AFTERCARE

If any of your projects start to look, feel or smell strange, please dispose of responsibly.

If in doubt throw it out!

Plastic items can be washed in warm soapy water and re-used.

Designed in the UK. Made in China.

Please retain this information for reference.

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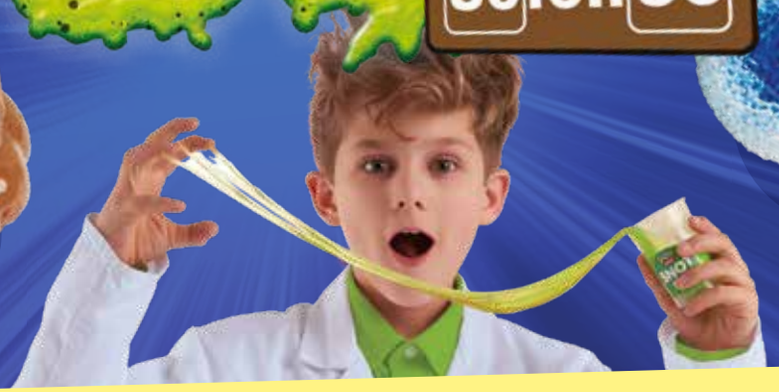
John Adams

AGE 8+

ULTIMATE GROSS® SCIENCE



WARNING!

NOT SUITABLE FOR CHILDREN UNDER 8 YEARS. FOR USE UNDER ADULT SUPERVISION. CONTAINS SOME CHEMICALS WHICH PRESENT A HAZARD TO HEALTH.

READ THE INSTRUCTIONS BEFORE USE, FOLLOW THEM AND KEEP THEM FOR REFERENCE. DO NOT ALLOW CHEMICALS TO COME INTO CONTACT WITH ANY PART OF THE BODY, PARTICULARLY THE MOUTH AND EYES.

KEEP SMALL CHILDREN AND ANIMALS AWAY FROM THESE EXPERIMENTS. KEEP THIS EXPERIMENTAL SET OUT OF REACH OF CHILDREN UNDER 8 YEARS OLD.

EYE PROTECTION FOR SUPERVISING ADULTS IS NOT INCLUDED. SOME COMPONENTS REQUIRE HEATING ON A HOB – A RESPONSIBLE ADULT MUST ASSIST WITH THIS TASK.

John Adams Leisure Ltd., Hercules House, Pierson Road, Enterprise Campus, Alconbury Weald, Huntingdon, Cambridgeshire PE28 4YA.

For customer services call 01480 414361 or email customerservices@johnadams.co.uk

Advice For Supervising Adults:

- Read and follow these instructions, the safety rules and the first aid information, and keep them for reference.
- The incorrect use of chemicals can cause injury and damage to health. Only carry out those experiments which are listed in the instructions.
- This experimental set is for use only by children over 8 years old.
- Because children's abilities vary so much, even within age groups, supervising adults should exercise discretion as to which experiments are suitable and safe for them. The instructions should enable supervisors to assess any experiment to establish its suitability for a particular child.
- The supervising adult should discuss the warnings and safety information with the child or children before commencing the experiments. Particular attention should be paid to the safe handling of acids, alkalis and hot liquids.
- The area surrounding the experiment should be kept clear of any obstructions and away from the storage of food. It should be well lit and ventilated and close to a water supply. A solid table with a heat resistant top should be provided.
- Substances in non-reclosable packaging should be used up (completely) during the course of one experiment ie after opening the package.
- If any experiment starts to grow mould, dispose of the experiment immediately in household waste and wash your hands.
- Some items in this kit can stain clothes and furniture. Cover the activity area with newspaper to avoid damage.

First Aid Information:

- In case of eye contact: Wash out eye with plenty of water, holding eye open if necessary. Seek immediate medical advice.
- If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.
- In case of inhalation: Remove person to fresh air.
- In case of skin contact and burns: Wash affected area with plenty of water for at least 10 minutes.
- In case of doubt, seek medical advice without delay. Take the chemical, its container and this leaflet with you.
- In case of injury always seek medical advice.
- Write in the box below the telephone number of your nearest hospital that can be reached in an emergency.

Safety Rules

- Read these instructions before use, follow them and keep them for reference.
- Keep children under the specified age limit, animals and those not wearing eye protection away from the experimental area.
- Always wear eye protection.
- Store this experimental set out of reach of children under 8 years of age.
- Clean all equipment after use.
- Make sure that all containers are fully closed and properly stored after use.
- Ensure that all empty containers and/or non-reclosable containers are disposed of properly.
- Wash hands after carrying out experiments.
- Do not use any equipment which has not been supplied with the set or recommended in the instructions for use.
- Do not eat or drink in the experimental area.
- Do not allow chemicals to come into contact with the eyes or mouth.
- If foodstuffs are required by any experiment or in the instructions for use, do not replace foodstuffs in original container. Dispose of immediately.
- Dispose of all chemicals/experiments in household waste unless otherwise stated in the instructions.
- Take care when handling hot solutions.

