



Ice Cream Challenge

Activity 2.2: Ice cream in a bag



Discover the secret to achieving a creamy texture by making ice cream in an instant!

Fat and freezing both affect how ice crystals form and the creaminess of ice cream.

You can test this for yourself by making and shaking two ice creams in a bag! You will use the same recipe for each test, but change one thing:

- Test one will use **milk**
- Test two will use **milk and cream**

Predict

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

Which test do you think will make creamier ice cream? Why?

We think the test with

milk / milk and cream

(circle one) will make creamier ice cream.

We think this because

Tasty tip! Think about how fat impacts ice cream and ice crystal formation. Then, think about how much fat is in milk vs cream.

Test

Make some ice cream!

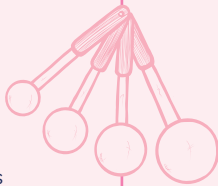
Split your rōpū in half. One half will make the recipe with milk, and the other half will make the recipe with milk and cream.

You can choose to make both of your tests with dairy, or both with plant-based ingredients.



You'll need:

- 2 x small ziplock bags
- 2 x big ziplock bags
- 2 x cups of ice
- ½ cup salt
- 2 x tea towels or gloves
- Measuring cups
- Measuring spoons
- Spoons or forks to mix and taste
- Timer
- Ice cream recipe ingredients



Recipes

Test 1: Milk

Dairy		Plant-based	
Water	½ cup	Water	½ cup
Milk powder	1.5 tbsp	Coconut milk powder	1.5 tbsp
Icing sugar	2 tbsp	Icing sugar	2 tbsp

Test 2: 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

Shake and freeze!

Step 1

Put all your ice cream ingredients into your **small** ziplock bag and give it a good mix.



Step 2

Push out any air, then seal the bag tight.



Step 3

Add 1 cup of ice and ¼ cup of salt into your **big** ziplock bag.



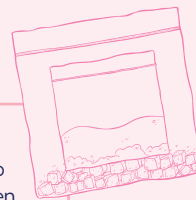
Step 5

Wrap the whole bag in a tea towel or hold it with gloves – it's going to get chilly!



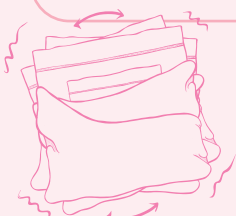
Step 4

Put the small ziplock bag into the big bag, then seal the big bag up!



Step 6

Shake, shimmy and dance with your bag for 5 minutes.



Step 7

After the 5 minutes are up, take the small bag out of the big bag and rinse off any salt.



Step 8

Open the bag and taste test your treats!



Did you know? Salt makes the icy water stay colder for longer!

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** = crunchy and icy
- **Yum** = Smooth and creamy

Ice cream goal	Test	Yuck	Meh	Yum
Creamy	Test 1: Milk	<input type="range"/>		
	Test 2: Cream	<input type="range"/>		

Explain

What did you learn from your tests?

Which ice cream was creamier? Why?

Was your prediction right? Why/why not?

What do these tests tell you about how fat and freezing impact creaminess?

Is there anything you would change for next time?