

1. ICE PLAY



(a) Scott makes ice cubes.

He pours water into an ice cube tray.

Scott puts the ice cube tray into the freezer.

The temperature of the water changes when it is in the freezer.

What happens to the temperature of the water after it is put in the freezer?

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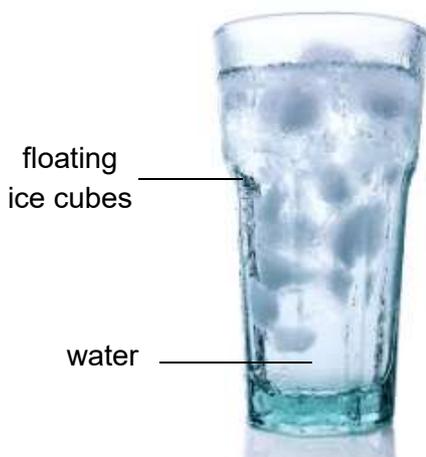
(b) Name **ONE** piece of equipment Scott could use to measure the temperature of the water.

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(c) The water in the ice cube tray freezes and becomes ice.

Write **true** or **false** next to each statement about freezing.

	True or false?
Water freezes at 100°C.	
Freezing water is a reversible change.	
Freezing is a change from solid to liquid.	



(d) Scott takes the ice cubes out of the freezer and puts some in a glass of water.

He leaves the glass in a warm room.

Name the scientific process that happens to the floating ice cubes after they are added to the water.

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TRY IT YOURSELF

1. How long does it take for one ice cube to melt in a glass of cold tap water?
2. Do 2 ice cubes in a glass of water melt more quickly than 3 ice cubes in a glass of water?
3. Make up your own experiments.

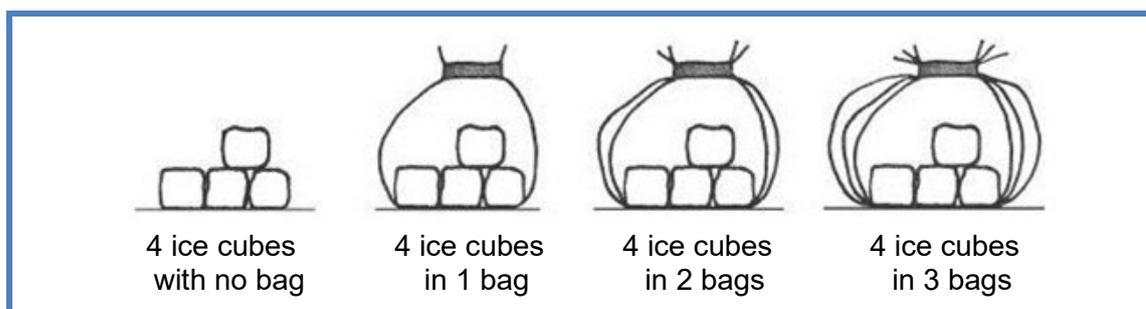
2. KEEPING COOL

- (a) Jamal is thinking about how to keep ice cubes from changing into water in a hot room. Jamal says 'If you put the ice cubes inside lots of plastic bags they will stay frozen for longer.'

Tick **ONE** box to show what sort of statement Jamal has made.

an observation a prediction a conclusion a measurement

- (b) Try this yourself. Put four ice cubes in different numbers of plastic bags.



Record the time it takes the ice cubes to change to water.

Name the process that describes the change from ice to water.

- (c) Record your results in a table.

Number of plastic bags	Time for ice to change to water (minutes)
0	
1	
2	
3	

Choose **ONE** word from the list below to complete the sentence about the plastic bags.

dissolved

condensed

heated

insulated

evaporated

The table shows that the ice is by the plastic bags so that the ice changes to water more slowly.

- (d) Tick **ONE** box to show the temperature of water when it changes to ice.

-10°C 0°C 10°C 100°C

3. MELTING ICE



- (a) It is cold and there is snow and ice on the pavement.

What word describes the change of water into ice?

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- (b) This experiment can help you find a way to make the ice melt quickly so the pavement is safe to walk on.

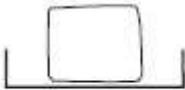
The temperature of some ice cubes is -4°C . Mark this on the thermometer.



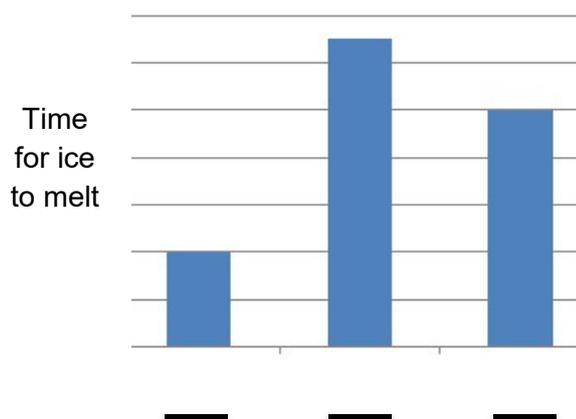
- (c) Put three ice cubes on three separate dishes.

1. Leave one uncovered
2. Cover one with a tablespoon of salt
3. Cover one with a tablespoon of flour.

How long does it take for each ice cube to melt?

Test	1	2	3
Description	 uncovered ice cube	 ice cube with salt	 ice cube with flour
Time for ice cube to melt (minutes)			

- (d) Here is a graph of results for the melting ice cubes. Write 1, 2 and 3 under each bar on the graph to name which test each bar shows.



- (e) What would you use to make the ice melt quickly so the pavement is safe to walk on?

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4. MAKING ICE LOLLIES



(a) Some children are making ice lollies.

The children cool the liquid. It changes into ice.

Name the process that takes place when a liquid changes to a solid.

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(b) Which **TWO** statements below show that an ice lolly is a **solid**?



Tick **TWO** boxes.

It has a fixed shape.

It is slippery.

It is cold.

It is cloudy.

It cannot be poured.

(c) The children make ice lollies of different sizes.

They time how long the lollies take to melt.

Here are their results.

Volume of lolly (cm ³)	Time taken to melt (minutes)
30	200
40	230
50	255
60	275
70	295

Describe the link between the **volume** of the lolly and the **time** it takes to melt.

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