

HOW TO USE THESE ACTIVITIES

The following questions and activities are taken from key stage 2 science tests. They have been chosen and adapted so that children can do some experiments at home.

There is an activity sheet for the children and the answers are given below.

Please ensure that safety is considered to prevent accidents.



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?

Answer has to refer to the temperature of the water
eg it gets colder; the temperature goes down



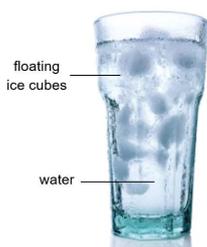
- (b) Name **ONE** piece of equipment Scott could use to measure the temperature of the water.

thermometer

- (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. | False |
| Freezing water is a reversible change. | True |
| Freezing is a change from solid to liquid. | False |



- (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.

Melting or melts

TRY IT YOURSELF – Children can set up their own experiments and the answers will be determined by the variables: temperature of water, size of ice cubes etc

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.

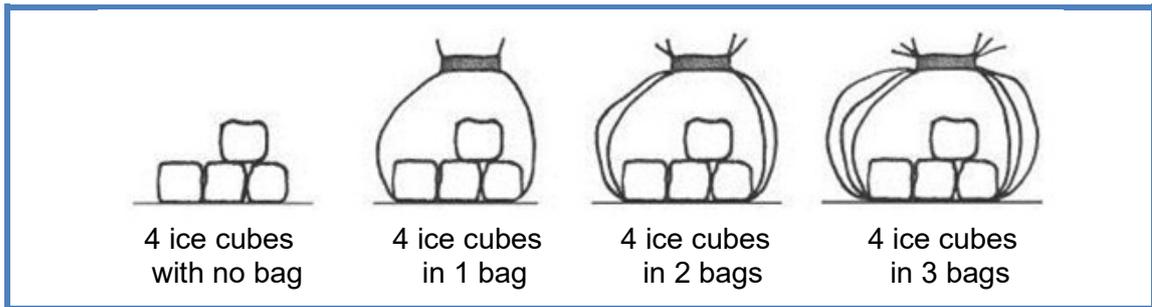
2. KEEPING COOL

- (a) Jamal is thinking about how to keep ice cubes from changing into water on a hot day. Jamal says 'I think 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. **Melting or melt(s)**

- (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 **insulated**..... 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



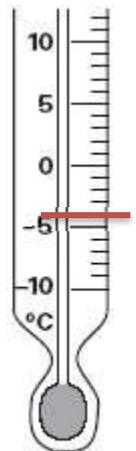
(a) It is cold and there is snow and ice on the pavement.

What word describes the change of water into ice?

.... *solidifies or becomes solid*.....

(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 that are the same size on three separate dishes.

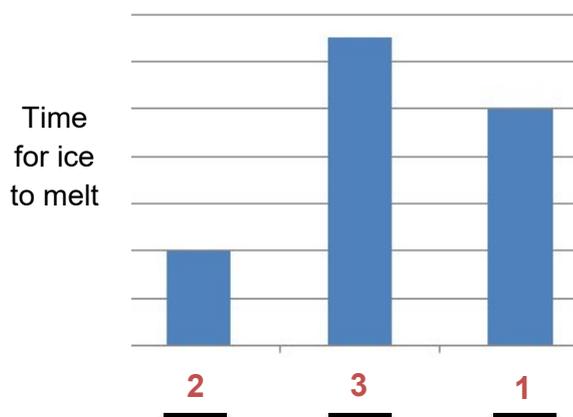
1. Leave one uncovered
2. Cover one with a tablespoon of salt
3. Cover one with a tablespoon of flour.

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) | <i>Check correct times are displayed</i> | | |

(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?

It should be salt if the experiment was set up correctly

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.

..... freezingor solidifying

(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.

- the more ice (in the lolly), the longer it takes to melt
- the less ice (in the lolly), the less/shorter time it takes to melt
- the bigger the lolly, the longer it takes to melt
- the longer the lolly, the longer it takes to melt