

The Digestive System

National curriculum objectives:

- describe the simple functions of the basic parts of the digestive system in humans

Science in the news today

Your body goes through many changes during your life, and one of the most drastic involves how your digestive system functions.

Over time, the nerves and muscles in your digestive system do not move things along as well as they once did, however, there are things you can do that will help your body stay healthy and functioning well, like eating berries with your breakfast!

Scientists now know that foods that are high in fibre like pears, apples, raspberries and beans, are good for your digestive system. However, you don't need to load up on just fibrous foods, gradually add them to your diet for example by adding raspberries to your cereal or eating some beans with your dinner. Water is also vital to your digestive system so keep a water bottle with you and drink throughout the day.

Here is a picture of a healthy breakfast

A bowl of berries, breakfast cereal and pistachio nuts



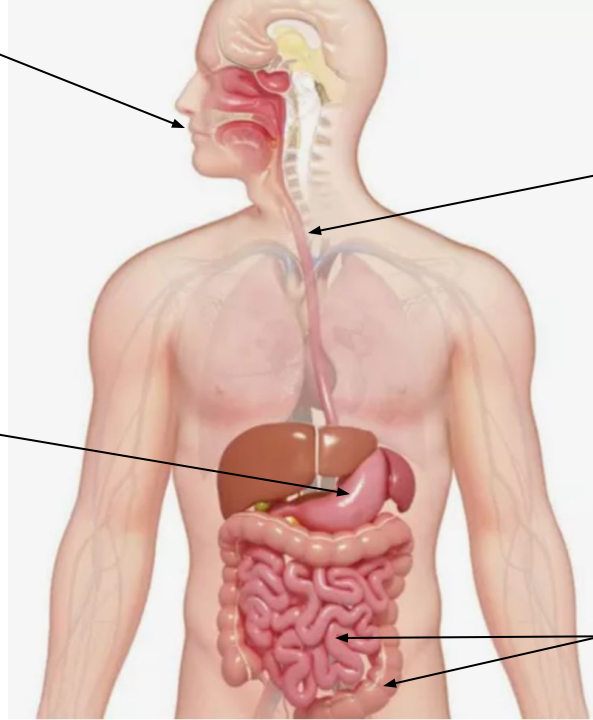
What are the basic parts of the digestive system?

The mouth, tongue and teeth

The oesophagus

The stomach

The small and large intestines

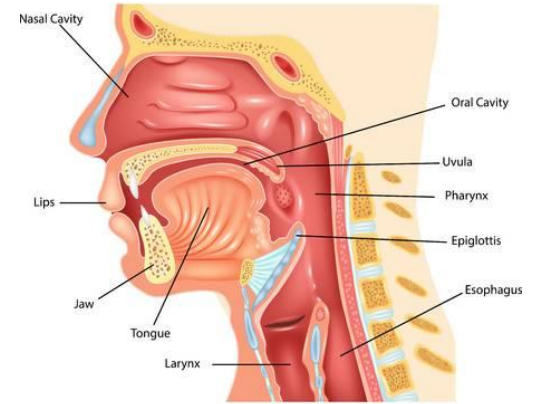


What do the mouth, tongue and teeth do?

When we put food in our mouths, we use our teeth to break it into smaller bits. Children have around 20 teeth 'baby' teeth, sometimes also called 'milk' teeth, whereas adults have 32 teeth. We have different types of teeth that help to break our food down in different ways.



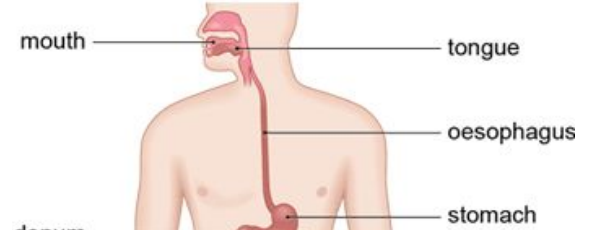
Our tongues move the food around our mouths, to the different types of teeth e.g. the incisors or the molars, and it also pushes small lumps of food back towards the throat where we can swallow it.



What does the oesophagus do?

Our oesophagus, sometimes called the food pipe or gullet, is a tube that connects our mouth to our stomach.

When we swallow, the oesophagus squeezes the chewed lumps of food down to the stomach. These squeezing motions can also be called peristaltic contractions. These contractions mean that even if you're lying down or doing a headstand, your food will still move towards your stomach - it doesn't rely on gravity.