BEFORE YOU START

This extremely gross science set will help you to explore and understand how the human body functions in a simple and safe way. It has been developed to encourage you to work scientifically and support what you are learning at school, and, at the same time have fun!

To ensure the best possible results, please make sure you read the instructions thoroughly before you get started. It is important that chemicals and ingredients are handled and measured correctly if you are to achieve the desired results.

Please wear the safety goggles provided.

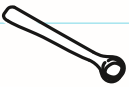
Adult supervision is required.

WHAT'S INCLUDED:

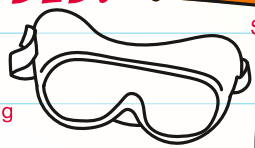
Yellow Colour
Yellow Powdered Colouring CI 19140. Contains Tartrazine. Wash skin with soap and water to remove any incidental contamination

Green Colour
Green Powdered Colouring CI 19140, CI 42090 and Ultra Fine Salt. Contains Tartrazine. Wash skin with soap and water to remove any incidental contamination

Red Colour
Red Powdered Colouring CI 18050

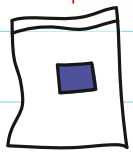


Measuring Scoop



Safety Goggles

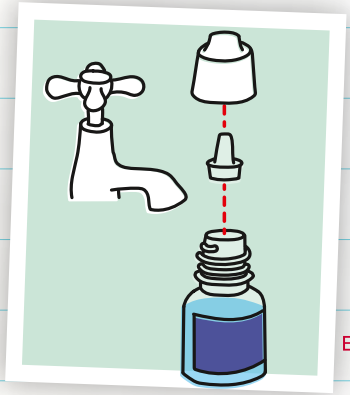
Stirrer



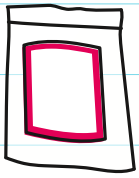
Farty Putty Powder
Net Weight 6g. Locust Bean Gum CAS 9000-40-2, Guar Gum CAS 9000-30-0, Silica CAS 7631-86-9, Sodium Phosphate CAS 7558-79-4, Red Pigment CI 15950.1

Vomit Powder
Net Weight 15g. Citric Acid 77-29-9, Sodium Bicarbonate 144-55-8, Sodium Cocoyl Isethionate 61789-32-0, Coconut Acid 61788-47-4, Sodium Isethionate 1562-00-1, Zinc Oxide 1314-32-2

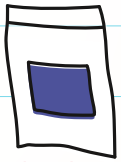
Blue Eyeball Powder
Net Weight 6g.
Polyvinyl Alcohol CAS 9002-89-5, Propylene Glycol CAS 57-55-6, Sodium Benzoate CAS 532-32-1
Blue Pigment CI 74160



Bladder Model



Blood Bag



Agar-Agar
Net Weight 6g
CAS 9002-18-0

White Eyeball Powder
Net Weight 6g.
Polyvinyl Alcohol CAS 9002-89-5, Propylene Glycol CAS 57-55-6, Sodium Benzoate CAS 532-32-1

Syringe

Eyeball Moulds

Snot Pot

Plastic Cup

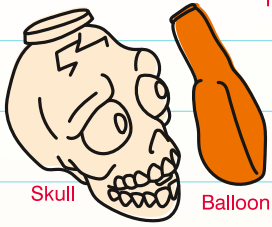
Black Pupil Ball

Fart Pot

Slime Powder
Net Weight 10g. Anionic Linear Copolymer of Acrylamide
CAS 25987-30-8

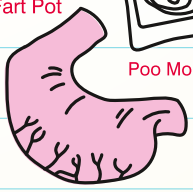
Pus Ball

Poo Mould



Skull

Balloon



Stomach Model

Bladder Clamp

NOTE: The colourings in this set have been supplied in powdered form. Before use, please remove the dropper and fill the bottle with water. Replace the dropper and lid before shaking to mix. Your colours are now ready to use. **Colourings can stain, so please protect yourself and your workspace before starting these experiments.**

Some activities require additional household ingredients **(not included)**
These are – Apple Juice, Sugar, Tomato Ketchup, Brown Bread, Sweetcorn, Cola, Ladies Tights, Rubber Band.

