

Activity:

Ocean warming investigation

Water heats up and cools down slower than air. It may take longer for the ocean to warm, but the impacts of climate change on it will be long lasting. This experiment is a simple demonstration of ocean warming.



You will need for each group:

- 2 glass beakers
- Salt water (dissolve salt in water to make your own)
- Thermometer
- Graph paper and coloured pencils
- [Warming ocean investigation sheet](#)

The average global sea surface temperature has risen by about 0.13°C every 10 years for the last 100 years.

What to do

1. The ocean absorbs heat from the sun. Explain that this experiment investigates heat absorption.
2. Divide pupils into small groups and give each group 2 beakers. Ask them to fill one beaker with salt water (to represent the ocean) and leave the other empty (to represent air). Place a thermometer in each beaker and record the starting temperature.
3. Place both beakers in direct sunlight (or under a lamp) for at least 2 hours, then record the temperatures on the [investigation sheet](#).
4. Move the beakers to the shade (or a dark room) and record the temperature again after another 2 hours.
5. Use the results to draw a graph which shows the temperature change throughout the experiment. Following the prompts on the [investigation sheet](#), pupils should work out the temperature difference in the timeframes for air and water.
6. Discuss how the results relate to ocean warming. How does the earth's rising temperature affect the ocean? What is the impact of changing conditions on animals and ecosystems? On the spread of disease in marine species? On Antarctic ice? On weather systems, and extreme weather events.

Warming Ocean Investigation

Name:

Location		Start	Sun	Shade
Time		0 hours	2 hours	4 hours
Temperature (degrees Celsius)	Water			
	Air			

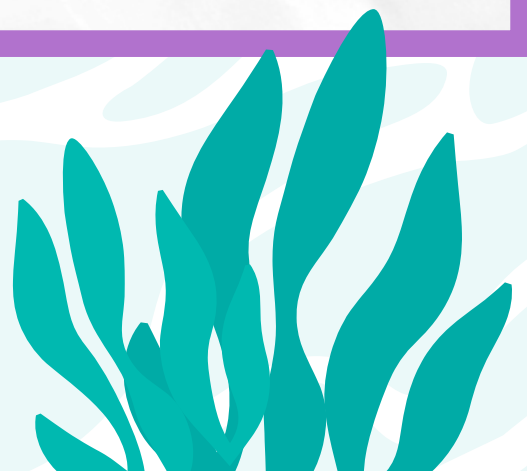
1

Draw a line graph here to show temperature change across the experiment

Plot time along the horizontal axis and temperature on the vertical axis. Use a different colour pencil to show water and air temperature.



2



3

What is the difference between water temperature at 0 hours and 2 hours?

4

What is the difference between air temperature at 0 hours and 2 hours?

5

Does water or air heat up faster?

6

What is the difference between water temperature at 2 hours and 4 hours?

7

What is the difference between air temperature at 2 hours and 4 hours?

8

Does water or air cool down faster?

9

What does this experiment show you? How does this relate to the effects of climate change on the ocean?