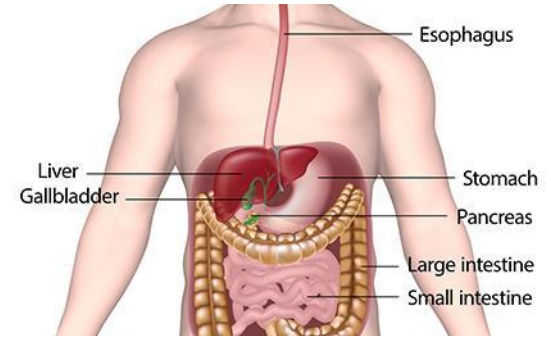


Glands in the lining of the esophagus produce a slimy mucus, which keeps the passageway moist and makes swallowing easier.

In an adult, the oesophagus is around 25cm long.

What does the stomach do?

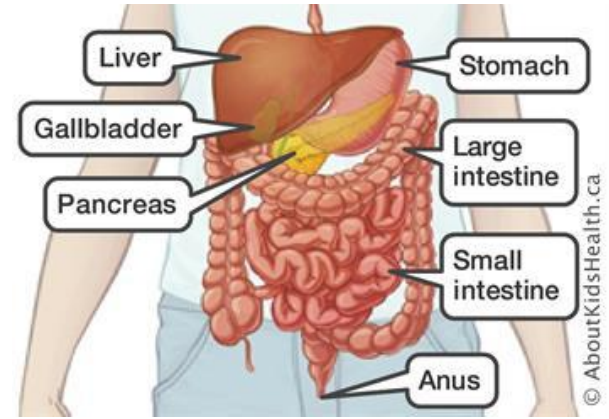
Your stomach is located between your oesophagus and your small intestine. It is about the size of your fist when empty, but stretches when you eat. The stomach lining releases acids and liquids that help to break down the food you're eating even further. These acids also help to kill any harmful bacteria.



Your stomach muscles also squeeze the food, making it into a liquid, ready to push into your small intestines.

What do the small and large intestines do?

The small intestines are the next part of the journey for your food after it leaves your stomach. The small intestines are a 3cm wide tube. If you stretched them out in one long line, they would be about 7 metres long in an adult. All the nutrients from your food move through the small intestine lining and into your blood, where your body uses it for energy and growth.



The large intestines are a little wider than the small intestines and not as long - around 1.5 metres in an adult. The large intestine gets the last of the goodness out of your food e.g. water and minerals and then prepares the solid waste, faeces (otherwise known as poo!). This is the leftover food that the body cannot digest.

Demonstrate digestion!

What do you need?

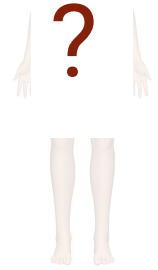
- Some food e.g. a piece of bread, a banana, and a tomato
- A large bowl
- Scissors (always ask an adult first)
- Water
- A plastic ziplock bag
- An old pair of tights (optional)



Instructions:

1. First, use scissors to cut your food into the bowl. This shows what your incisors (front teeth) do when you chew your food.
2. Next, add some water to the bowl. This represents your saliva.
3. After that (this is messy) make your hand into a fist and mash up the food. Your fist is just like your molars (back teeth) chewing your food.
4. Then, pour the mashed up food from the bowl into the ziplock bag. This is what happens when you swallow your food and it moves from your mouth, down your esophagus and into your stomach.
5. Now, gently massage the bag, squashing the food again. Your hands are showing what your stomach muscles are doing, breaking down the food even further.
6. If you have a pair of tights, tie one foot in a knot. Over the bowl, pour the food from the bag into the tights, squeezing it all down to the bottom. The tights represent your intestines. You will see that the liquid and small bits, go into the bowl. These are all the nutrients that we need for growth and energy, entering the body. The food left in the tights is what the body cannot digest.
7. Finally, cut the bottom of the tights and squeeze the solid waste out. This mimics your poo leaving your body!

Draw the digestive system - what did you learn?



What do you need?

- Paper (any size)
 - Optional: One large piece of paper or lots of small ones attached together to be the size of your body.
- Colouring pens and pencils
- A partner

Instructions:

1. If you have got the optional big bit of paper, then place it on the floor, lie on it and have your partner draw around you. Top tip: Do this in pencil so you don't get pen on your clothes or the floor!
2. If you only have the smaller bits of paper, don't worry, just place them in a large rectangle on the ground and get your partner to lie on them (you could even sellotape them together if that's easier). As in step 1, lie on them and get your partner to draw around you.
3. Remember back to what you learnt this week about the digestive system. **Without looking** try and draw all the parts of the digestive system in the right place on your body outline. Don't worry if you can't remember where things go, it's always good to guess if you're not sure. But you can leave things out if you're really stuck.
4. Then, take a look at the diagram of the digestive system on the next page to see if you got it right. Did you miss anything out? Did you put anything in the wrong place? If you did, try and think about the ones you got wrong and where they should go for next time.
5. Repeat the drawing again to see what you can remember!