FART FACTS

A fart is a combination of gases (nitrogen, carbon dioxide, oxygen, methane and hydrogen sulphide) that travel from your stomach to your bottom.

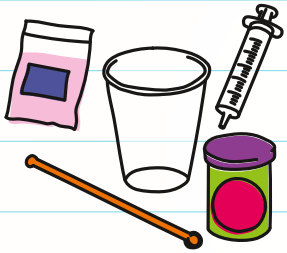
When you swallow too much air or consume foods that the digestive system cannot easily breakdown, gas becomes trapped in the stomach. The only exit for this gas is through the anus!

DID YOU KNOW?

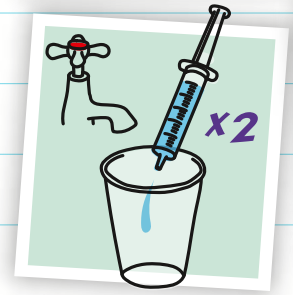
Most people fart about 14-22 times per day! And farts can travel at speeds of 7mph!

ACTIVITY 1: Fart Pot

YOU WILL NEED:

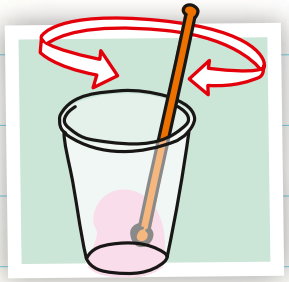


Syringe, plastic cup, fart powder, plastic stirrer, fart putty pot and lid.

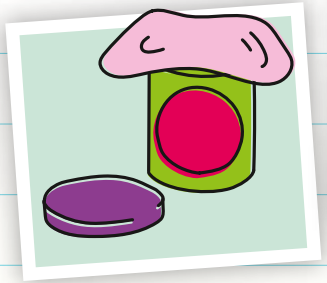


1 Using the syringe put 20mls of hot tap water into the plastic cup.

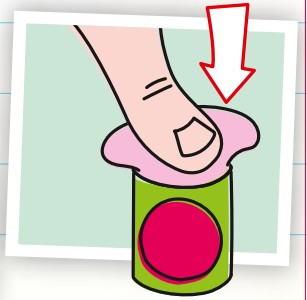
2 Shake half of the fart putty powder into the liquid and start mixing using the plastic stirrer.



3 Keep stirring some more until the resulting fart putty goo starts to pull away from the sides of the cup. Leave for 5 minutes.



4 Flatten out the fart putty and put it over the mouth of the fart pot.



5 Push the putty into the pot with your thumb or finger. Listen to that cool noise as the air escapes and creates your very own cool fart!

THE POOP SCOOP

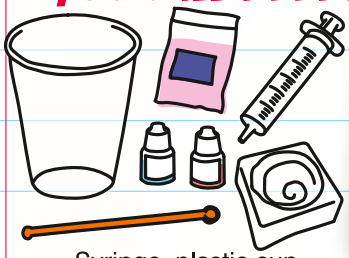
DID YOU KNOW?

Sloths leave the comfort of their trees only once a week and that's to poop! It's called the "poo dance"!

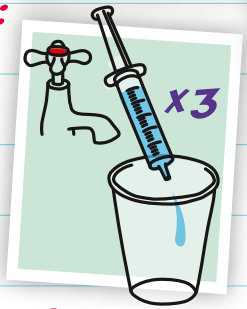
Poo is the waste that remains after food has been digested. It consists of water, fibre, bile and bacteria. The scientific word for poo is "faeces". The colour, shape, texture and smell of poo can be used by doctors to diagnose disease.

ACTIVITY 2: Bouncy Poo

YOU WILL NEED:

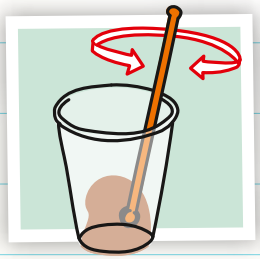


Syringe, plastic cup, fart powder, plastic stirrer, poo mould, red colour, green colour.



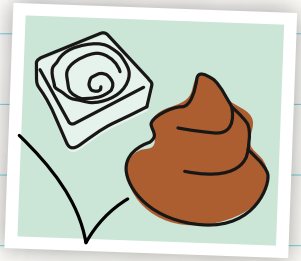
1 Using the syringe put 30mls of hot tap water into the plastic cup.

2 Shake half of the fart putty powder into the liquid and add 6 drops of the red colour and 6 drops of the green colour for that authentic poo shade. Stir using the plastic stirrer.



3 Keep stirring some more until the resulting Poo Goo starts to pull away from the sides of the cup.

4 Pour the Poo Goo into the poo mould.



5 Place the mould into a plastic bag, seal and leave overnight – when you wake you can ease your newly formed poo from the mould and bounce it around all over the place.

