

Experiment one



What effect will ocean temperatures have on the rate of ice melting?

Equipment

- Container
- Warm and cold water
- Ice cubes
- Thermometer
- Stopwatch
- Measuring jug

(NB pupils can use different ratios of warm and cold water if no thermometers are available or if the activity needs simplifying)

Do not allow pupils to handle hot water

Method

1. Measure out 200ml of cold water using a measuring jug
2. Add this to a container
3. Measure and record the temperature using a thermometer
4. Add 5 ice cubes to the water and immediately start the stopwatch
5. Record the time taken for the ice to melt
6. Repeat steps 1-5 using warm water

Results

Temperature of water /°C	Time taken to melt /s



Experiment one



What effect will ocean temperatures have on the rate of ice melting?

Questions

What factors did you keep the same throughout the experiment? (these are the “control factors”)

During each experiment I...

Is there a pattern between temperature and time taken for the ice to melt?

The hotter the...

What do you think could happen if the sea temperature went up?

Animals might...

Icebergs will...

Experiment two



What effect does sea acidity have on shells?

Equipment

5 jars or cups
measuring jug
thin shells (e.g. mussel shells) or egg shell can be used as a replacement
salt
white vinegar
water
pH paper
teaspoon

(NB pupils can use different ratios of vinegar and water if no pH paper is available or if the activity needs simplifying)

Method

1. Measure 200 ml of water using a measuring jug. Add to a cup/jar.
2. Add 2 teaspoons of salt to the water and stir.
3. Add a shell (or part of an egg shell) to the cup/jar
4. Repeat steps 1-3 but replace 200ml of water with
 - 150 ml of water and 50 ml of vinegar
 - 100 ml of water and 100 ml of vinegar
 - 50 ml of water and 150ml of vinegar
 - 200ml of vinegar and no water
5. If measuring the pH, use your pH paper to record the pH of each sample
6. Record any immediate observations.
7. Leave the samples for 24 hours and record your observations again at the end. What's changed?



Experiment two



What effect does sea acidity have on shells?

Questions

Why did you add salt to each sample?

What factors did you keep the same throughout the experiment? (these are the "control factors")

During each experiment I...

Is there a pattern between acidity and strength of shell?

The higher the...

Why do you think scientists are using satellites to monitor ocean acidity?

Experiment two



What effect does sea acidity have on shells?

Volume of water/ml	Volume of vinegar/ml	pH (if recorded)	Initial observation	Final observations
200	0			