

# MELTING ICE

Explore how warm your house is using melting ice cubes.

## Overview



In this activity, you'll set up a simple experiment to discover the warmest and coldest places in your home using ice cubes, plastic containers, a ruler or measuring stick, and a timer.

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This page will print, but looks a little funky. Click the button for a PDF version which looks a bit better.

## What you'll need

- Space in your freezer
- 6 – 8 ice cubes, made in a tray is easier, but you could freeze a small amount of water in your containers.
- 6 – 8 containers such as empty yogurt pots, plastic beakers or bowls.
- A timer, watch, clock or phone.

## Duration

2 – 3 hours plus freezing time

## Suitable for

## Suitable for...

Age 4 and up.

## Safety notes

You know your children better than anyone, and you should judge whether they're ready for this activity. You might want to think in particular about:

Supervising children when they use the freezer

Deciding on places to put the ice to melt so that it isn't knocked over by family members or pets!

## What to do

### Step 1



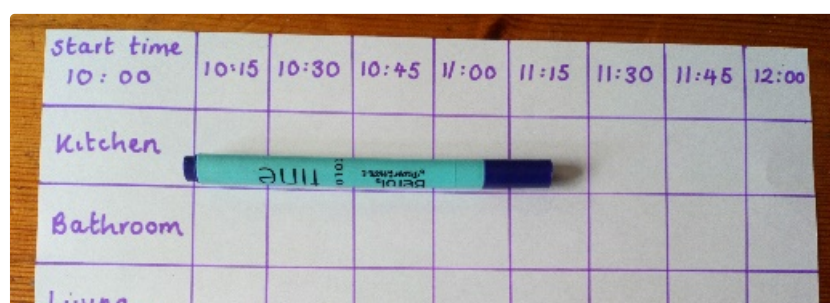
Make your ice cubes. Fill up each section of your ice cube tray equally so that all your ice cubes will be the same size.

If you don't have an ice cube tray, you can use yoghurt pots as containers. Put the same, small, amount of water in each one.

You'll need to leave the ice in the freezer for a few hours to freeze. Leaving it overnight is a good idea.

*(We coloured the water blue so you can see it in the photograph - you don't have to do that)*

### Step 2



room								
Bedroom								
Conservatory								
Fridge								

Decide where you are going to put your ice cubes.

You will need to choose somewhere flat so that your containers don't fall over.

Make a chart, like the one in the picture, and write down the places before you start.

### Step 3



Put one ice cube into each container. Take them to your chosen testing places and leave one container in each place.

Make a note of the time that you started the investigation. If you are using a timer, set it for 15 minutes.

### Step 4

start time 10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00
Kitchen	melting	melting	half melted	nearly melted	small bit left			
Bathroom	melting	melting	melting	half melted	nearly melted			
Living room	melting	melting	half melted	nearly melted	small bit left			

Bedroom	melting	melting	melting	half melted	nearly melted			
Conservatory	melting	half melted	nearly melted	nearly melted	melted			
Fridge	not melting	not melting	not melting	starting to melt	small amount of water			

After 15 minutes, visit each of your ice cubes and check if they have started to melt.

On your chart record what you can see. You could write or draw a picture.



### Step 5



Repeat step 4 every 15 minutes until all of your ice cubes have completely melted.

You could record what has happened using photographs like in our gallery.



### Things to discuss

- Why is it important that the ice cubes are the same size?
- Where did the ice go?
- Where did the water come from?
- Where in your home did ice melt the quickest? Why do you think this is?
- Where did ice melt the slowest?
- What do you think would happen if you tried this at a different time of day?
- What do you think would happen if you tried this at a different time of year?

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## How it works

When you filled your ice cube tray or container with water, it was a liquid which could be poured easily and took the shape of the container you were using. The temperature in your freezer is probably below  $-15^{\circ}\text{C}$  and water freezes at  $0^{\circ}\text{C}$  so your water froze and became a solid- ice. A solid keeps its shape and stays in one place. You can't pour it like a liquid.

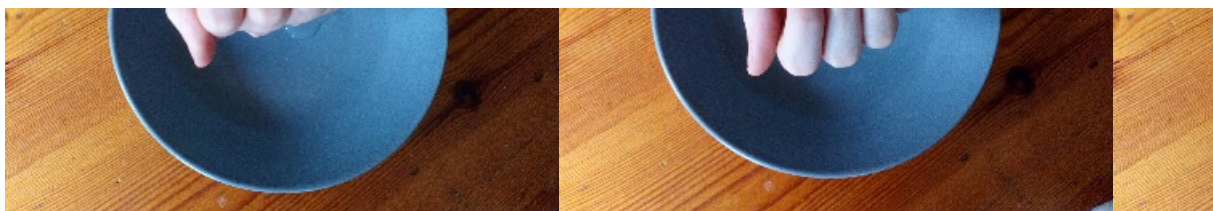
When you took your solid ice cubes out of the cold freezer and put them in different places around your home, they began to melt. The temperature in your home is usually around  $18^{\circ}\text{C}$ . When ice is warmer than  $0^{\circ}\text{C}$  it begins to melt and takes on its liquid form – water. In places where your home was warmer, the ice melted more quickly.

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## Other things to try

### Make your ice melt faster!

Hold an ice cube in your hand over a plate, bowl or sink (remember you can stop it if it starts to hurt!). Time how long it takes for your ice cube to melt.



Which of these do you think will melt the ice cube the quickest?

- An ice cube sitting in the palm of your hand.
  - An ice cube sitting in the palm of your hand with your fingers wrapped around it.
  - Squeezing an ice cube as hard as you can in your hand.
-

Test your prediction using a timer to see if you are correct.

What happens if you add salt?



Sprinkle some salt onto your ice cube and see if that makes it melt any faster.

How much salt is best for melting ice?

You could try adding different amounts of salt to ice cubes in your different containers and see which one melts fastest.

You could make a table to write down your results.

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Attributes: passionate, creative, committed

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