* Please refer to page one to ensure you have diluted your colours before use.

SNEEZE

The function of a sneeze is to expel irritants such as dust, pollen and germs from your nasal cavity. This forceful expulsion of air via your nose or mouth can cause particles to travel far and wide and explains how germs can be easily spread.

DID YOU KNOW?

A single sneeze can send 100,000 germs into the air.

ACTIVITY 3: Super Sneeze

YOU WILL NEED:

Balloon, water, syringe.

1. Take the balloon and add 10ml of water – this is the snotty mucus.
2. Blow up the balloon and hold the end closed.
3. Go outside and stand preferably on a dry concrete area – this will help you to see the effect. Do this experiment outside and away from any electrical items as your parent's won't be happy having water sprayed around indoors.
4. Hold the balloon up at head height, pretend to sneeze and as you do so let go of the end of the balloon.
5. Just like a sneeze exiting your nose, the snotty mucus is sprayed into the air.
6. Take a look on the floor and see how far the droplets have travelled. Gross!

EYEBALL ESSENTIALS

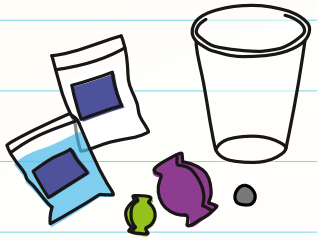
DID YOU KNOW?

The human eye is about 576 megapixels in camera terms, and as for speed, the eye muscles are the fastest muscle in the body.

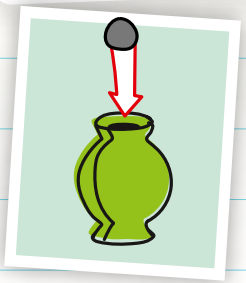
The only organ more complex than your eye is the brain. Your eyes detect light and enable you to see. Information detected by your eyes is transferred to the brain via the optic nerve. This enables your brain to choose the correct response. For example, if your eyes detect an object heading towards you, the message sent by your brain in response might be to move out of the way!

ACTIVITY 4: Bouncy Eyeball

YOU WILL NEED:



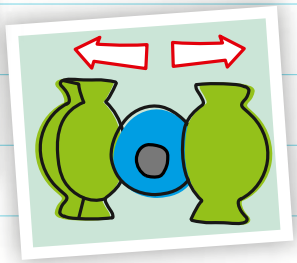
Eyeball moulds, pupil, blue powder, white powder, plastic cup.



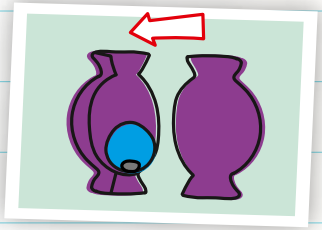
1 Take the 2 halves of the smallest eyeball mould. Place the black ball into one side before snapping the 2 halves together.

2 You should now have the small ball trapped inside a ball mould. Stand this on its small end. Pour the blue eyeball powder into the mould until it is full.

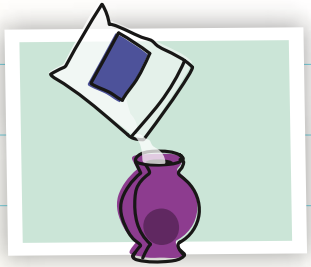
3 Fill plastic cup with cold water and place the eyeball mould inside for 10 minutes. Remove the mould and wait a further 5 minutes.



4 Unclip the 2 halves of the mould to reveal the pupil and iris part of your eyeball.

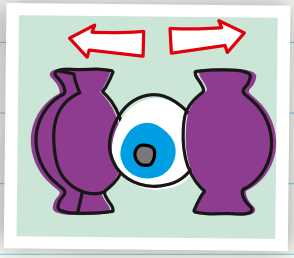


5 Place what you have just made inside the largest eyeball mould making sure the pupil is at the bottom – you can do this by gently holding the ball in position with the point of a pencil while you attach the mould around it.



6 Clip the 2 halves of the mould together and fill with the white coloured eyeball powder. Make sure you tap the mould a little to ensure the powder gets all the way to the bottom. Fill up to the top.

7 Place the eyeball mould back into the plastic cup of water for 10 minutes. Remove the mould and wait a further 5 minutes.



8 Now unclip the 2 halves of the mould to reveal your fully formed life-size eyeball. GROSS!!

PUS POINTS

Pus is a disgusting thick yellow fluid usually formed as a result of bacterial infection. It consists of dying white blood cells, body tissue and microorganisms.

