Chilling Ice-Cream



Science SECRETS for making ice-cream

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Nelson Literacy Directions

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Chilling Ice-Cream



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Use the ice-cream key to unlock the ice-cream secrets from inside the "Top Secret Ice-Cream Vault".



2 A Quick Ice-Cream Recipe page 6

What's the secret behind making a quick choc-chip ice-cream recipe?

3 An Ice-Cream Experiment page 10

Is there a secret to making ice-cream in a bag? Try the experiment.



4 An Ice-Cream Headache page 12

Ice-cream headaches and how to help soothe them.

5 Liquid Nitrogen Makes Better Ice-Cream page 14

Mr SCI-ICE-CREAM tells us why liquid nitrogen makes smoother, fluffier and faster ice-cream on his TV show.



TEXT TYPE Exposition

SCIENCE FEATURE

Cryogenic Ice-Cream page 18

Want to make ice-cream in seconds? Here's how.



6 Italian Ice-Cream page 20

Ice-cream is loved all over the world – especially Italian gelato!

7 An Ice-Cream Recipe for Halloween page 22

Make delicious and very quick ice-cream bats for Halloween!



INDEX AND GLOSSARY PAGE 24

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1 The Secret Ice-Cream Vault

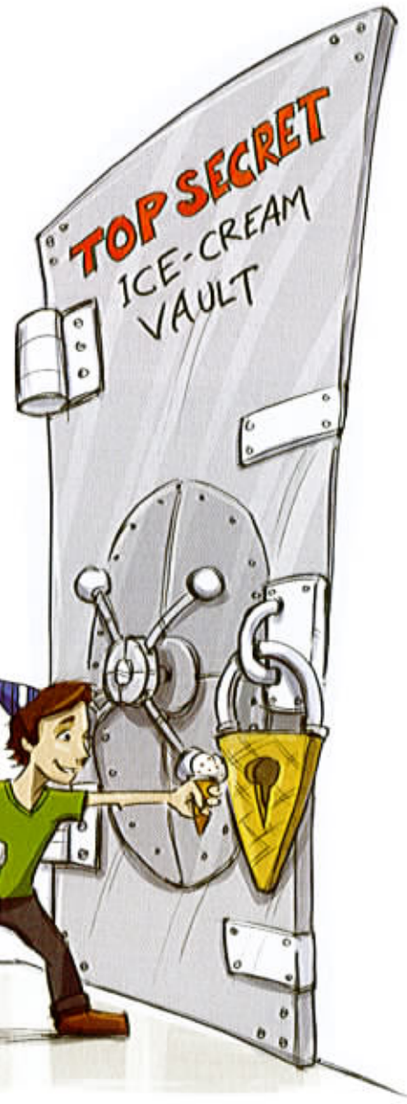
Ice-Cream **Secrets** Inside!

Imagine it's your birthday and your party is at an ice-cream factory. You and your friends find a room with a huge ice-cream vault.

On the door is a sign:

Top Secret – Ice-Cream Vault

There is a huge padlock in the shape of an ice-cream cone. It stops you and your friends from opening the vault – until the key is found!





This book is like an ice-cream vault. You'll find some ice-cream secrets inside!



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2 A Quick Ice-Cream Recipe

The **Secret** Behind **Quick** Ice-Cream!

The main ingredients needed to make ice-cream are not a secret. These are cream, milk, sugar and flavours.

What Is the Secret?

The secret to making quick ice-cream is science. If you know the science fact below, you can make quick ice-cream at home or at school.

SCIENCE FACT

Ice mixed with salt is colder than ice without salt. The salt dissolves into the icy water and lowers the water's freezing point. So it freezes at a lower temperature.



Ice: 0° Celsius *Ice + salt: –21.1° Celsius*



"Mmmm, my favourite!"

History and Technology

Who Invented the Ice-Cream Maker?

In 1846, Nancy Johnson, from the USA, was the first person to patent the hand-cranked ice-cream maker. It was a small ice-cream freezer with a handle to mix the ice-cream around. Her idea is still used by today's home ice-cream makers.



an ice-cream maker from the 1920s

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An Ice Bath for a Quick Ice-Cream Recipe – Choc Chip

Before making the ice-cream recipe on pages 8 and 9, you'll need to make an ice bath.

