

Daily Lesson Plan

Lesson Plan: Understanding Slow Changes to Earth's Surface

Subject: 4th Grade Science

TEKS Standard: Science 4.10(b)

Earth and Space. The student knows that there are processes on Earth that create patterns of change. The student is expected to: (B) model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice;

Objective(s):

Students will be able to model and describe how weathering, erosion, and deposition from water, wind, and ice cause slow changes to Earth's surface.

Materials Needed:

- Sand or soil
- Small rocks or pebbles
- Water
- Ice cubes
- Hair dryer or fan
- Trays or large pans
- Clear plastic cups
- Craft sticks
- Images or videos or natural landscapes showing weathering, erosion, and deposition
- Science journals
- Markers or crayons

Lesson Duration:

1 Class Period (approximately 60 minutes)

Lesson Outline

1. Introduction (10 minutes)

- Begin with a discussion on how Earth's surface is constantly changing.
- Show images or videos of landscapes affected by weathering, erosion, and deposition (e.g., canyons, riverbanks, sand dunes).
- Introduce the terms of weathering, erosion, and deposition and provide simple definitions:
 - **Weathering:** The breaking down of rocks into smaller pieces.
 - **Erosion:** The movement of rock particles by wind, water, ice, or gravity.
 - **Deposition:** The laying down of sediments in new locations.

2. Direct Instruction (10 minutes)

- Explain how weathering, erosion, and deposition work together to change Earth's surface over time.
- Use visual aids to illustrate each process.
- Discuss the role of water, wind, and ice in these processes.

3. Guided Practice (20 minutes)

- **Weathering Activity**
 - Give each student a small rock and a craft stick
 - Have students rub the rock with the craft stick to stimulate weathering.
 - Discuss how this process breaks down rocks into smaller pieces over time.
- **Erosion Activity**
 - Set up trays with sand or soil and small rocks.
 - Use a hairdryer or fan to blow air across the surface to simulate wind erosion.
 - Pour water over the sand to simulate water erosion.
 - Use ice cubes to show how glaciers can move rocks and soil.
- **Deposition Activity**
 - After the erosion activities, observe how the sand, soil, and rocks settle in new locations in the tray.
 - Discuss how this represents deposition.

4. Independent Practice (15 minutes)

- Provide students with clear plastic cups, sand or soil, water, and small rocks.
- Ask students to create their own models showing weathering, erosion, and deposition.
- Have students draw and label their models in their science journals.

5. Sharing and Reflection (5 minutes)

- Invite students to share their models and explain the process they demonstrated.
- Discuss how these slow changes shape the Earth's surface over long periods.

6. Closure (5 minutes)

- Recap the key concepts of weathering, erosion, and depositions.
- Emphasize the importance of understanding these natural process and their impact on Earth's surface.

Differentiation:

- **For Advanced Students:**

Provide more complex scenarios or landscapes for modeling, such as coastal erosion or glacial movement.

- **For Struggling Students:**

Offer additional support with simplified models and step-by-step guidance. Pair them with peers for collaborative learning.

- **For Visual Learners:** Use more images, diagrams, and videos to reinforce concepts.

- **For Kinesthetic Learners:** Provide hands-on activities and encourage physical interaction with the materials.

Homework:

- Assign students to find examples of weathering, erosion, and deposition in their local environment or from pictures in magazines, books, or online.
- Ask them to take photos or draw pictures of these examples and write a short paragraph describing the process they observed.

Reflection:

- Reflect on the lesson by considering student engagement and understanding.
- Assess whether students were able to effectively model and describe the process of weathering, erosion, and deposition.
- Gather student feedback on what they enjoyed and found challenging about the lesson.
- Adjust future lessons based on observations and feedback, possibly incorporating more interactive or visual elements if needed.

Assessment

- **Observation:** During the guided and independent practice activities, circulate around the classroom to observe students' participation and understanding. Note how well they are able to model the process and explain their observations.
- **Science Journals:** Collect students' science journals at the end of the lesson to review their diagrams and descriptions of weathering, erosion, and deposition. Look for accuracy, completeness, and understanding of the concepts.
- **Class Discussion:** Assess students' understanding based on their contributions to the class discussion. Look for accurate use of terminology and the ability to explain the process.
- **Exit Ticket:** At the end of the lesson, give each student a small piece of paper and ask them to write on it something they learned about weathering, erosion, and deposition, and one question they still have. This can provide insight into their understanding and any areas that may need further clarification.

By using a combination of observation, written work, and discussion, you can assess students' understanding of the slow changes to Earth's surface caused by weathering, erosion, and deposition, and adjust instruction as needed to ensure all students grasp these important concepts.