IndusTRY AT HOME!

About this activity

In this activity you will develop methods for producing and measuring foam using bubble bath mixture.
Just like scientists in industry, you will make careful observations and record accurate measurements.

Kit List

- ☑ Large mixing bowl
- ☑ 2-litre clear plastic pop bottle
- ☑ 20ml creamy foam bath
- ☑ Teaspoon (could use a pipette or medicine syringe to measure 1ml if you have one)
- ☑ Drinking straw
- ☑ Tablespoon
- ☑ Whisk
- ☑ Water
- ☑ Measuring jug
- ☑ Ruler or tape measure
- ☑ Timer (tablet, phone, or watch)

Time: 1 hour

Watch out!

- Check for allergies before selecting bubble mixture to test
- Do not rub your eyes or touch your mouth whilst handling bubble mixture
- Do not suck the bubble mixture through the straw
- Ensure the pop bottle lid is on securely before shaking
- Thoroughly wash any kitchen utensils you use before they are used for cooking

How will you make foam?


Shake it!


Blow it!


Whisk it!


Stir it!

Important words to understand:

- competitor
- foam
- industry
- ingredient
- intervals
- method
- mixture
- observation
- product
- recipe
- research
- skincare

Not sure what they mean? You could use a dictionary to check (paper or online).

The Problem

Sumptuous Skincare

At Sumptuous Skincare, we make ingredients for lots of everyday products like sun creams, soaps, and medicines. Our scientists are busy developing a new bubble bath recipe. They would like it to produce plenty of foam with just a small amount of the bubble mixture so that our customers can enjoy lots of relaxing bubble baths from just one bottle.

To help us with our research, we would like you to test one or more of our competitors' bubble bath recipes to see how they perform. You will need to develop different methods for making foam using water and bubble bath mixture. Look at the pictures at the bottom of this page for some ideas or come up with your own methods.

As research assistants, you will also need to measure the amount of foam produced. You might do this by marking 5cm intervals up the side of the 2-litre pop bottle or timing how long it takes for the foam to disappear.

OUR METHOD

- Think of a method for producing foam (e.g. shake, blow, whisk, stir, etc.)
- Decide on a method for measuring the amount of foam produced (e.g. height of foam, time to disappear)
- Mix half a teaspoon (or 1ml) of creamy foam bath with 300ml of water in a container suitable for your foam making method (e.g. bottle for shaking, bowl for stirring)
- To keep each test fair, mix for a set number of shakes, stirs, blows, whisks, or seconds.
- Record your measurement in your chosen format (e.g. table, chart, diagram, etc.)

How you will solve the problem...?

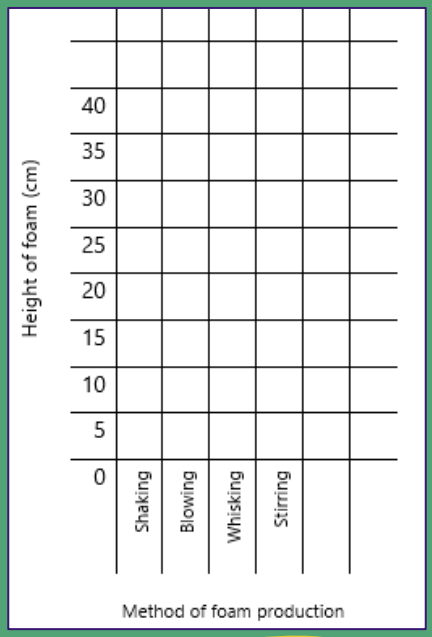
Adapted from: Science of Healthy Skin

Recording your Results – here are some examples or you can develop your own ways of recording

Results table

Method used	Amount of foam produced	Length of time foam lasted	Other observations
Shaking			
Blowing			
Whisking			
Stirring			
_____			

Bar chart

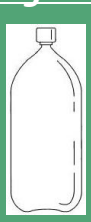


Video diary

Photo diary

Writing

Diagram



Once you have carried out your observations and recorded your results, it is time to advise the Sumptuous Skincare scientists how their competitors' bubble bath mixture performed in your test.

Sumptuous Skincare

THEY WILL WANT TO KNOW...

- How did you carry out your tests and make them fair?
- What methods did you use to make foam?
- Which foam making method was the best? Why?
- How did you measure the foam you made?
- Which method made the most foam?
- Which method produced the longest lasting foam?

Write a short report or make a video to share your results with **Sumptuous Skincare** Share it with us @ciecyork

Did You Know?

Foam can be made when some liquids are stirred or liquids and gases are mixed. This means foam measurement and control are really important considerations for lots of different industries such as those that make medicines, drinks, paint, processed food, textiles, paper, and the companies responsible for cleaning our wastewater.

Foam is important to skincare specialists Croda who work hard to make sure your shampoo produces lots of foam to make your hair feel lovely and clean, but also to make sure that washing powders don't foam so much that they bubble out of your washing machine.

TAKING IT FURTHER

Follow up activities:

- Take a look around your home, where is foam produced and what is it used for?
- Investigate to find out if there is a link between the volume of water used and the amount of foam produced.
- Repeat the investigation using a different brand of bubble bath to see which one produces more foam.

Things to think or talk about:

- What is foam?
- Where do you see foam?
- When is foam useful?
- When is foam not useful?
- What makes foam last longer?
- What makes foam disappear?

Adapted from: Science of Healthy Skin