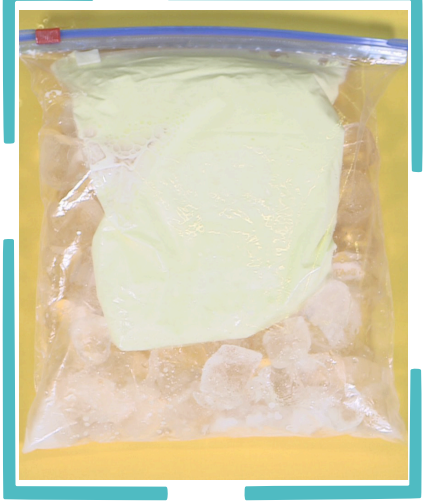
DIY Ice Cream

What Do I Need?



- A bag of ice cubes
- 60ml of full fat milk
- 100g of table salt
- Sugar
- 1 tablespoon of vanilla extract
- 1 large plastic zip sealed bag
- 1 small plastic zip sealed bag
- Food dye (optional)
- Ice cream toppings (optional)

Skill Level:

Easy

Time

20 - 30 minutes

How Do I Do It?

1. Half fill the large zip bag with ice cubes. Make sure they are not stuck together in one mass.
2. Generously sprinkle between 50 and 100g of salt over the ice cubes.
3. Into a small zip bag add approximately 60ml of full fat milk, a tablespoon of sugar (or to taste) and several drops of vanilla extract (and food dye – optional). Seal the bag tightly so no air is trapped with the mixture.
4. Insert the small zip bag with your mixture into the large zip bag filled with ice cubes. Seal the large zip bag.
5. Shake the bag to ensure the small zip bag is completely surrounded by ice cubes. Keep shaking the bag for 5-10 minutes. If you get tired, pass it on to someone else to have a turn.
6. After about 10 minutes take out the small zip bag and feel the contents without opening it. If the mixture is still liquid, put it back into the ice cubes. When it feels solid it's ready to test.
7. You can repeat the investigation using different ingredients, for example try chocolate powder instead of sugar or try adding cream for a richer ice cream.

Continued overleaf

DIY Ice Cream (continued)

Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS. This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- If you plan to eat the ice cream ensure everything is clean and hygienic. Using a stronger bag helps to stop salt from getting into the ice cream.
- Be careful working with ice, it can make your hands very cold. Check that none is dropped as this can cause someone to slip.
- Dispose of the ice cubes down the sink. Don't be tempted to put them in drinks, they will taste very salty!

What's Happening? The Sciency Bit:

When you add salt to the ice, it lowers the freezing point so the ice starts to melt. But in order to melt it, the ice needs heat which it takes from your milk mixture. The ice cubes get so cold that they freeze the milk mixture – hence the name; ice cream.

If you have a thermometer, carefully put it in the ice cubes for a little while. You will see the temperature has gone down.

Change of state: liquid to solid; this is a reversible change as the ice cream will change back to the liquid state very quickly.

I've Not Made Ice Cream... What Can I Do?

- Add more salt to cool your ice cubes.
- Move the small zip bag around to ensure even cooling.
- If you have made a large quantity e.g. 250ml it may be too much for the ice cubes to freeze. Split the mixture in half and carry on.