

Children's University Club Challenge

Amazing Human Body!



Your body is AMAZING! Made up of so many different parts and coordinated by your very clever brain, the human body is able to turn food into energy and waste products, keep your body safe with split-second reactions, and even cause us to have a whole range of feelings. Ready to learn a little about the human body? Caution - some of this will make you go 'urrrgggghh'!!



Part 1: Digestion

Your body needs lots of energy to keep going - running around, thinking and talking, and even sleeping! We get our energy from food and drink, but once the energy has been converted, what happens to the rest of the food and drink.....?



Part 2: Breathing

It's VITAL that we keep breathing so around our bodies to keep our brain, The lungs are a pretty clever organ, to learn why.

that the oxygen is carried muscles and organs alive. so this challenge helps you



Part 3: Brain Power

Our brains are the control rooms of our bodies - constantly sending and receiving messages from all around our body. Of course, working at that speed all the time, it must get tired - that's why it's important to get good sleep, to give our brains a rest. This challenge will help you to play some games with your brain as well as test your memory!



You can collect up to 3 Learning Credits for completing this challenge. To claim your credits, please complete your CU Club Reflection Diary and return to your school along with your work

Children's University Club Challenge: Amazing Human Body!



Part 1: Digestion

Have you ever thought about what happens to your food and drink once you've swallowed it? Well, your body gets straight to work! Even before you've swallowed the food, the saliva in your mouth starts to dissolve it.

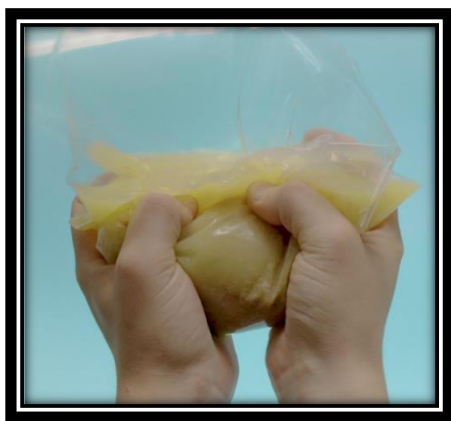
The food then arrives in your stomach which churns it around into a thick liquid (next time you've eaten, sit still for a while and see if you can hear it churning!). It's also soaked in acid to break it down into a liquid.

Next, it's onto the small intestine which looks like a really long tube or sausage! Your blood soaks up the nutrients and takes them to your liver. Any unwanted food remains travel along a shorter tube called the large intestine, where water is soaked up before the remaining 'food' is squeezed along further and comes out...you guessed it...as poo!

It takes upto 3 days for food to travel through your body, but this challenge will show you how it all works in just a few minutes!

You will need:

- A tea-towel
- A small glass of water
- A small glass of orange juice
- A banana
- A mixing bowl
- A couple of biscuits (plain are perfect!)
- A sealable plastic bag
- Scissors
- One leg from a pair of tights



Step 1: Put all of the food and liquid ingredients into your sealable plastic bag and make sure it is sealed completely. The bag acts like your stomach. Swish the contents around a little until they start to break up. Churn the contents around a little, like your stomach churning the food around.

Step 2: Ask an adult to help you cut off the leg of an old pair of tights. Put the foot end of the tights into the mixing bowl. Carefully pour your mixture from the bag into the leg of the tights. This is your food moving from the stomach into the small intestine (the tights).

Step 3: Squeeze the tights and collect the liquid in the bowl. This is like the blood taking the nutrients to your liver.

Step 4: Wrap a tea towel around the foot of the tights and squeeze the last few drops of liquid out. Imagine this is the large intestine removing the remaining liquid.

Step 5: Now for the messy bit! Carefully cut the toe end off the leg of the tights and squeeze out the sausage shape! This is the 'poo'!



You can watch this as a video here:

<https://www.bbc.co.uk/bitesize/topics/zf339j6/articles/zrm48mn>



You can earn **1 CU credit** for completing this challenge

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Part 2: Breathing

You will need:

- A plastic bottle
- A straw
- An elastic band
- Scissors
- 2 balloons (round shaped)
- Play dough, plastecine or blue tac

ALL the cells in your body need oxygen to stay alive. We get the oxygen in through our lungs. The air travels down through the windpipe (or 'trachea') and any dirt gets caught by tiny hairs and mucus.

