

About this activity



In this activity you will investigate how different drinks can affect your teeth. Just like scientists in industry, you will make close observations during the investigation and record your results.

Kit List

- ☑ 4-6 small containers (e.g. yoghurt pots)
- ☑ 1-2 hardboiled eggs
- ☑ 4-6 samples of drinks (examples below)

Time: 30 minutes setup
+ 10-minute daily observations



Important words to understand:



- acid
- bacteria
- cavity
- coating
- damage
- decay
- enamel
- flossing
- plaque
- rotting
- sugar
- teeth/tooth

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

Watch out!



- Eggs must be hard boiled with membrane removed from the inside of the shell
- Ensure allergy sufferers do not handle the eggs
- Wash hands after handling eggshells

The Problem!



Our teeth have an enamel coating to protect them but the sugars and acids in our drinks can rot this coating away over time unless we keep our teeth clean. You may have seen news reports like these about the damage sugary drinks can do to your teeth:

Tooth decay warning over soft drinks

Some soft drinks manufacturers are producing juice drinks that are pretending to be healthy, but

Even some drinks that claim to be kind to teeth can still cause tooth decay.

Juice Drinks fall short of healthy image

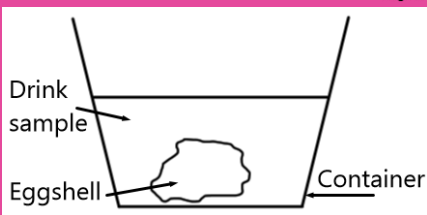
Some drinks tested had less than 5% real fruit juice, others had so much sugar that they were 60% sweeter than pure fruit juice.

Some of the UK's most popular brands of juice drink contain more sugar than cola, increasing the risk of damage to children's teeth!



The scientists at Sparkle Toothpaste would like to make a new toothpaste to clean people's teeth after they have had a sugary drink so they can keep enjoying delicious drinks without their teeth decaying (rotting).

Setting up your equipment:



They need you to carry out some research to find out about the effects that different drinks can have on our teeth. Eggshells are made from a very similar material to tooth enamel so you will use these for your investigation. As eggshells are much thinner than teeth you will see the results much faster.

Example drinks you could use:

water
fizzy drink
diet fizzy drink
sports drink
fresh juice
flavoured water
cordial juice
milk
flavoured milk
milkshake
tea/coffee



OUR METHOD

- Hard boil 1-2 eggs (depending on how many samples you are testing)
- Remove shells from eggs (including the membrane under the shell)
- Place a piece of eggshell in each of the small containers
- Pour each drink sample into one of the containers (enough to cover the eggshell)
- Take a close look at the eggshells each day for 7 days



What do you think will happen?

Recording your Results – Here are some ways you could record your results:

Sketch Diary - daily observations for one week

	Day 1	Day 2	Day 3
Eggshell in water			
Eggshell in cola			
Eggshell in orange juice			

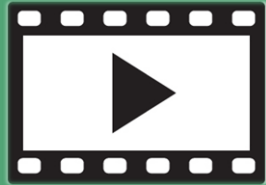
Draw the eggshells then add colour and describing words to record the changes you see.

Think about changes to the shape, colour, feel and hardness of the eggshells.

Photo Diary



Video Diary



Once you have completed your observations and recorded your results, it's time to advise the Sparkle Toothpaste scientists how the different drinks affected the eggshells.



THEY WILL WANT TO KNOW...

- How did you carry out your tests and make them fair?
 - What are your results?
- How did the eggshells change?
 - Which drink caused the most damage?
 - Which drink was the least damaging to the eggshell?

Write a short report or make a video to share your results with

Sparkle Toothpaste
Share it with us [@ciecyork](https://twitter.com/ciecyork)

Did You Know?



Tooth enamel is the hardest material in the human body.



Human babies only have 20 baby teeth as children but up to 32 adult teeth.

Human beings are born with all of their baby and adult teeth already inside their jawbones.



TAKING IT FURTHER

Follow up activities:



- Have a go at making your own toothpaste by mixing 1tsp of baking soda, 1 drop of peppermint oil and a few drops of water. More info about toothpaste ingredients and recipes can be found **on this website**.
- Test different brands of toothpaste to see how effective they are by scrubbing a line of permanent marker from a spare ceramic tile with a new toothbrush. Time how long it takes to remove the mark or see how much of the mark has been removed after one minute of scrubbing.

Things to think or talk about:



- What do you do to look after your teeth?
- What would happen if you didn't brush your teeth regularly?
- What happens during a visit to the dentist?
- How much sugar is in your favourite foods and drinks? Take a closer look at the nutritional information on the packaging to find out.
- Why do we get two sets of teeth (baby and adult)?
- Why are our teeth different shapes?
- Would your diet change if you didn't have any teeth?