

Digestive System

Middle / Intermediate Years

“The world is full of magic! We created the Virtuali-Tee and these resources to enable you to unlock the curiosity that exists within every student”

OVERALL LEARNING OUTCOMES

Middle / Intermediate Years

The Digestive System Objectives

- To identify parts of the digestive system
- To describe their function
- To identify examples of enzymes that break down food
- To identify where water and nutrients are absorbed and enter the bloodstream
- To describe what happens to food as it goes through the body





THINK – PAIR – SHARE

What happens to food once we've eaten it?

What does our digestive system do?

Which organs can you list from our digestive system?



What did you have for breakfast this morning?
Where do you think it is along your gastro-intestinal (GI) tract?

So what is digestion?

Digestion is chemical and physical breakdown of food into smaller pieces (nutrients) that our body can use for energy production, growth and repair.

Nutrients from food:

Carbohydrates

Proteins

Fats (Lipids)

Vitamins

Minerals

Water

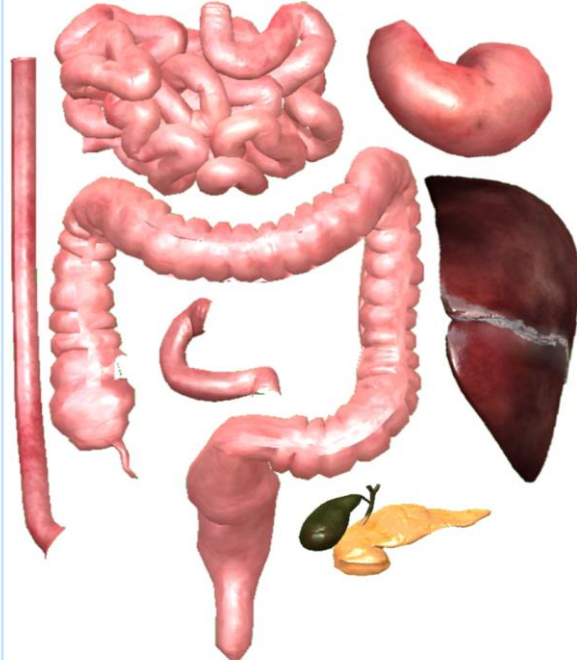


The digestive system puzzle

Have a try at putting together your digestive system puzzle and labelling the organs.




Do your best. You can check all of your answers on the Virtuali-Tee app!

Digestive System Puzzle
Before using the 'Virtuali-Tee' and app, try to put together the digestive system. You can check your answers when you use the app! If you know what an organ is called, you can label it.



The image displays various components of the human digestive system as puzzle pieces. These include the esophagus, stomach, liver, gallbladder, pancreas, small intestine, and large intestine. The pieces are arranged in a way that suggests they can be assembled into a complete digestive system.

The **ULTIMATE** way to learn about the body

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www.curiscope.com

The Virtuali-Tee

Today we are going to be using a very special t-shirt to explore your digestive system

*“Explore the Human Body....
On a Human Body.....”*



What is the Virtuali-Tee?

A t-shirt that lets us see inside YOUR body using Augmented Reality!

We'll use a mobile devices to scan the tshirt with the app and open a portal so we can explore what is going on under your skin.



Step 1 - Getting started

To get started, simply open the Virtuali-Tee app and point at the t-shirt. The tracker image is best picked up by initially pointing at the upper chest with the device 0.5m/1.5ft from the t-shirt.

The tracking of the t-shirt requires that you are in a well lit space without heavy shadows and that the t-shirt is not stretched or heavily wrinkled.



STARTING DISTANCE of
0.5 METRES

Step 2 - Wow, the organs look amazing...now what!?

Well, we have implemented some pretty cool features into the app. Just tap the screen to get started. You can then isolate the physiological system by tapping on the coloured hot spots. You'll see some buttons floating outside the chest, use the back button to navigate between systems.

We encourage you to explore, if you see a button....tap it to find out what it does!




Step 3 - Surprise! Meet Dr Glover....your virtual expert on the body!

Think of Dr Glover as a holographic guide to the body. He'll talk you through the anatomy and physiological systems in the body. Just tap the Hans button and he'll appear.

