

SEA LEVEL RISES ACTIVITY

Section

This activity is designed not only to help students understand how melting ice affects sea levels, but also to build their confidence and curiosity about environmental changes. While climate topics can sometimes feel overwhelming, this lesson emphasizes exploration, teamwork, and understanding, not fear. Use a calm and reassuring tone throughout. Let students know that the Earth is always changing in small ways, and scientists study those changes to help us live safely and responsibly. Avoid personal or traumatic stories; instead, highlight how knowledge, observation, and working together help us solve problems. Remind students that being prepared doesn't mean being scared, it means being informed. Creating a classroom environment where students feel safe to ask questions, share ideas, and make mistakes is just as important as the experiment itself. If any student feels uneasy, gently guide them back to curiosity and discovery. Remind them that science gives us tools to better understand our world, and that caring for the Earth is something we can all do together.

Lesson

Science

Grade

4-5

Learning Objectives

Students will conduct experiments to explore matter and natural processes, using scientific inquiry and data analysis to understand environmental phenomena and natural events.

Duration

1 class (40 Minutes)

Required Materials

2 clear plastic containers (same size)
Ice cubes (same size, enough to fill $\frac{1}{4}$ of container)
Small pebbles or playdough (to represent land/continent)
Water
Marker or tape (to mark water level)
Ruler
Worksheet (includes data table + graph template)

Preparation and Implementation

Set up a calm and friendly classroom. Tell students this is a safe and fun science activity. Prepare small group kits (3-4 students). Print worksheets. You can play soft music in the background to help focus. This activity shows how melting glaciers and ice can change sea levels. We use gentle language. Instead of saying "climate crisis," we say "nature is always changing, and science helps us understand it."

ACTIVITY DESCRIPTION

1

INTRODUCTION (10 Minutes)

Trauma-Sensitive Notes:

Begin the lesson with gentle and reassuring language. Avoid using alarming terms such as “crisis,” “disaster,” or “doomsday.” Instead, say things like:

“Nature is always changing in small and big ways. Scientists help us understand these changes.”

“This experiment is about exploring, discovering, and thinking like scientists—not about being scared.”

Let students know that it's okay to feel curious, uncertain, or even a little uneasy. Reassure them that the classroom is a safe space for learning together.

Ask students:

Where does ocean water come from?

Have you heard that the sea level is going up?

Say: “Some ice is on land (like glaciers), and some ice floats in the ocean (sea ice). When they melt, do they change the sea the same way? Let’s find out together.”

You can also talk about local nature:

In Türkiye, mountain snow melts in summer.

Sometimes this causes floods or changes rivers.

In Türkiye:

In the Cilo Mountains (Hakkari), glaciers have shrunk by over 50% in the past 30 years.



Mount Ararat’s glacier is melting rapidly and may disappear by 2065.



Marmara Sea is expected to rise by 50 cm by 2050. This could affect areas like Kadıköy and historical coastlines.



Snow from mountain peaks melts faster in summer, sometimes causing floods in local villages or changing river flow.

In the World:

In Antarctica, the “Doomsday Glacier” (Thwaites Glacier) is melting. Scientists warn it could raise global sea levels by up to 3 meters.



Island countries like the Maldives and Tuvalu are already losing land due to rising seas.



Say: "These changes can feel big, but by learning about them, we can understand and help. Our small science experiment today shows us what happens when different types of ice melt."

Trauma-Sensitive Notes: Let students know that sea level rise is something scientists have been studying for a long time. It happens slowly, and that gives people time to prepare, plan, and protect.

If students feel anxious about “floods” or “melting,” reassure them that this experiment is about understanding, not warning.

Use metaphors that calm: “The Earth is like a big puzzle. Today, we’re learning one small piece of it together.”

2 DISCUSSION (5 Minutes)

Trauma-Sensitive Notes:

Some students may have heard about floods or climate change in the news.

Gently remind them: “Learning gives us the power to understand and help, not to feel scared.”

Avoid phrases like ‘the ocean will cover everything.’ Use grounded language like: “Sea levels may rise slowly in some places.

That’s why people study it and take smart steps.” Highlight hope: “Many communities are already making smart changes to stay safe near water.”

Say:

“There are no wrong answers—just ideas we can test together.”

“We’re learning by asking questions and trying things out, just like real scientists.”

“If something feels confusing, that’s okay. Let’s figure it out together.”

If a student expresses fear or concern, respond calmly:

“Thanks for sharing that. It’s normal to have big thoughts or feelings. That’s why we’re learning—to understand better.”

Let students know:

It’s okay to be curious or unsure. This is a safe space.

This is just an experiment. We are learning together.

Ask a Question

What do you think will happen when ice melts?

Will land ice or sea ice make the sea rise more?

Make a Hypothesis

Write on the board or let students choose:

"I think the land ice will make the water rise more because..."

"I think the sea ice will cause more change because..."



IMPLEMENTATION (20 Minutes)

Main Activity

A. Do the Experiment

1. Fill both cups halfway with water.
2. In one cup, add floating ice (sea ice).
3. In the other cup, build "land" from clay and put ice on top (land ice).
4. Mark the water level in both.
5. Watch the ice melt. Mark the new water levels.
6. Use a ruler to measure the change.

B. Collect and Analyze Data

Students write start and end water levels.

Find how much the water rose.

Make a bar graph to show the difference.

C. Conclusion

What did we learn?

Was your hypothesis correct?

What surprised you?

FEEDBACK

- **Duration:** 10 Minutes

Trauma-Sensitive Notes:

Encourage reflection in a positive, strengths-based way. Focus not only on outcomes but on effort, curiosity, and collaboration.

Example prompts:

"What part did you enjoy most?"