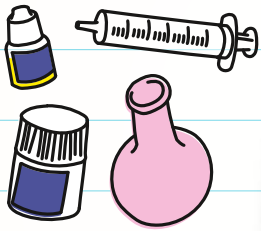
While pus may be gross, it means your body's infection fighters are working.

DID YOU KNOW?

A small collection of pus in the top layer of your skin is called a pimple or pustule. But beware, popping spots can cause the infection to go deeper into your skin!

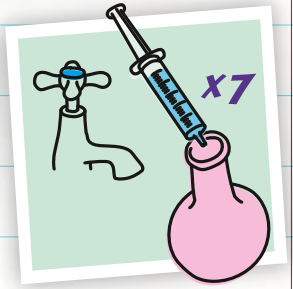
ACTIVITY 5: Pus Ball

YOU WILL NEED:



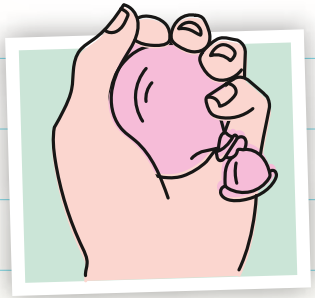
Pus ball, syringe, slime powder, yellow colour.

1 Add 3 scoops of slime powder to the pus ball along with 2-3 drops of yellow colour.

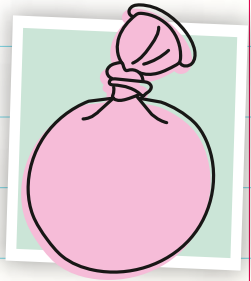


2 Using the syringe, carefully add 70mls of cold water.

3 Tie a knot in the end of the pus ball as you would a balloon.



4 Massage the pus ball in your hand for several minutes to mix the contents. Leave for 30 minutes whilst the pus thickens. Eugh!



5 You now have your own pus stress ball!

* Please refer to page one to ensure you have diluted your colours before use.

SNOT SWOT

Snot or "nasal mucus" keeps the lining of your nose moist and healthy. This mucus along with the tiny hairs in your nose help to trap invaders such as germs, pollen and dust and is important part of your body's defence mechanism against disease.

DID YOU KNOW?

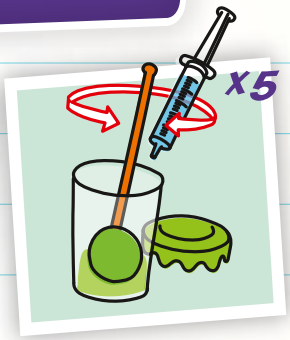
We make around 1 litre of snot every day! It's not all bad that snot is wet and runny. The drier our nose lining is the more we are prone to infections.

ACTIVITY 6: Snot Pot

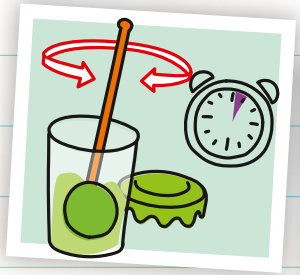
YOU WILL NEED:

Slime powder, yellow colour, green colour, stirrer, scoop, snot pot, syringe.

1 Put 4 scoops of slime powder into the snot pot along with 2 drops of yellow colour and 2 drops of green colour.



2 Add 50mls of cold water and start stirring using the plastic stirrer.



3 Stir continuously for 2-3 minutes. By this stage your snot should be starting to thicken!

4 Leave the pot to stand for 30 minutes.

5 Stir once more. Your snot should now be ready to play with! Yuk!

* Please refer to page one to ensure you have diluted your colours before use.

BLADDER BLURB

The bladder forms part of your urinary system along with your kidneys, ureter and urethra. It is a vessel that holds excess water and waste products from the bloodstream that have been filtered out by your kidneys.

The bladder has a stretchy muscular wall that expands as it fills with urine. Sensors in the bladder wall send a message to your brain when it starts to get too full. Urine exits the bladder via a ring of muscles known as the sphincter. Upon receiving instruction from the brain, the sphincter relaxes and causes the bladder to contact, forcing the wee out.

DID YOU KNOW?

The bladder is typically the size of a small grapefruit and when healthy can hold urine for up to 5 hours.

WOW-WEE!

The world record for the longest pee is 508 seconds!

ACTIVITY 7: The Wee Taste Test

YOU WILL NEED (NOT INCLUDED):

4 clear drinking glasses, 200ml apple juice, sugar, tomato ketchup, a measuring jug, a spoon and some willing volunteers.

