

The Gross Lab Science Show



**Information for teachers
and group leaders**

What will the show involve?

The Gross Lab is an entertaining 45minute show where children will have the opportunity to explore the 'ickier' (but very important) side of the human body. *Grossology* is the science of really gross things and during the show the children will become "grossologists" - someone who studies really gross things! We'll be taking a look at what happens when you cut yourself, what saliva is for, why we burp (and poop) as well as making fake poo, snot and sick!

The show is presented by two members of the Eureka! team and will provide opportunities for children to get involved with the show whether it be as volunteers for a particular demonstration or as whole audience participation.

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?

YES! The show will end with the song 'Life, Glorious Life' which is an amusing way of recapping what has been learnt during the show. A copy of the song is included at the end of this pack and it would be very helpful if you could practice the song with your class in anticipation of our visit.

Risk assessment

- Please visit our website <https://www.eureka.org.uk/education/resources/> to download both the general museum risk assessment and the one for your chosen workshop.
- 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, including the key activities which children will be taking part in and their learning outcomes.*
- **Pre-visit Letter** – *From the Eureka! team, to introduce the show to the children.*
- **'Life, Glorious Life' song** - *if you have time please help the children to learn this song.*
- **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.*

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. An evaluation form will be given to you at the end of your session and we ask that you complete and return to us as soon as possible using the freepost envelope provided.

The Gross Lab Learning Outcomes

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

- What happens when you cut yourself and how a scab protects the healing skin underneath
- How saliva helps you to swallow your food and also kills bacteria in your mouth.
- To learn the names of some of the organs involved in the digestion process and the jobs they do.
- How burps and poops are caused by a build up of gas.

Overview: Through a series of interactive activities, powerpoint presentation and discussion, children will learn about some of the 'ickier' processes of our bodies.

Activities	Learning Outcomes
Volunteers are used to play the ball pool game to show what a scab does.	<i>That scabs are important because they protect the healing skin underneath and stops bacteria from getting into the wound which could lead to infection.</i>
A discussion about what saliva is and what it does. An adult is used for the demo which shows how saliva can change the taste of something.	<i>That saliva in our mouths contains things which help destroy bacteria and chemicals called enzymes which help to break food down so it is easier to swallow.</i>
Demo to show the reaction that happens which causes us to burp	<i>That when the stomach digests food, special acids are added to help break down the food and which makes a gas. If the stomach builds up too much gas, some of it will need to be released and you burp.</i>
A discussion about what causes us to poop	<i>That bacteria live in the large intestine and feed on the waste your body doesn't need. As they feed they poop too. Their gas builds up in the large intestine and when it gets too much it causes you to poop.</i>
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 show you how you can make fake snot and talk about how bogeys are formed.	<i>That the job of snot is to trap dust, germs, pollen and other things floating around in the air to stop them from getting into the lungs</i>
We'll show you how you can make fake sick and talk about what it is made up of and what might cause us to be sick.	<i>That when food is in the stomach it mixes with stomach acids and enzymes and that being sick is a way of our bodies looking after themselves.</i>
The show will end with a rendition of our 'Life, Glorious, Life' song.	<i>A fun way to recap elements of the show.</i>

The Gross Lab

Pre-visit letter

Eureka! The National Children's Museum
Discovery Road
Halifax
HX1 2NE

Dear friends

We just thought we'd drop you a quick line to say hello and to let you know that we're really looking forward to seeing you at Eureka! when we present to you our science show called 'The Gross Lab!'

We've been investigating all sorts of gross but very important things that our bodies do and we can't wait to share some of them with you and to show you just how amazing your body is. We're sure you'll enjoy the show and hopefully you'll learn some new things too!

We'd really like it if you could learn our '*Life, Glorious Life*' song before you arrive as we're not very brave singers! Your teacher should have a copy of the song for you to practice so we'll hopefully be able to raise the roof once we all get going!

We look forward to meeting you all soon.

Yours sincerely

The Eureka! Team

The Gross Lab

Pre-visit song

Life, Glorious Life

(To the tune of Food, Glorious Food from Oliver!)

Blood, glorious blood,
Red, gooey and sticky.
Inside us it's good –
Outside it's just icky!
Grossologists know what's what
Just ask us a question
We'll tell you some lovely stuff
About di-ges-tion!

Wind, glorious wind
Comes up from your belly,
Or from down below
Where it is more smelly!
What's left of the food you had,
Poo, then will appear
Or if you are feeling bad
Di-ah-orrea!

Grossologists love
Things which are quite yukky
Scabs, bogeys and sick
They can be quite mucky
Our bodies are fabulous
We know it's all part of

Life, glorious life,
wonderful life,
marvellous LIFE!

The Gross Lab

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 along with some extra demonstrations to show the processes of digestion.

How to make fake wounds

Equipment needed:

- petroleum jelly
- a small bowl
- red food colouring
- powdered cocoa
- white tissues

The demo:

1. Place a fingerful of jelly into a bowl
2. Add 4 drops food colouring and pinch of cocoa. Mix well.
3. Separate tissue into single layer
4. Rip out a 3-inch by 2-inch rectangle of tissue
5. Place tissue at wound site
6. Cover tissue with coloured jelly
7. Mold tissue to form the wound's edges (sides of a wound are higher than its centre)
8. Rub sprinkled cocoa onto the wound's edges to make the edges dark, as though a scab is forming.
9. Share your wound with someone easily grossed out.

If your jelly looks like red gelatine, stir in a pinch more cocoa powder to make it opaque, like real blood. Think of a cut when shaping the tissue: the centre is bloody mucky and the tissue ridges along the outside are your ripped skin.

How to make fake sick

Equipment needed:

- Special K cereal
- milk
- bowl
- small glass or orange juice - quite concentrated
- 1 chopped up banana
- washing up liquid
- finely chopped carrot
- potato masher

The demo:

1. Empty a large bowl of Special K cereal into another bowl and add a little milk.
2. Add one small glass of quite concentrated orange juice.
3. Add one chopped up banana.
4. Add a squirt of washing up liquid (to represent stomach enzymes)
5. Finally add some finely chopped carrot.
6. Mash it all together!

If you're wondering why there always seems to be carrot in sick, it isn't actually carrot it's little bits of stomach lining - Yuk!

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.

How to make fake snot

Equipment needed:

- UHU glue (the clear type)
- Concentrated orange juice
- a spoon and small bowl

The demo:

1. Put two teaspoons of UHU glue into a bowl
2. Add a little concentrated orange juice
3. Stir together

How to show the digestion process from start to finish

Step 1: What happens in the mouth?

Equipment needed:

- a sandwich (we use banana but 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.

Step 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.

Step 3: What happens in the small intestine?

Equipment needed:

- length of clear tubing sealed at one end (you can buy 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.

Step 4: 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!