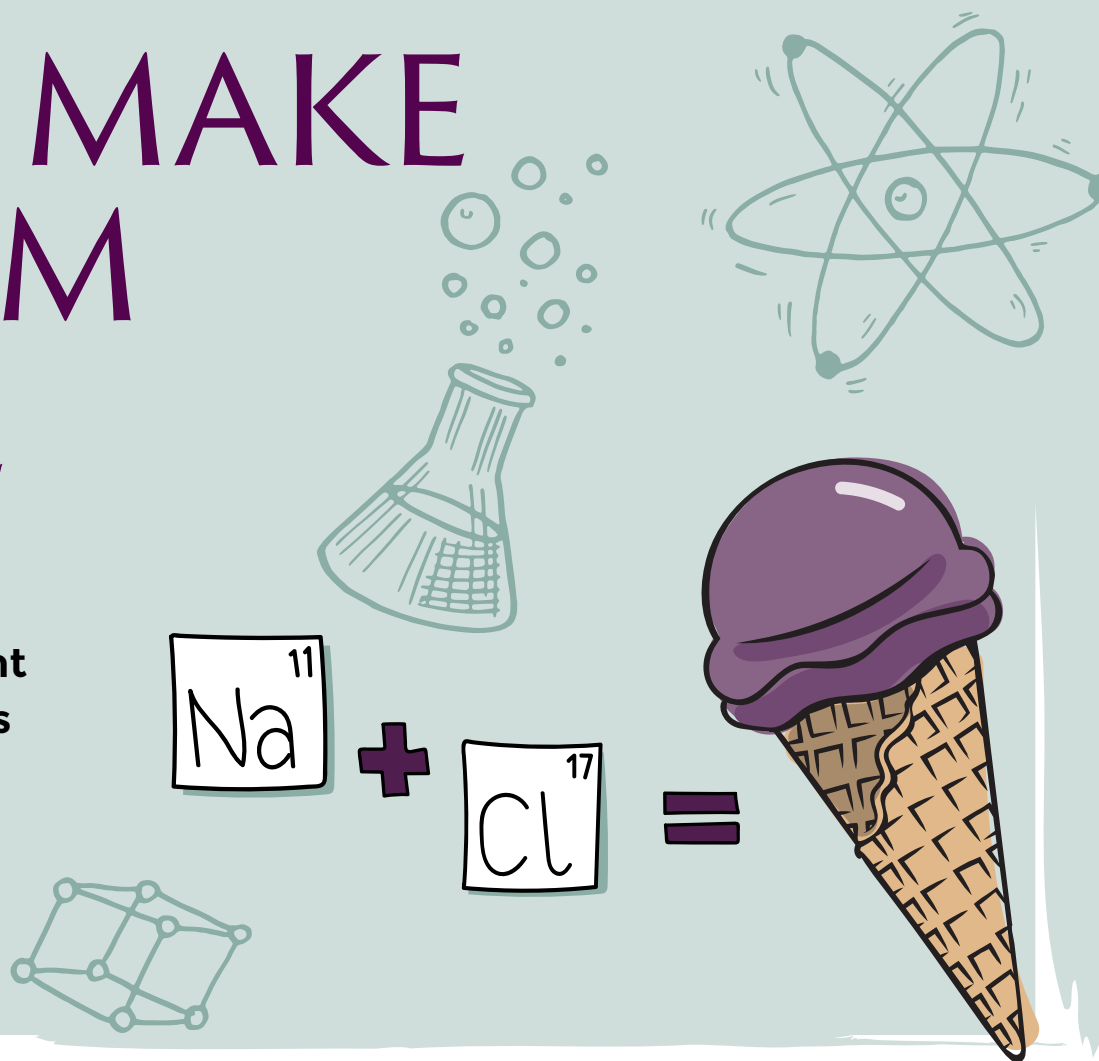


# HOW TO MAKE ICE CREAM AT HOME

Did you know that salt has hidden powers? This fun science experiment shows you how to create everyone's favourite dessert.

Don't forget your toppings!



THE SALTERS' COMPANY

ONE OF THE GREAT TWELVE CITY OF LONDON LIVERY COMPANIES

# THE STORY OF THE SALTERS' COMPANY



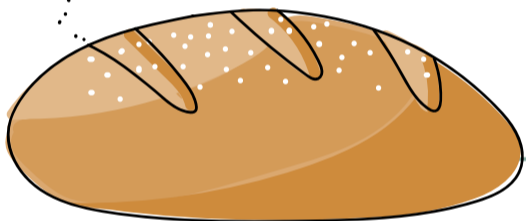
## DID YOU KNOW?