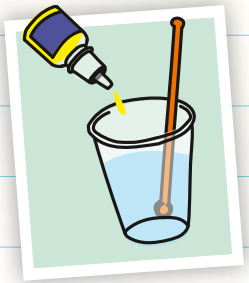
1. Label the glasses 1, 2, 3 and 4.
2. Place 50ml of apple juice into each of the 4 glasses.
3. Add 200ml of warm water to glass 1, 2 and 3. Don't add any water to glass 4.
4. Add 2 teaspoons of sugar to glass 1 and stir.
5. Add 2 teaspoons of tomato ketchup to glass 2 and stir.
6. Ask a volunteer to look at the colour and taste the contents of each of the 4 glasses.

Which do they think is the normal wee and what do you think might be wrong with the "owners" of the other 3 specimens? Gross!

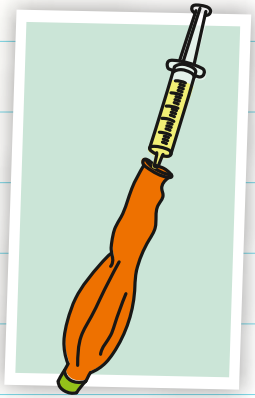
ACTIVITY 8: Bladder in action

YOU WILL NEED:

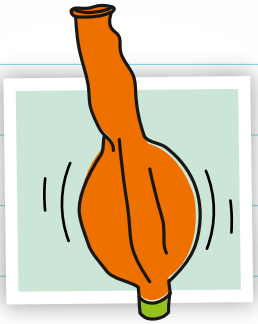
Bladder, clamp, yellow colour, syringe, plastic cup, plastic stirrer.



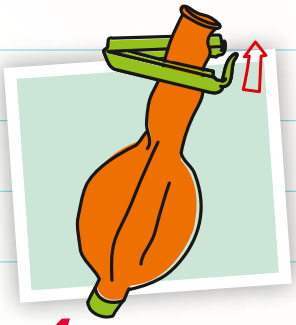
1 Pour 80mls of cold water into the plastic cup. Add 3 drops of the yellow colouring and stir to form your wee.



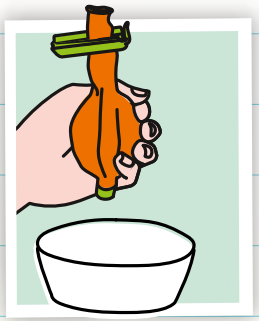
2 Use the syringe and move your pee into the bladder.



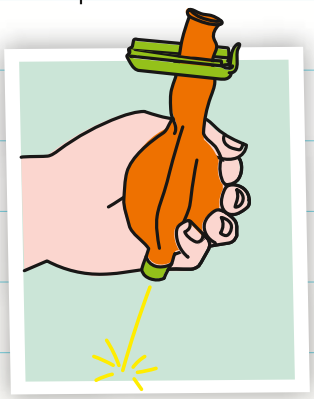
3 Watch the bladder expand until it can expand no more.



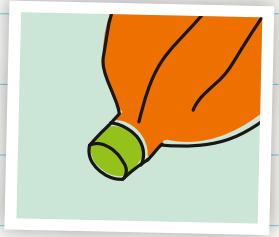
4 Clamp the top of the bladder shut using the green bladder clamp.



5 Make sure you are holding the bladder over a sink or a bowl.



6 Just as your body's muscles would do, squeeze the bladder wall sides and it will begin to pee. Is it a relief to finally go?



7 If you relax the bladder contraction, the sphincter at the base will close and it will stop peeing. Gross!

* Please refer to page one to ensure you have diluted your colours before use.

DIGESTION DATA

Digestion is the process of breaking down the food you eat into substances that the body can use to function properly.

Digestion starts in the mouth and ends in your anus. It can typically take 32 hours between eating and expelling the waste.

SUPER STOMACH

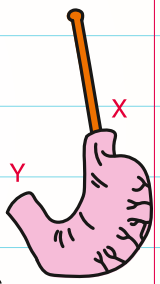
The stomach has the ability to stretch and hold 4 pounds of food at a time! Even crazier, stomach acid can dissolve metal!

ACTIVITY 9: Digestion Demo

YOU WILL NEED

Stomach model, plastic stirrer **additional items you need (not included):** 1 slice of brown bread, some sweet corn (optional), some cola, a mixing bowl, a rubber band, scissors and a pair of ladies' tights (make sure you ask before you take your mum's best pair)!

