

From the Chew to the Poo! Science Show



**Information for teachers
and group leaders**

What will the show involve?

From the Chew to the Poo! is an entertaining 30 minute show where children follow the fascinating journey of a 'banana and peanut butter' sandwich from the moment it is eaten to the moment it leaves the body as waste. Through a series of interactive activities children will find out how saliva in the mouth breaks down food in order for it to be swallowed, how our bodies retain the vitamins and minerals our bodies need and more amusingly how it gets rid of what we don't need.

Please note that the show may contain elements of the curriculum not yet covered by some pupils but nonetheless will still provide an interesting and informative experience for the children.

Is there anything I need to do to prepare the children before the visit?

Not really. It can be useful if the children have been learning about teeth and the digestive system but it's not essential.

Allergies

Please note that although we refer to the sandwich as containing banana and peanut butter we actually do not use either in the show so there is no risk to anyone who might be allergic to either bananas or peanut butter.

Risk assessment

- Please visit our website education.eureka.org.uk/resources to download both the general museum risk assessment and the one for your chosen session.
- We advise you to make a preview visit to carry out your own risk assessment for the overall visit.

Additional resources & information

The following pages contain various supporting resources and information related to the science show.

Please find the following documents in this pack:

- **Teacher's assessment chart** - *this outlines the aims and objectives of the show and their learning outcomes.*
- **The Hokey Cokey Tooth song** – *a fun way of remembering the names of the different teeth we have and their functions.*
- **A list of demonstrations used in the show** - *including resources needed and instructions in case you want to re-create any of the demos back in class.*
- **A re-cap quiz** - *which summarises the main learning outcomes of the show that you might want to use with your class back in school.*

Evaluation

Eureka! constantly aims to improve its programmes for school groups and feedback from adults and children is an essential part of this. We value all comments made and will always try our best to act upon them. You will be sent a link to an online survey following your visit and we'd be extremely grateful if you could complete and return as soon as possible after your visit.

From the Chew to the Poo! Learning Outcomes

Aims and objectives – by the end of this science show children should have learned:

- To recognise the organs of the body used in digestion.
- That the eatwell plate makes healthy eating much easier to understand by showing the types and proportions of foods we need to have a healthy and well-balanced diet.
- To recognise the different types of teeth and what their function is.
- To know the roles the different body organs play in the digestive process.
- That our bodies absorb nutrients from the food we eat and how it gets rid of what we don't need.
- That it's important to eat foods which contain fibre, drink lots of water and take plenty of exercise to keep the digestive process running smoothly.

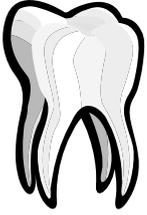
Overview: Through a series of interactive activities, powerpoint presentation and discussion, children will learn about the process of digestion by following the amazing journey of a banana and peanut butter sandwich from the moment it is chewed to the last moment it is pooped!

Activities	Learning Outcomes
Introduction of the idea that we'll be following the journey of banana and peanut butter sandwich through the digestion process.	<i>To show the different organs involved in the digestion process.</i>
Dissecting the sandwich to see if it is a healthy snack by using the eatwell plate.	<i>That a healthy and well balanced diet should include elements from each section of the eatwell plate.</i>
Step 1: the mouth. Children will talk about the different teeth and their functions.	<i>That incisors are used for cutting our food; canines for tearing and molars for chewing.</i>
Volunteers are chosen to show the biting and chewing of food and how it is broken down to be swallowed.	<i>That saliva in our mouths moistens the food making it easier to chew and that enzymes in saliva break down the food so it can be swallowed.</i>
Step 2: swallowing. We explain how our food is swallowed.	<i>That the oesophagus is the tube which food travels from your throat to your stomach.</i>
Step 3: the stomach. Volunteers are chosen to help show the role of the stomach in the digestive process. This will be followed by a short discussion about what happens when we burp or vomit.	<i>That the stomach is a sack made of muscles that contract and churn food breaking it down even further by adding acidic digestive juices and enzymes.</i>
Step 4: the small intestine. Volunteers will demonstrate how long the small intestine is and how food is squeezed through it.	<i>That the small intestine is about 7m long. That food moves through the small intestine through a process called peristalsis and it's at this point that the body absorbs most of the nutrients it needs.</i>
Step 5: the large intestine. We'll show why you get diarrhoea and a volunteer will demonstrate the role of the large intestine by straining the excess water.	<i>That the role of the large intestine is to remove excess water after which what's left forms into a poo shape and is stored in your rectum.</i>
We'll talk about how your poo can be a good indicator of how healthy you are and why it's important to wash our hands after visiting the toilet.	<i>Children will learn how their diet and lifestyle can help the digestive process.</i>

From the Chew to the Poo

The Tooth Song

(To the vague tune of hokey cokey)



It's not your OUT-cisor, *(arm out)*

It's your IN-cisor, *(arm in).*

It cuts, cuts, cuts *(cutting action with hands)*

As your jaw opens *(arms wide)* and shuts *(snap arms shut)*

You taste food with your tongue *(tongue out)*

And it rolls about *(turn round)*

Then what do you do?

