

## Melting Sea Ice - Teacher Notes

There is a major general misconception that any sea level rise resulting from an increased rate of global warming/ the enhanced Greenhouse Effect, is due to melt water from ice shelves. This can feel counterintuitive to some people.

### 1. AIM To find if melting sea ice raises sea level

#### Materials per student or group

- Two large measuring cylinders
- A Pasteur or transfer pipette
- Water (and food colouring if desired)
- Ice cubes to represent sea ice.

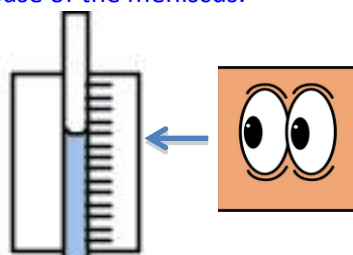
#### Method

1. Approximately two thirds fill both measuring cylinders with water
2. Add food colouring if desired
3. Place ice in one of the cylinders
4. Using the Pasteur pipette, adjust water levels in the two cylinders until both are identical
5. Note the level in the table below
6. Leave until ice has melted (about 5 minutes)



**Hypothesis** Write your hypothesis here. *If the ice melts then the water level will rise ...or... If the ice melts then the water level will not rise*

What do you have to do to get an accurate reading and avoid parallax mistakes? *Take your eye down to the level of the liquid and read from the base of the meniscus.*



#### Observations/Results

	Volume of water	Volume of water + ice
Before melting (initial volume)	90mL	90mL
After melting	90mL	90mL

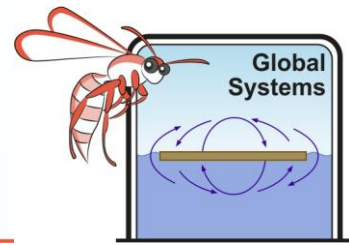
#### Conclusion

To what conclusion does the data collected lead you? *The water level did not rise. If the climate warms then sea level rise is not due to melting sea ice.*

#### Discussion

Why were two measuring cylinders used when only one had ice? *One was used as a "CONTROL" against which any change could be measured*

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Why did we use measuring cylinders rather than beakers? **Scientific data must be observable and MEASURABLE. Any increase or decrease in water level could not be measured in a beaker. They also make checking that the levels in both cases were the same easier.**

How could this experiment be improved? **Repeat for accuracy. Use salt water.**

Did this experiment support or not support your own hypothesis? **Depends on their hypothesis.**

Sea ice melting does not contribute to rising sea levels but melting land ice does.

Explain how melting land ice (ice cap and glaciers) can contribute to sea level rise. **Water from melting land ice will run downhill and be added to the sea increasing its volume and causing sea level to rise. This rise will flood low-level coastal land bringing warmer water inland to warm the glaciers causing further flooding.**