1. Take the slice of bread and tear it into pieces around 1cm square and place in a bowl.
2. Add 1 ½ tablespoons of water (this represents the saliva).
3. Also add 1 teaspoon of sweet corn (optional, but great if you can).
4. Mix around with a spoon so the bread soaks up a lot of the water.
5. Take the stomach model and start to spoon the mixture into the end marked X. This represents the chewed food travelling down the oesophagus into the stomach. You may have to use the plastic stirrer to help push it inside.
6. When it's all inside, add 2 tablespoons of cola and ½ a scoop each of red and green colour. These represent the enzymes and the bile released by the pancreas and gall bladder respectively which aid digestion.
7. Now the fun bit starts. Squeeze the stomach slowly and carefully for around 2 minutes. This is exactly how your powerful stomach muscles work to break up the food.
8. Take the ladies' tights and cut 1 leg off. This will be your intestines. Now cut the toe section off to form 1 long tube, 15cm long.
9. Wrap 1 end of the intestine tube around the Y end of stomach model and attach it in place with an elastic band.
10. Now start to push the contents of the stomach out through the end of the stomach into the intestines. Can you see the water start to come through the intestine wall?
11. Keep pushing through the intestine, removing more and more water until at the end you are left with your newly formed poo. Is it recognizable from the original ingredients? GROSS!



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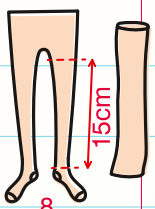

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* Please refer to page one to ensure you have diluted your colours before use.

VOMITING VITALS

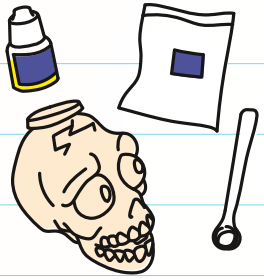
There is a spot in your brain known as the vomiting centre which communicates to the rest of your body that you need to be sick. There are several different reasons why the brain may tell your body to vomit. Most commonly it is because the stomach has detected a "poison" such as a food poisoning agent or even some medication. Some vomiting however can simply be down to seeing or smelling something vile! Whichever way you look at it, it's gross!

DID YOU KNOW?

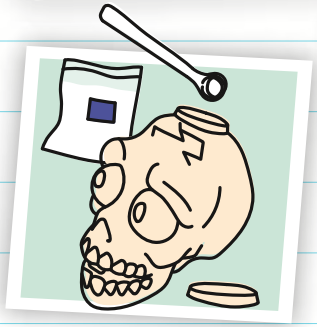
Butyric avid is the chemical that gives vomit its odour. It can also be found in parmesan cheese! There is a bag of vomit on the moon left behind by Neil Armstrong and Buzz Aldrin!

ACTIVITY 10: Vomiting Skull

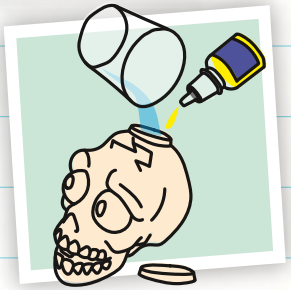
YOU WILL NEED:



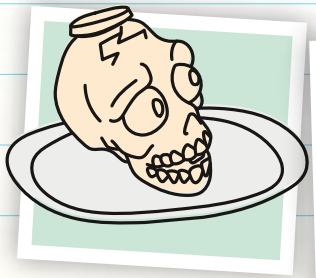
Skull, vomit powder, yellow colour, scoop.



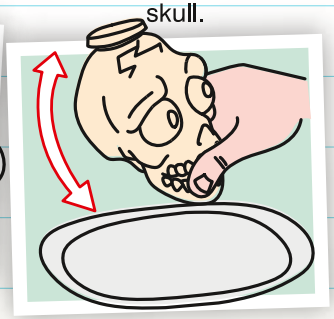
1 Remove the lid from the top of the skull and using the scoop add the vomit powder into the skull.



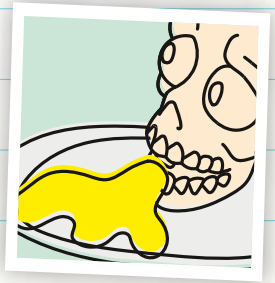
2 Carefully pour 60mls of cold water into the skull along with 7 drops of yellow colour and replace the skull lid.



3 For this next part we suggest finding a tray or dish with deep sides to place your skull in.



4 Lift the skull over the tray, placing your thumb over the mouth opening. Gently shake for 15-20 seconds.



5 Place the skull back in the tray/dish and observe. Your skull should now be vomiting. Yuk!

* Please refer to page one to ensure you have diluted your colours before use.

SWEATY STATISTICS

Sweating is the release of a salty liquid from your sweat glands. It is controlled by your nervous system and its main function is to cool your body down.

Sweat leaves your skin through your pores. When sweat hits the air it evaporates. This evaporation cools your body down.

Sweat itself has no odour but when mixed with bacteria on your skin this can create that stinky body odour.