"What did you discover that surprised you?"

"How did your team help each other?"

Normalize mistakes as part of learning:

"Sometimes our predictions are off, and that's a great way to learn."

Give out worksheets:

Fill in the table.

Make the graph.

Check the boxes for what they saw.

Answer reflection questions.

Reflection ideas:

"I worked with my group by..."

"I saw that land ice..."

"Science helps me feel more... (calm / ready / curious / other)"

Bonus explanations and questions:

"What would you say to the ocean if it could listen?" or "What can we do when nature feels too big or confusing?"

Encourage feelings without pressure: "You don't have to solve anything today. Just noticing and caring is already something powerful."

Use nature imagery: "Just like the sea moves slowly, learning takes time. You are not expected to know everything, only to keep wondering."

RECOMMENDATIONS

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Use kind and simple language throughout the activity. Avoid alarming terms like "climate crisis" and instead focus on curiosity and discovery.

- Start the session by letting students know that this is a safe space to ask questions, explore, and make mistakes.
- If any student expresses anxiety or concern, respond with empathy: "It's okay to feel that way. Learning helps us feel more in control."
- Keep the pace steady and predictable. Clearly explain each step before moving on.
- Use group roles (e.g., reader, measurer, recorder, presenter) to support teamwork and reduce stress.
- Incorporate small mindfulness moments before or after the experiment, such as deep breathing or stretching.
- Ask open-ended questions to build engagement: "What do you wonder about the ocean?", "How do you think animals feel when their environment changes?"
- Include positive reinforcement: highlight teamwork, careful observations, and respectful listening.
- After the activity, invite students to brainstorm small everyday actions that help protect the Earth (e.g., using less plastic, turning off taps, planting seeds).
- Consider following up with an art or story activity to let students express what they learned creatively.

ANNEX

6.1) WORKSHEET – Rising Seas: Where Did the Water Come From?

PART A – Write your hypothesis

Before you begin the experiment, write what you think will happen.

Choose one and complete the sentence:

I think the **sea ice / land ice** will make the water rise more because _____.

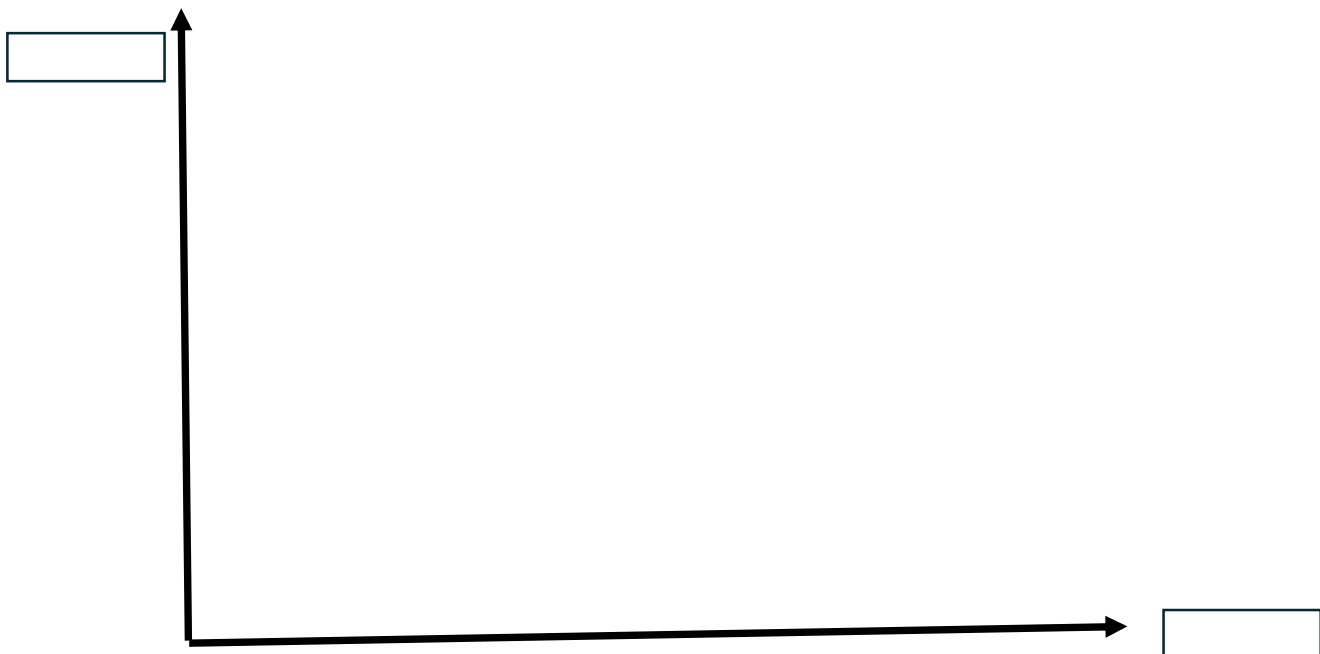
When the ice melts, I believe _____.

PART B – Let's Collect Data

Test your model with 3 different shaking speeds. Pull the paper slowly and then faster. What do you observe?

| Ice Type | Start Water Level (cm) | End Water Level (cm) |
|----------|------------------------|----------------------|
| Sea Ice | | |
| Land Ice | | |

PART C – Make a Graph Draw a bar graph to compare sea ice and land ice.



PART D – What Did You Notice?

_____ Land ice made the water go up more.

_____ Sea ice did not change the level much.

_____ I liked working in a group.

_____ I was surprised by...

PART E – Scientific Thinking

My hypothesis was: _____

Was it correct? Yes / No / Partly

One thing I learned: _____

I feel (happy / calm / curious / other): _____

One way I can help nature: _____