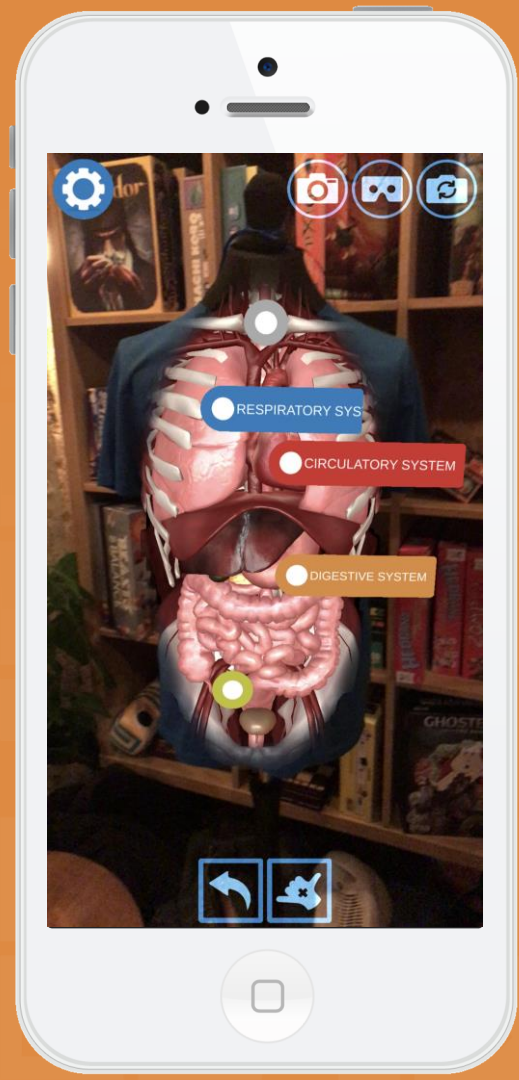


Getting into your digestive system

Tap on the orange digestive system hotspot and the app will isolate to just that system. See through to your spine!

Tap on the  button to call Dr Glover, who will give you a guided tour!

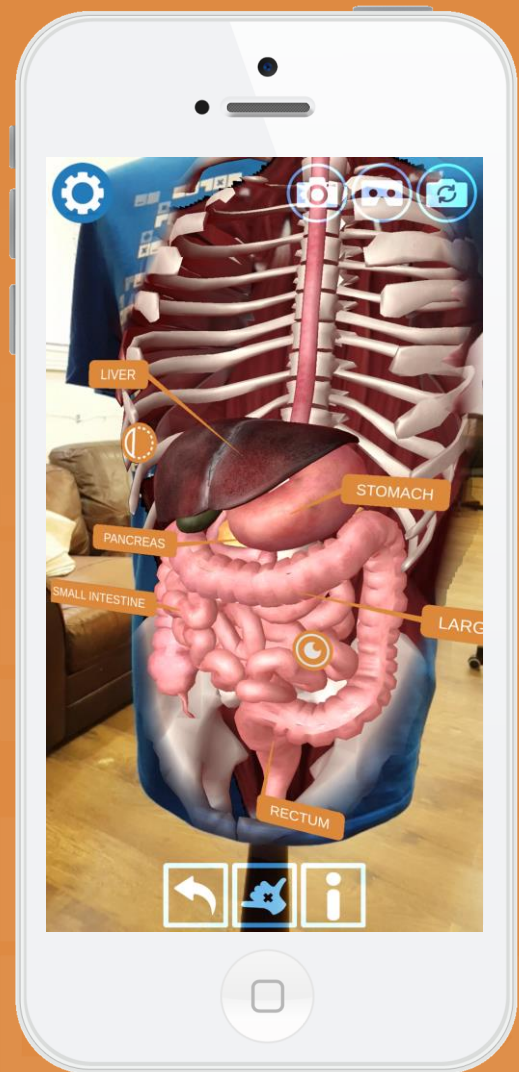
Tap the  button if you would like subtitles.




Discovering your digestive organs

Tap on the  button to bring up the labels for the digestive system.

Study these as they will help your next activity.



Your small intestine is amazing!

Tap on the  icon in the digestive system to look inside your small intestine.

You can see the tiny wavy finger-like structures on the walls of the small intestine. These are known as villi.

Why would this be a better adaptation than having a smooth intestinal lining?

Notice the expanding and contracting of the walls. This is like a mexican wave that travels along the small intestine, colon and even your oesophagus called peristalsis. This is how the food gets pushed down into the stomach, and along through to the toilet!



Let's explore and create a flow chart:

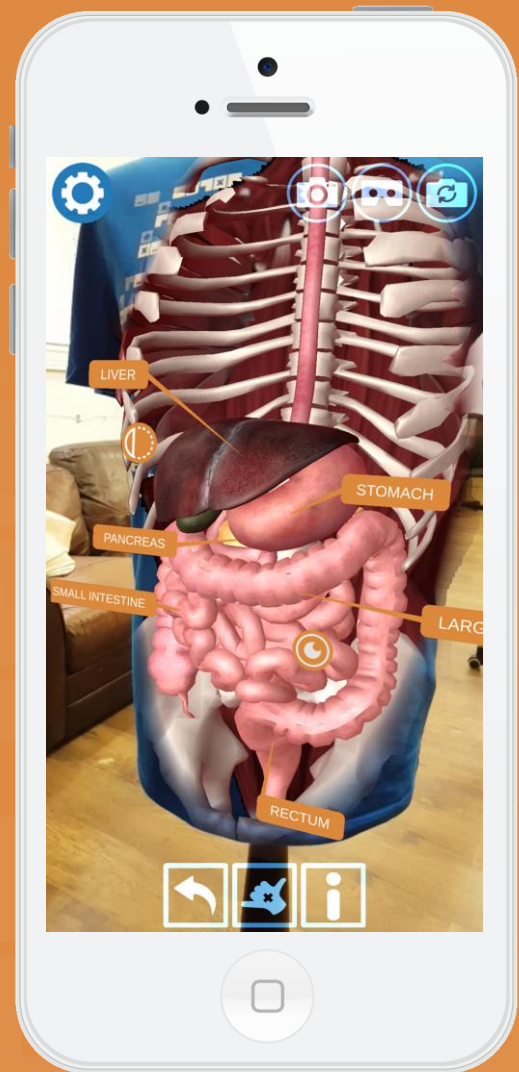
Explore the digestive system and create a flow chart showing all of the organs that are part of the GI-tract (alimentary canal).