In Medieval times there was no electricity which meant no fridges or freezers. The process of 'salting' was used to preserve food, especially over the winter months.



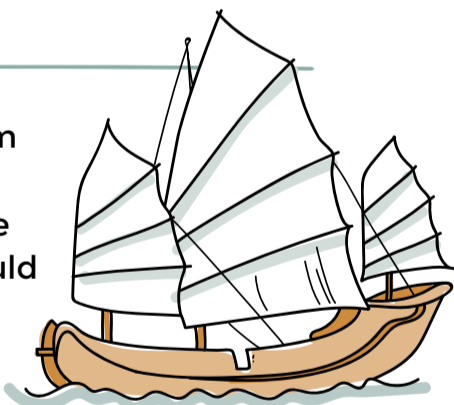
Salt draws moisture out of meat, fish, bread etc.

Salt was so important and valuable (sometimes even more than gold) that in Roman times people were paid their wages in salt, hence the word 'salary'. 'Sal' is Latin for salt.



Livery Companies were set up to protect certain trades. For example: Grocers, Goldsmiths, Ironmongers and Salters etc. They were similar to trade unions.

Salt was imported from countries including Portugal, Spain, France and Ireland. Boats would travel up the River Thames into the City.

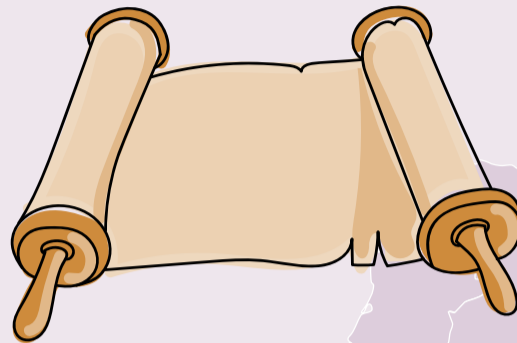


The Salters' Company has had seven Halls to date. Today the Company hosts fundraising events, Salters' Institute Alumni events and awards ceremonies.

Our focus today is chemistry. This is because salt is found in so many chemical reactions.



500AD



1216 The oldest document in the Salters' Company archives dates from 1216 and is a title deed - a title deed refers to a property and its owners.

1394 The Salters' Company gained its first Royal Licence from King Richard II, to be able to trade in salt.

1455 Our first Hall was on Bread Street as we used to sell salt to bakers.

The Hall acted as a meeting place for members of the Salters' Company.

1500

1515 The Order of Precedence was set for the 48 Livery Companies at that time. The Salters' Company was ranked at number nine in the Great 12 for its economic power.

1666 **The Great Fire of London**  
This destroyed our fourth Hall in St Swinthin's Lane.

1918 The Salters' Institute of Chemistry is set up. This would help young men whose chemistry studies had been interrupted by serving in World War One.

1941 **The Blitz**  
Our sixth Hall was destroyed in World War Two.

TODAY Our flagship charity, [The Salters' Institute](http://www.salters.co.uk) runs nationwide chemistry festivals for KS2 & KS3.

