image works best as a launch activity rather than a summary. Display it on day one and let students' curiosity drive the unit. Revisit it throughout your lessons on landforms, water, erosion, and ecosystems—students will notice new details as their understanding grows!