

## Make ice-cream without a freezer!

### What you need:

- 100ml milk
- 1 teaspoon sugar
- ice cubes
- 1 zip-lock bag or plastic bag
- 3 teaspoons salt
- 1 jar with lid or lunchbox



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### Method:

Measure the milk and sugar.

Place them in a zip-lock bag, ensuring it is well sealed, or a plastic bag which is well closed with a knot.

Place some ice cubes at the bottom of the jar. Place the bag in the jar and cover with more ice cubes.

Add the salt to the jar.

Close the lid tightly and start shaking!

Shake for at least 3 minutes, then open and have a taste.

Repeat to make more 😊

### **WHAT'S BEHIND: THE SCIENCE**

In winter we spread salt on the roads and paths to melt ice and snow.

But for the ice to melt it, needs to take heat energy from its surroundings.

In our system the ice melts and takes this heat from the milk mixture, cooling it down and making it freeze into delicious ice cream.

The action of shaking helps this transformation process, and it ensures a smooth ice-cream texture by breaking up ice crystals in the ice-cream.

In 1665 Robert Boyle, who was born in Lismore, Co. Waterford, published a book describing his experiments with temperature and cold.

In it, he describes many experiments where he added salt to ice and snow to make the temperature fall even lower. That is the process you are using with your salt and ice.

Even though Robert Boyle was a great scientist, he never thought to make ice-cream during his experiments!