The air travels down into your lungs through large tubes called 'bronchi' into narrow tubes called 'bronchioles'. At the end of each bronchiole are tiny air sacks called 'alveoli'. Oxygen seeps through the walls of the alveoli into the blood which then carries the oxygen around your body! Pretty clever!

When you breathe in, the lungs inflate and when you breathe out, the lungs deflate. Your lungs (and other organs) are protected by your ribs (put your hands on your sides and feel the hard lines - these are your ribs! Take a few deep breaths in and out and feel them expanding and contracting.

Under your lungs there is a big sheet of muscle called your 'diaphragm'. It moves down when you breathe in and up when you breathe out, and helps your lungs to inflate and deflate. This challenge will show you how it all works!



Step 1: Ask an adult to help you carefully cut your bottle to about half the size. You only need the top half.

Step 2: Tie a knot in one end of one balloon and cut off the wide end. Stretch the balloon around the bottom of your plastic bottle. This will act as your diaphragm.

Step 3: Take your second balloon. Put a straw in the neck of the balloon and secure it tightly with the elastic band (but don't crush the straw). Test it with a little blow through the straw to see if the balloon inflates. This will act as your lung.

Step 4: Put the straw and the balloon into the neck of the bottle (so the straw is sticking up out of the bottle). Secure the straw with the play dough to make a seal around the bottle. The straw acts as your trachea or windpipe.

Step 5: Hold the bottle and pull the knot of the first balloon at the bottom downwards. What happens? You should find that the balloon inside the bottle inflates, and as you let go the balloon deflates.

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Part 3: Brain Power

Your brain is at the end of your spinal cord which is the main, thick bundle of nerves. This runs down your neck and back. The nerves branch off to the different parts of your body, some running down your arms to the very tips of your fingers, and others running down your legs to the very tips of your toes. Each nerve is like a bundle of wires with a protective coating.

Nerves carry messages to and from your brain for a range of different things. Maybe a message to tighten a muscle in your leg so you can walk. Sometimes, your nerves will be telling your tongue and lips to move so that you can talk. Your nerves will also be keeping you safe - they take messages from your eyes if they see something dangerous.

You will need:

- Plain white paper
- Scissors
- Colouring pencils/pens/crayons

Your nerves can also sense pain, heat or cold, hunger or thirst, and even your balance. Different parts of your brain control different things. Here are a few games you can play to test out your brain!

Step 1: With one hand, gently pat the top of your head over and over again. Then, with your other hand, rub your tummy in a circular motion, over and over again. Easy right? Try doing them both at the same time and see what happens! This is because your brain is having to do two similar things at once and the messages are getting a little mixed up!

Step 2: Cut up a sheet of white paper into smaller pieces. Grab some colouring pencils/pens/crayons and write the name of



a colour on each piece of paper. Be careful NOT to use the right colour pencil/pen/crayon! e.g. 'Blue' could be written in red pencil/pen/crayon! Stack them together in a pile then ask an adult to show them to you one at a time, really fast. You have to say the colour of the word NOT the word itself! See how fast you can go without making a mistake! If you do make a mistake, don't worry - its two different parts of your brain trying to overpower each other!



Step 3: Test your memory with this game: 'I went to the shops'!



Gather a few family members (or friends, socially distanced!) and sit in a circle. The first person says "I went to the shops and I bought..." then add an item of shopping to the sentence. It could be ANYTHING - the wackier the better! A bar of chocolate, a pair of socks, some bricks...anything! The second person says "I went to the shops, and I bought...then they add the item from the first person, and then their own. The third person repeats the growing list and adds their own, and so on! Try and get round the whole circle without forgetting an item of shopping! Can you go round twice, three or even four times without forgetting?! This is a great game to test your brain and its powers of memory. Give your brain some help and try imagining each person holding the item they bought.

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