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# Journey to the Ice Age: Glaciers on the Move!

**Grade Level:** 1st Grade (Ages 6-7)

**Subject:** Science, Art, History

**Core Focus:** This lesson uses hands-on, creative activities to explore how glaciers form, move, and shape the land, and to imagine life during the Ice Age. The focus is on discovery and application, not memorization.

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## Materials Needed

- **For the Mini-Glacier:**
  - A baking dish or paint tray
  - Sand, dirt, or flour to create "land"
  - Small pebbles and twigs
  - A large block of ice (freeze water in a small rectangular container overnight)
  - Blue food coloring (optional, to make the ice look more "glacial")
- **For the Cave Art:**
  - A brown paper grocery bag
  - Brown, black, red, and white crayons or chalk
  - Pictures of Ice Age animals (Woolly Mammoth, Saber-toothed Cat, etc.)
  - Scissors
- **For the Fossil Dig:**
  - A bowl or container filled with water and small plastic animal toys (frozen ahead of time)
  - Warm water in a separate bowl or squeeze bottle
  - A small paintbrush or spoon for "excavating"

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## Learning Objectives

By the end of this lesson, the student will be able to:

1. Demonstrate how a glacier moves and changes the land using a hands-on model.
2. Create a piece of art inspired by Ice Age cave paintings, representing an animal from that era.
3. Explain in their own words that glaciers are giant sheets of ice that existed long ago.

## Alignment with Standards

This lesson aligns with concepts from the Next Generation Science Standards (NGSS), particularly focusing on modeling and Earth systems. It touches on ideas within:

- **2-ESS2-2:** Develop a model to represent the shapes and kinds of land and bodies of water in an area. (Adapted for 1st grade by creating a model of glacial erosion).
- **K-2-ETS1-2:** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

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Lesson Procedure

Part 1: The Big Chill (Introduction - 5 minutes)

Goal: Spark curiosity and introduce the concept of an Ice Age.

1. Begin by asking, "Have you ever felt so cold that you needed a big, warm coat? Imagine a time when the whole world was much, much colder. A time with giant, slow-moving rivers of ice and huge, woolly animals. This was the Ice Age!"
2. Show pictures of glaciers and Ice Age animals. Talk about how different the world looked then.
3. Say, "Today, we are going to become scientists and artists to explore the Ice Age. First, let's see what those giant rivers of ice, called glaciers, can do!"

Part 2: Make a Mini-Glacier! (Science Experiment - 15 minutes)

Goal: Actively demonstrate the concept of glacial erosion in a memorable way.

1. Prepare the "land." Fill the bottom of the baking dish with a layer of sand or dirt. Place small pebbles and twigs around the landscape. Create a small hill on one end.
2. Introduce the "glacier." Place the large block of ice at the top of the hill. If you used food coloring, point out its cool blue color.
3. **Action!** Gently and slowly push the ice block down the hill and across the "land." Encourage the student to do the pushing.
4. **Observe and Discuss:** As the glacier moves, ask questions to guide discovery:
    - "What is the glacier doing to our land?" (Pushing the dirt, picking up rocks).
    - "Look! What did the glacier leave behind?" (A path, a valley, moved pebbles).
    - "This is exactly what real glaciers did! They acted like giant bulldozers, carving out valleys and moving huge rocks all over the Earth."

Part 3: Ice Age Cave Art (Creative Activity - 15 minutes)

Goal: Connect with the human element of the Ice Age through creative expression.

1. Say, "Long ago, people didn't have paper. They told stories by painting on the walls of caves. Let's make our own cave wall!"
2. Cut a large piece from the brown paper bag. Have the student crumple it up into a tight ball and then smooth it out again. This will give it a rocky, uneven texture like a cave wall.
3. Look at the pictures of Ice Age animals again. Discuss their features (the mammoth's long tusks, the saber-tooth's big teeth).
4. Using the crayons or chalk, guide the student to draw their favorite Ice Age animal on the "cave wall." Encourage the use of simple shapes and earthy colors (browns, reds, black).
5. **Check for Understanding:** Ask, "Tell me about the animal you drew. What makes it an Ice Age animal?"

Part 4: Frozen in Time Fossil Dig (Sensory Activity - 10 minutes)

Goal: Provide a sensory experience to understand how things can be preserved in ice.

1. Present the pre-frozen bowl containing the plastic animals. Say, "Sometimes, animals and plants from the Ice Age got trapped in the ice and were preserved for thousands of years! You've discovered a block of ancient ice. Your job is to carefully rescue the creatures inside."
2. Provide the bowl of warm water and the paintbrush or squeeze bottle. Let the student slowly pour or paint the warm water onto the ice to melt it and excavate the toys.

3. This activity reinforces the theme of ice and preservation while being a fun, hands-on sensory task.

Part 5: Mammoth Stomp! (Wrap-up & Movement - 5 minutes)

Goal: Reinforce key concepts and end the lesson with a fun, physical activity.

1. Review what you learned: "What is a glacier?" (A giant, slow river of ice). "What does it do to the land?" (Moves it, carves it). "What was one animal that lived in the Ice Age?" (Mammoth).
2. Say, "Let's pretend to be woolly mammoths!" Encourage the student to stomp around the room, swing their "trunks" (arms), and make mammoth sounds. This helps anchor the memory through physical action.

Differentiation and Inclusivity

- **For Extra Support:** Provide pre-drawn outlines of the Ice Age animals for the student to color in on their cave art. Guide their hand more during the glacier experiment, explaining each step as you do it together.
- **For an Advanced Challenge:** Encourage the student to write the name of their animal on the cave art. Ask them to predict what would happen if the glacier was melting faster (more water!). They could research and draw a second, different Ice Age animal.

Assessment

Assessment is informal and observation-based, focusing on engagement and understanding rather than right/wrong answers.

- **Formative (During Lesson):** Observe the student during the glacier experiment. Do they see the cause-and-effect of the ice moving the sand? Listen to their answers to the discussion questions.
- **Summative (End of Lesson):** The student's completed cave art serves as a creative artifact of their learning. Ask the student to be a "museum guide" and explain their drawing and one thing they learned about glaciers. Their ability to articulate the main ideas in their own words demonstrates comprehension.

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