

Year 6 Transition Work: Science

1. Practical activity

How to Make Ice Cream in a Bag



One of our favourite science activities is learning **how to make ice cream in a bag!** Besides ending up with a homemade treat, students can also make predictions and observations throughout the ice cream making process.

Materials for Making Ice Cream in a Bag

- One large sealable / Ziploc bag (a large Tupperware or similar tub will do and will probably be more secure!)
- One sealable / Ziploc sandwich bag
- Ice (lots!)
- 1/2 cup (rock) salt
- 1/2 cup whipping / double cream
- 1 tablespoon sugar
- Flavour: a few drops of vanilla or a squirt of chocolate sauce (optional)

- Spoon
- Printable Record Sheet (optional)

Procedure for Making Ice Cream in a Bag

1. Place the cream, sugar, and any flavouring you're using into the smaller bag. Seal it tightly and be sure there are no leaks. (We put ours inside another bag as a precaution.)
2. Fill the large bag about a third of the way with ice and pour in the salt.
3. Place the smaller bag inside the larger one. Add a bit more ice (so the bag is about 2/3 full) and seal the large bag.
4. Use your hands to move the bag around continuously. Check the ingredients occasionally to see if the mixture resembles ice cream.
5. Your ice cream should be done in about 20-25 minutes. Eat and enjoy!



Question to Spark More Curiosity & Critical Thinking

1. What state of matter is the mixture at the beginning of the experiment? How about at the end?
2. What happened to the ice in the large bag as you were making the ice cream? Why do you think this happened?
3. Why do you think salt is necessary in this activity?

Answers below!

What's Going On? The Science behind Making

Ice Cream

1. In the beginning the cream is a **liquid** but we want it to **freeze** and become a **solid**. We need to lower the temperature of the cream until it is below the cream's **melting point**.
2. The ice **melts** as we make the ice cream. This means it is gaining **energy**. This energy is being taken from the cream. If the cream is losing energy it must be **cooling**. Eventually the temperature drops low enough to freeze the cream.
3. Ice *normally* melts at 0 °C (zero degrees centigrade). If we put the cream into a bag of melting ice then it will also be at 0 °C. This is not cold enough for cream to freeze. If we add salt to the water we lower the melting point of the ice. So we lower the temperature of the cream and finally freeze it!

On the next page you will find the recording sheet that you can fill in during the task.

Extension tasks:

1. Start a key words book and record the meaning of the words in **bold** above.
2. Research why we put salt on the roads in the winter.

The Science of Ice Cream



Estimate how many minutes it will take for your ingredients to turn into ice cream.

Estimate: _____ Minutes

Actual: _____ Minutes

Procedure: Write or draw how you made the ice cream.



Conclusion: Why do you think the ingredients turned into ice cream?



2. Alternative activity - Science 'sheroes' (In case it's not 'practical' to do the first one!)

First, meet all three of our science sheroes below, and then complete the worksheet.

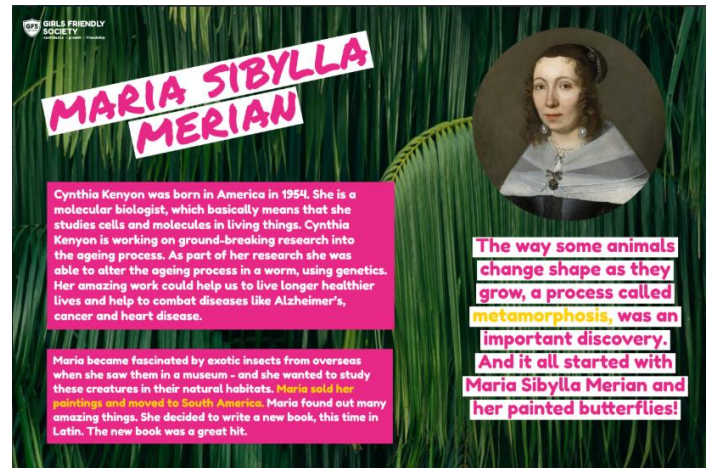


ROXANNE EL HADY

Roxanne El Hady is a young scientist from London, who was born in 1997. While most teenagers spend their summers relaxing with friends, Roxanne spent her whole school summer holiday researching 800 years of rapid climate change in Wales. Roxanne was interested in a particular area of Wales called Llangorse, due to certain characteristics of the soil in that area; "it is in layers - at the base is the oldest and at the top is the newest". The special yearly layered sediments helped her find out how quickly change happened during each time period.

"I like learning exciting things about this vast system that is our world," says Roxanne.

Roxanne's work won her the "Young Scientist of the Year" award in 2016. She was presented with a £2,000 prize at The Big Bang Fair at the Birmingham NEC.



MARIA SIBYLLA MERIAN

Cynthia Kenyon was born in America in 1954. She is a molecular biologist, which basically means that she studies cells and molecules in living things. Cynthia Kenyon is working on ground-breaking research into the ageing process. As part of her research she was able to alter the ageing process in a worm, using genetics. Her amazing work could help us to live longer healthier lives and help to combat diseases like Alzheimer's, cancer and heart disease.

Maria became fascinated by exotic insects from overseas when she saw them in a museum - and she wanted to study these creatures in their natural habitats. Maria sold her paintings and moved to South America. Maria found out many amazing things. She decided to write a new book, this time in Latin. The new book was a great hit.

The way some animals change shape as they grow, a process called metamorphosis, was an important discovery. And it all started with Maria Sibylla Merian and her painted butterflies!



CYNTHIA KENYON

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"I have always got a kick, a thrill out of learning new things," says Cynthia.

Cynthia made a 'mutant worm', that was middle-aged but looked and acted like a teenager!

Introducing our top sheroes. Use the fact sheets above to find out about them and complete the table below!

Name	Country of origin	Year of birth	Famous for being	Shero rating / 10

My favourite shero of the week is:

I like her because:

If I could meet her I would say:

Now make a picture or a design inspired by your shero of the week. It doesn't have to be a picture of them – your artwork could represent something their story makes you think about or how it makes you feel.

GFS Science sheroes word search

S	H	I	O	I	N	N	S	T	H	S	R	S	M	ROXANNE
T	M	A	R	I	A	A	I	S	Y	T	M	I	N	CYNTHIA
R	O	M	I	S	S	T	I	C	C	I	R	N	O	MARIA
L	O	N	Y	O	A	X	E	I	H	H	A	L	P	SCIENTIST
B	Y	X	O	S	T	C	A	E	E	S	E	E	S	BIOLOGIST
I	I	T	A	W	O	R	M	N	M	G	S	O	M	CHEMIST
O	A	N	X	N	O	H	M	T	I	S	O	O	S	PHYSICIST
L	S	P	T	I	N	O	S	I	S	I	I	C	E	SOIL
O	I	O	A	M	C	E	T	S	T	L	L	E	M	WORM
G	I	A	O	S	S	S	I	T	N	I	I	S	S	
I	O	C	Y	N	T	H	I	A	I	L	Y	L	S	
S	T	S	I	C	I	S	Y	H	P	I	H	B	N	
T	G	R	S	R	I	R	S	H	O	A	S	P	S	
S	T	M	R	C	O	E	T	E	O	L	A	E	I	