

CURIOSITY AT HOME

OBSERVING OUR OCEANS



The North and South poles are covered by ice. At the North Pole, sea ice—made of saltwater—floats on the Arctic Ocean, like ice cubes in a glass of water. At the South Pole, giant ice sheets—made of freshwater—cover the continent of Antarctica. As Earth warms due to climate change, some of this ice will melt. How will the difference in ice formation at the North and South poles affect sea level rise?

MATERIALS

- Measuring cup
- Water
- Mixing bowl
- Tablespoon
- Salt
- Mixing spoon
- Ice cube tray
- Tape and marker
- 2 identical transparent containers (4–6” wide)
- Dry erase marker (optional)
- Material for an “island” (1–2” wide), modeling clay or rocks work well
- Ruler

PROCEDURE

- Combine 4 1/4 cups of water with 2 Tbsp. of salt. Mix until the salt dissolves.
- Using tape and a marker label one handle of the ice cube tray saltwater and the opposite handle freshwater.
- In your ice cube tray, fill the 4 cubes closest to the handle labeled saltwater with saltwater. Fill the 4 cubes closest to the handle labeled freshwater with tap water. Wait for your ice cubes to freeze.
- Using tape and a marker, label one container “sea ice”. Fill it with 1 cup of saltwater.
- Using tape and a marker, label the second container “ice sheet”. Fill it with 1 cup of saltwater. Place your “island” in the center of the container. It should stick out above the surface of the water.
- To the sea ice container, add 2 saltwater ice cubes. Make sure they are floating and not touching the bottom of the container. Using a dry erase marker or tape, mark the water level on the side of the container.
- In the ice sheet container, stack 2 freshwater ice cubes on top of your “island”. Mark the water level on the side of the container using a dry erase marker or tape.
- Wait 1 hour. Return and mark the new water levels.
- Using a ruler, measure the difference in water levels in cm.

WHAT DO YOU OBSERVE?

- Which caused the water level to rise more: the melting of sea ice or the ice sheet?
- How might rising sea levels affect people who live near the coast?

Experiment continued on next page...



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6–8 GRADE EXPLORATION

How will this model help explain what might happen when global temperatures rise?

What do you think will happen? Record your prediction below.

Container	Predictions
Sea Ice	
Ice Sheet	

What did you observe? Measure the increase in water level in each container and record your observations below.

Container	Increase in water level (cm)	Observations
Sea Ice		
Ice Sheet		

Why does sea ice melt effect the water level in this way?

Why does ice sheet or glacial melt effect the water level in this way?

Will sea ice melt, ice sheet melt, or both effect rising oceans? Why?

In addition to Antarctica, where else do you find large amounts of ice on land?

How will sea level rise effect coastal areas?

How might we stop or slow sea level rise?



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