Ooooooh, you chew it with your molars, *(In to middle)*

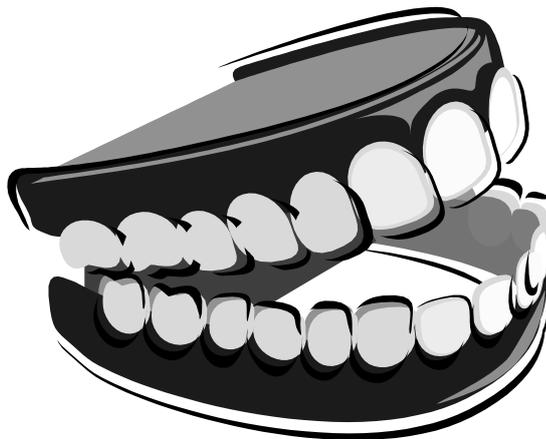
Ooooooh, you chew it with your molars, *(In to middle)*

Ooooooh, you chew it with your molars, *(In to middle)*

Cut, cut *(cutting action)*

Chew, chew *(chewing action with hands)*

Swallow it down *(sit on floor)*



From the Chew to the Poo

Demos used in the show

Everything you'll see in our science show can be easily repeated in the classroom. The following pages provide a basic list of resources needed and instructions for each demonstration used in the show.

1: What happens in the mouth?

Equipment needed:

- a sandwich (anything will do as long as it's quite easy to cut and mash up)
- a knife
- a potato masher
- a large bowl
- water (saliva)
- yellow food colouring (enzymes)

The demo:

1. Cut up the sandwich into smaller pieces using the knife to represent the incisors. Transfer the small pieces into the bowl, which represents the mouth.
2. Use the potato masher (as the molars) to chew and grind up the sandwich.
3. But this is quite difficult as the sandwich is too dry, so we add some water (the saliva) to moisten the food.
4. Contained in the saliva are enzymes which help speed the process up so yellow food colouring is also added at this point.
5. The sandwich is now easier to mix up and you should keep mashing until all the big lumps are gone.

2: What happens in the stomach?

Equipment needed:

- the mashed up mixture from the previous demonstration
- a zip-lock bag
- a spoon
- vinegar (stomach acids)
- washing up liquid (stomach enzymes)

The demo:

1. Transfer the mixture from the bowl into the zip-lock bag which will represent the stomach.
2. Add some vinegar to represent the stomach's digestive juices which are very acidic.
3. Add some washing up liquid to represent the digestion chemical enzymes which make it possible to digest the food.
4. Carefully seal the bag, making sure all of the air has been squeezed out.
5. Squeeze the bag to churn up the mixture just as the stomach muscles do.

3: What happens when we burp?

Equipment needed:

- vinegar
- bicarbonate of soda
- a small bottle with a cork stopper

The demo:

It's probably better if this demonstration is only carried out by an adult!

1. The bottle will represent the stomach, the bicarbonate of soda is the food and the vinegar represents the stomach acids.
2. Add a little bicarbonate of soda to the bottle.
3. Then pour in a little vinegar and quickly push the cork in - stand well back.

What happens:

The vinegar and the bicarbonate of soda will react and froth up. The build up of gas will cause the cork to pop off. This demo shows that another effect of adding acids and enzymes in the stomach is the production of gas. As acid mixes with food in your stomach it fizzes and produces gas. The gas collects at the top of your stomach until it needs to be expelled which is when you burp.

4: What happens in the small intestine?

Equipment needed:

- length of clear tubing sealed at one end (we got our polythene layflat tubing from www.transpack.co.uk)
- spoon
- wide necked funnel (or cut the top off a plastic bottle)
- a mixture of strong coffee (bile)

The demo:

1. Add the coffee mixture to the 'stomach' bag and give it a squeeze to mix it all up.
2. Carefully transfer this mixture from the bag into the tubing and seal the open end.
3. Use your hands to squeeze the mixture from one end of the tubing to the other just as the muscles in the small intestine contract and expand in peristalsis.
4. As the food passes through the small intestine, your body absorbs most of the nutrients it needs.

5: What happens in the large intestine?

Equipment needed:

- scissors
- large bowl
- sieve
- spoon

The demo:

1. Once all the nutrients have been absorbed by the bloodstream, what is left is mainly indigestible matter, water and bacteria. The job of the large intestine is to remove the excess water.
2. Place the sieve over the bowl. Cut one end of the tube and squeeze the mixture into the sieve.
3. Use the spoon to press the water out, keep pressing so that eventually what you're left with is a mixture which is firm enough to be moulded. It's up to you whether or not you choose to mould it into a poo shape!

From the Chew to the Poo

Recap quiz

1. Where does the process of digestion begin?

- a) in your stomach
- b) in your mouth**
- c) in your intestine

2. The tube through which your food travels from your throat to your stomach is called?

- a) the oesophagus**
- b) the small intestine
- c) the epiglottis

3. The muscular bag that starts to churn up your food is called?

- a) the liver
- b) the pancreas
- c) the stomach**

4. When the muscles in the small intestine expand and contract to push the food along this process is called?

- a) peristalsis**
- b) digestion
- c) absorption

5. What is the job of the large intestine?

- a) to churn up your food
- b) to absorb nutrients
- c) to remove excess water**

6. What will help you to have the perfect poo?

- a) exercise,
- b) a diet full of fibre
- c) lots of water
- d) all of the above!**