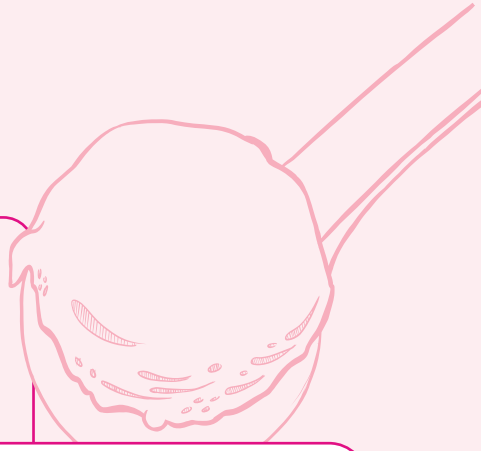
Wonder Project

Ice Cream Challenge

Activity 3.1: Operation overrun



Predict

Step 1

Make a prediction on how scoopable these ice creams are, based on the amount of air bubbles you can see.

Can you figure out how scoopable ice cream is with some frosty formulas? It's time for operation overrun.

Scientists use a special formula to calculate how much air has been whipped into ice cream. This helps them understand how scoopable the ice cream is.

Look carefully at the microscopic images of ice cream below. The dark circles you can see are air bubbles.

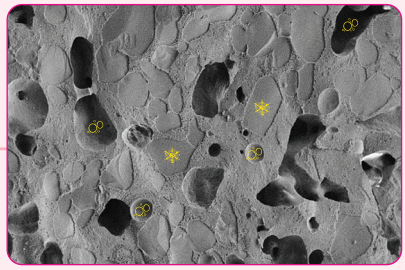
Test

Step 2

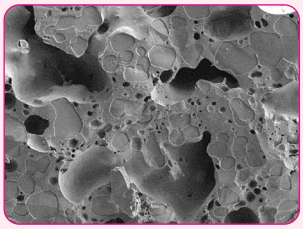
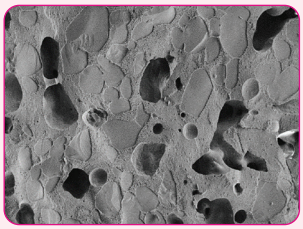
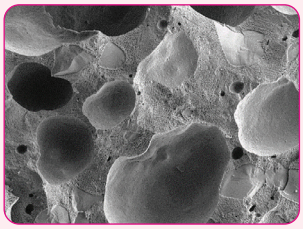
Test if your prediction is correct by calculating the overrun (%) of each image, using this formula:

Overrun (%) = (Weight of 1 cup of mix – weight of 1 cup of ice cream) ÷ weight of 1 cup of ice cream x 100

Ice cream key



Ice crystals	Air bubbles
	

Ice cream images		Predict	Test		
		Low, medium or high overrun?	Weight of 1 cup of mix (g)	Weight of 1 cup of ice cream (g)	Overrun %
Example		*Medium*	*200*	*132*	*51.5%*
Image one			200	100	
Image two			200	125	
Image three			200	160	

Explain

Which image had the most overrun?

Which image had the least overrun?

Was your prediction right? Why/why not?

What do these images tell us about how air impacts scoopability?