

## Sea Level Rise Activity Instruction Sheet

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### Purpose:

To investigate how sea level changes when sea ice melts and when land ice melts.

### Set-up:

You and your team will create a model ocean with an island in the center. You will monitor sea level as sea ice melts and then see what happens when land-based ice melts and flows into your ocean.

### Team Member Roles:

You'll be divided into teams of 4. Each person will have a different role:

- 1) *Model construction and breakdown*
- 2) *Water/ice person*
- 3) *Shoreline artist*
- 4) *Recorder*

### Procedure:

- 1) *Model Constructor:* Be sure your container has markings and numbers on the side to indicate sea level. Put the potato half in the container. Add blue colored water so that the top of the water is between 1 cm and 3 cm on the side of the container.

Preparation for Scenario#1 (Sea Ice melting):

- 2) *Water/ice Person:* Add 2 ice cubes to your ocean. Look at the side of the container and determine where the water level is. *Recorder*, write down this water level.
- 3) *All team members:* Make a hypothesis about whether you think that sea level is going to rise, fall, or stay the same when this ice melts. *Recorder:* Write down what your group thinks and why.
- 4) *Shoreline artist:* Put saran wrap over the container and secure it with a rubber band. Look straight down over the saran wrap and container and use

the marker to draw the shoreline of your island on the saran wrap. (The shoreline is where the water touches the island). It is helpful to close one eye when you do this. Cover the container with a paper bag.

Preparation for Scenario#2 (Melting land ice - glaciers, ice sheets):

- 5) *Water/ice Person*: Add ice to a cup and set it aside. This represents land ice (glaciers and ice sheets) that will melt while you are doing the rest of the activity.
- 6) Now we'll check out the Powerpoint presentation!

Continue Scenario#1 (Sea Ice melting):

- 7) *Shoreline artist*: Take the paper bag off of the container.
- 8) *All team members*: Check to see what the water level is now. *Recorder*: Write down this number.
- 9) *Shoreline artist*: Look straight down on the island. Remember, you might need to close one eye. Did the shoreline change at all? If so, draw a new shoreline.

Continue Scenario#2 (Melting land ice - glaciers, ice sheets):

- 10) *Recorder*: Write down the sea level that you observe now.
- 11) *All team members*: Make a hypothesis about whether you think that sea level is going to rise, fall or stay the same when your melted land ice is added. *Recorder*: Write down what your group thinks.
- 12) *Model Constructor*: Carefully peel back one side of saran wrap and hold it open. *Water/ice Person*: Pour the cup of melted land ice (from step #5) into your ocean. *Model Constructor*: Put the saran wrap back in place.
- 13) *All team members*: Check to see what the water level is now. *Recorder*: write down this number.
- 14) *Shoreline artist*: Look straight down on the island and draw the shoreline.
- 15) *All team members*: Did the amount of land on your island change when the melted land ice was added?

## Sea Level Rise Activity Record Sheet

### Observations:

Water Level with sea ice (before melting): \_\_\_\_\_

Make a hypothesis. Does your group think that sea level will rise when sea ice melts? Why?

Water Level with sea ice (after melting): \_\_\_\_\_

Water Level before melted ice sheet water is added: \_\_\_\_\_

Make a hypothesis. Does your group think that sea level will rise when melted land ice is added to the ocean? Why?

Water Level after melted land ice is added: \_\_\_\_\_