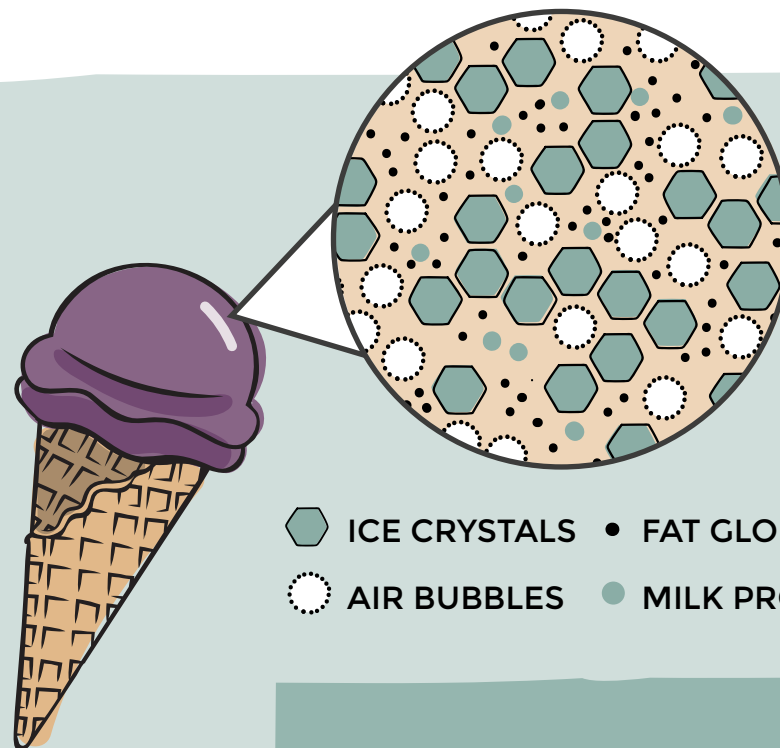
# THE SCIENCE BIT



Adding salt to the ice lowers its freezing point so that the ice begins to melt, turning it to icy water.

The ice also absorbs the heat/energy from the milk around it.

The heat/energy transferring from the milk to the iced/icy water causes the milk's temperature to drop, turning it into ice cream. This is called an endothermic reaction.



- ICE CRYSTALS
- FAT GLOBULES
- AIR BUBBLES
- MILK PROTEINS

## ENDOTHERMIC REACTION

Heat/energy is being absorbed by the solid ice which is why it melts.

## CHANGES TO STATES OF MATTER

The solid ice melts into a liquid and the liquid milk freezes into a solid.

## DID YOU KNOW?

When you put salt on icy roads, the salt lowers the freezing point of the ice, making it turn back to water.



# YOU WILL NEED



**1 small zip seal bag**

**1 large zip seal bag**

**150ml of full fat milk**

**Thermometer**

**1 tablespoon of caster sugar**

**Salt**

**Ice cubes**

**Tea towel (for your hands)**

**½ teaspoon of vanilla essence**

**BECOME A SCIENTIST** 

How much salt and ice do you think you will need?

**Top tip:** Start with a good handful of ice and a tablespoon of salt.

# METHOD

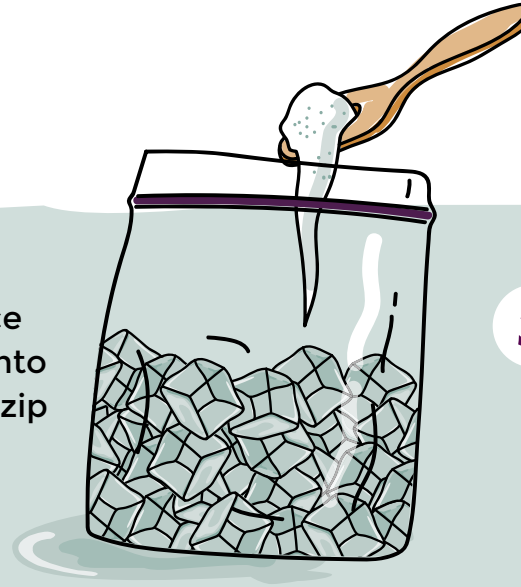
- 1** Mix the milk, caster sugar and vanilla essence.



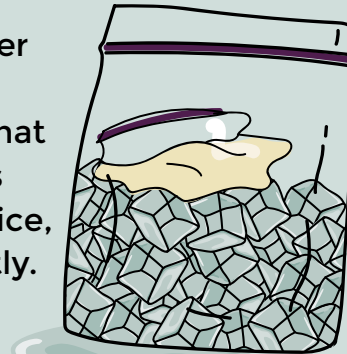
- 2** Pour into the small zip seal bag and seal tightly.



- 3** Put the ice and salt into the large zip seal bag.



- 4** Place the smaller bag inside the larger bag, so that the small bag is surrounded by ice, and seal it tightly.



- 5** Shake the bag for around 5-7 minutes until the ice cream is formed.



**Top tip:** If your milk mixture hasn't started to turn solid yet, think about adding another tablespoon of salt.

- 6** Choose your own topping. Enjoy!



## TIMING

Time your experiment. How long did it take you? Can you do it again but faster?



# WHAT DID YOU LEARN?



WHAT WAS THE FINAL TEMPERATURE  
READING OF YOUR ICE CREAM?

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WHAT DO YOU THINK THE SALT  
DID IN THIS EXPERIMENT?

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HOW LONG DID IT TAKE TO  
TURN THE MILK INTO ICE CREAM?

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DESCRIBE YOUR ICE CREAM:

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