Ingredients for the Ice Bath

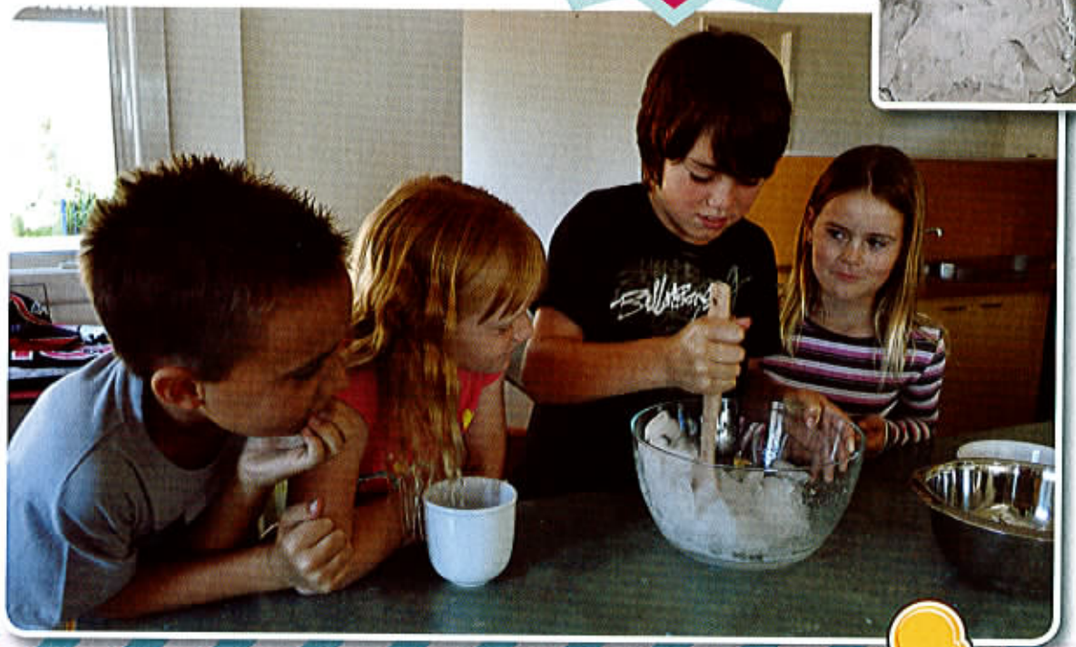
- a large bowl, half-filled with crushed ice
- one cup of salt
- an extra half a cup of salt to add to the ice bath in Step 4 on page 9.
- a thermometer to test the temperature in the ice bath.

Making the Ice Bath

- Add one cup of salt to the large bowl of ice.
- Mix the salt and ice together with a wooden spoon.

Wait for five minutes. Put the thermometer in the ice bath. Is the temperature below zero degrees Celsius?





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A Quick Ice-Cream Recipe – Choc Chip

Ingredients

- a third of a cup of cream
- two teaspoons of sugar
- half a teaspoon of vanilla essence
- one tablespoon of chocolate chips

Equipment

- a wooden spoon
- a small metal bowl

How to Make the Ice-Cream

Step 1

- Put all the ice-cream ingredients into a metal bowl.
- Mix with a wooden spoon until the sugar dissolves.



mixing the ingredients

Step 2

- Put the metal bowl into the ice-bath bowl (from page 7).
- Push the metal bowl down into the ice bath so that the ice is all around the outside of the metal bowl.

Do not get salty water in the ice-cream mixture!



A metal bowl sits in an ice bath.

Step 3

- Stir the ice-cream mixture for nine minutes.

Three friends could mix for three minutes each.

3 friends x 3 minutes = 9 minutes of mixing time



Step 4

- Lift out the metal bowl.
- Add half a cup of salt to the ice bath and mix well.

Step 5

- Put the metal bowl back into the ice bath bowl.



Step 6

- Stir the ice-cream mixture for another three to four minutes.

Again, three friends could take it in turns to stir the mixture for up to four minutes.



Step 7

- Scrape the frozen ice-cream stuck to the bowl and mix it in, too. Stir until it looks like ice-cream.

Step 8

- Eat your choc-chip ice-cream!