DID YOU KNOW?

Humans produce three different kinds of sweat – thermal sweating (being too hot), emotional sweating (for instance, being afraid) and gustatory sweating (caused by eating spicy foods for example).

BUCKETS OF SWEAT!

An average human can sweat as much as 2.5 litres in an hour.

ACTIVITY 11: Sweating Skull

YOU WILL NEED

Skull.

1. Remove the lid from the top of the skull and fill the skull with water, holding your thumb over the mouth opening.
2. Continuing to hold your thumb over the mouth opening, carefully replace the lid.
3. Lay the skull facing upwards in a container. Place in the freezer.
4. Wait several hours until the water in the skull has frozen.
5. Remove the skull from the freezer and stand it upright in the container.
6. What do you observe once the skull starts warming up?

BLOOD BASICS

Blood is a very important fluid that transports oxygen and nutrients to the cells in your body. Blood consists of red blood cells, white blood cells and platelets, all held in a yellow liquid known as plasma.

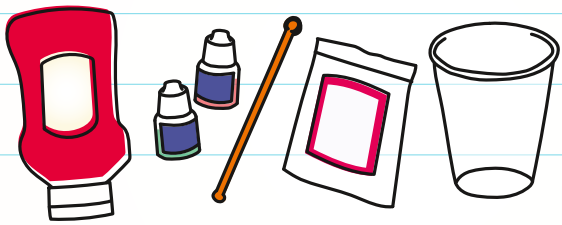
Each part of your blood has a different function. Red blood cells transport oxygen, white blood cells help to fight infection and platelets help your blood to clot (coagulate) and minimise blood loss when your skin is cut. Blood forms around 7% of the weight of a human body.

DID YOU KNOW?

Not all blood is red. An octopus has blue blood!

ACTIVITY 12: Blood Bag

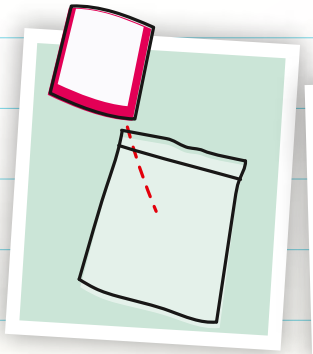
YOU WILL NEED:



Tomato ketchup, water, red colour, green colour, plastic cup, stirrer, blood bag and label.

1 Place 20g of tomato ketchup and 30g of cold water in the plastic cup. Stir well.

2 Add 5 drops of red colour and 4 drops of green colour. Mix again.



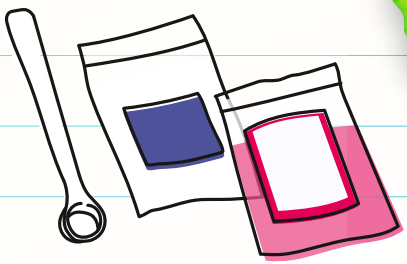
3 Complete your blood bag label and affix to the blood bag.

4 Carefully pour your fake blood into the bag and seal. YUK!

* Please refer to page one to ensure you have diluted your colours before use.

ACTIVITY 13: Blood Coagulation

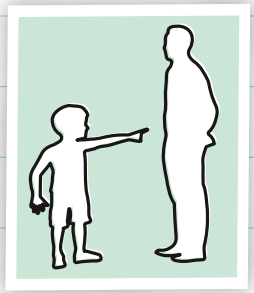
YOU WILL NEED:



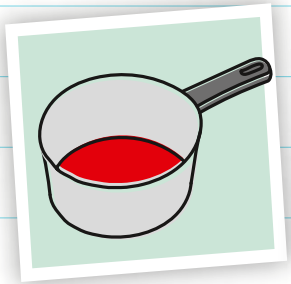
Scoop, agar-agar, blood bag.

DID YOU KNOW?

One pint of blood is capable of saving three lives!

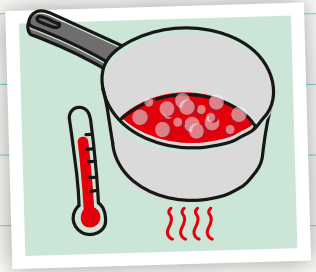


1 You will need an adult to help with this activity.



2 Place the fake blood you made in the previous activity into a saucepan.

3 Add 2 scoops of Agar and stir to mix thoroughly.



4 Gently heat the mixture until it reaches boiling point and starts to bubble.

5 Remove the saucepan from the heat then pour your blood into a dish and allow to cool.

6 What do you notice? You should see that your "blood" has coagulated. This is the process by which blood changes from a liquid to a gel.