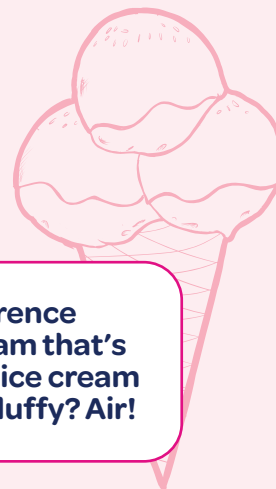




Wonder
Project

Ice Cream Challenge

Activity 3.2: Cold plate creations



What's the difference
between ice cream that's
frozen solid and ice cream
that's light and fluffy? Air!

While it may be invisible, air has a big
impact on ice cream's scoopability.

You can test this for yourself by making two ice
creams on a cold plate! You will use the same
recipe for each test, but change one thing:

- Test one will use **unwhipped cream**
- Test two will use **whipped cream**

Predict

Follow the scientific inquiry process and make
a prediction about what you think will happen.

Which test do you think will make more scoopable ice cream? Why?

We think the test with

unwhipped cream / whipped cream

(circle one) will make more scoopable ice cream.

We think this because

Tasty tip! Think about how overrun
impacts ice cream's scoopability.

Test

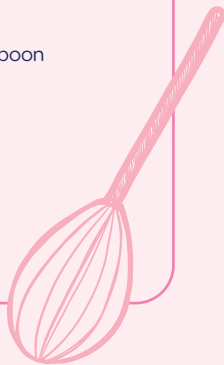
Make some ice cream!

Split your class in half, evenly. One half of rōpū in the class will make the recipe with unwhipped cream, and the other half will make the recipe with whipped cream.

You can choose to make your test with dairy, or with plant-based ingredients.

You'll need:

- 1 x cold plate (chilled in the freezer overnight)
- 1 x tray (big enough to hold the cold plate)
- Ice cubes
- ¼ cup salt
- Electric beater, whisk or big spoon
- 1 x bowl
- Measuring cups
- Measuring spoons
- Timer
- Ice cream ingredients



Recipes

Test 1: Unwhipped cream

Dairy		Plant-based	
Water	¼ cup	Water	¼ cup
Milk powder	1 tbsp	Coconut milk powder	1 tbsp
Icing sugar	2 tbsp	Icing sugar	2 tbsp
Long-life cream	¼ cup	Coconut cream	¼ cup

Test 2: Whipped cream

Dairy		Plant-based	
Water	¼ cup	Water	¼ cup
Milk powder	1 tbsp	Coconut milk powder	1 tbsp
Icing sugar	2 tbsp	Icing sugar	2 tbsp
Whipped long-life cream	½ cup	Whipped coconut cream	½ cup

Mix it up!

Step 1

Put all your ice cream ingredients into a bowl. If you're doing the whipped recipe, make sure the cream is whipped before you start.



Step 2

Carefully mix the ingredients together with an electric beater, whisk or spoon.



Step 3

Prepare your tray by filling it with ice, then sprinkling ¼ cup of salt over the ice.



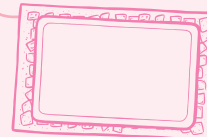
Step 5

Measure out 1/3 cup of your ice cream mixture. Then, spread it evenly over your cold plate.



Step 4

Place your cold plate on top of the ice and salt.



Step 6

Let the mixture freeze for 5 minutes. Clean up your work area while you wait!



Step 7

Scoop the ice cream into a bowl and wipe the cold plate for the next rōpū to use. Put it back on the tray with ice.



Step 8

Pair up with another rōpū that made the opposite recipe to you. If you used dairy, pair up with a rōpū that used dairy. If you used plant-based ingredients, pair up with a rōpū that used plant-based ingredients.



Step 9

Taste test the unwhipped ice cream compared to the whipped ice cream.



Yuck to yum scale

Use your taste, smell and sight senses to decide where each ice cream test ranks on the yuck to yum scale:

- **Yuck** = Hard and crumbly
- **Yum** = Light and scoopable

Ice cream goal	Test	Yuck	Meh	Yum
Scoopable	Test 1: Unwhipped cream	<input type="range"/>		
	Test 2: Whipped cream	<input type="range"/>		

Explain

What did you learn from your tests?

Which ice cream was more scoopable? Why?

Was your prediction right? Why/why not?

What do these tests tell you about how overrun impacts scoopability?

Is there anything you would change for next time?