Mechanical Digestion

Mechanical digestion is food physically being broken into small pieces. Discover the three places where mechanical digestion occurs:

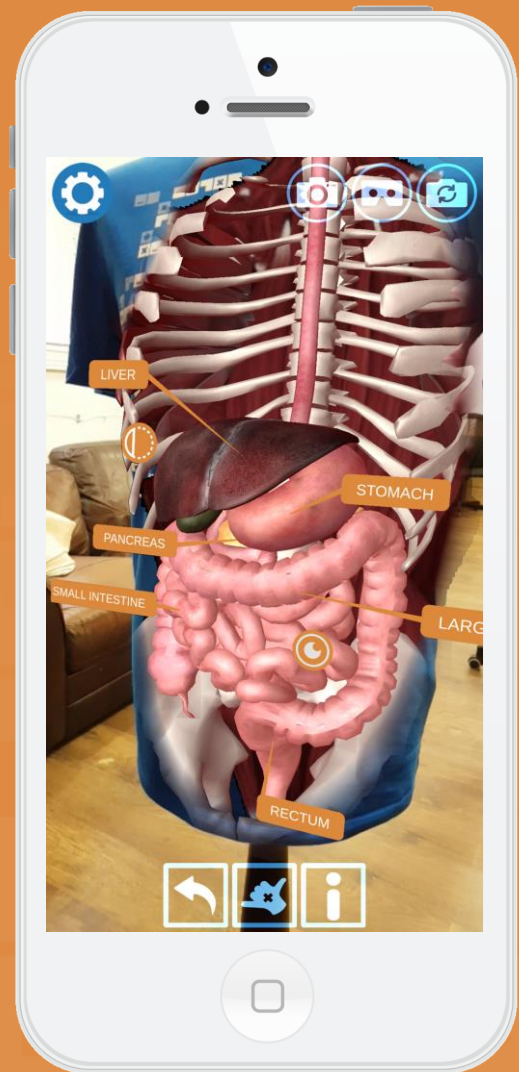
- 1.
- 2.
- 3.



Mechanical Digestion

Mechanical digestion is food physically being broken into small pieces. Discover the three places where mechanical digestion occurs:

1. Mouth (chewing)
2. Stomach (churning)
3. Small intestine (expansion and contraction of peristalsis)



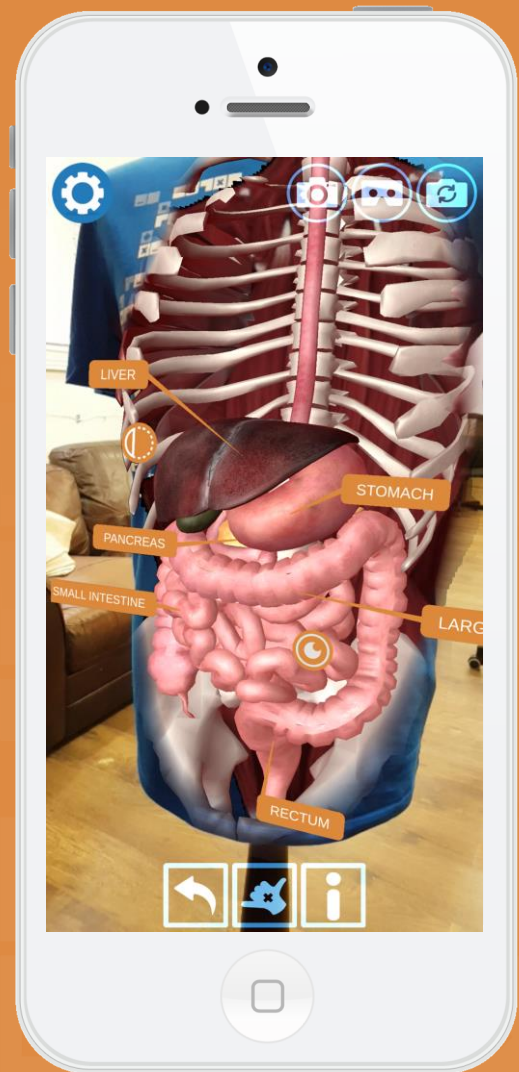
Chemical Digestion

The breakdown of food by the action of chemicals. Listen closely to the information given on the Virtuali-Tee app and list the types of substances that aid the chemical digestion of food:

- 1.
- 2.
- 3.

A detailed chemical digestion summary table is available in the teacher resources repository:

<https://drive.google.com/drive/folders/17N-hPZnEAdBwevuxAYoTi-yasNatYQM9?usp=sharing>



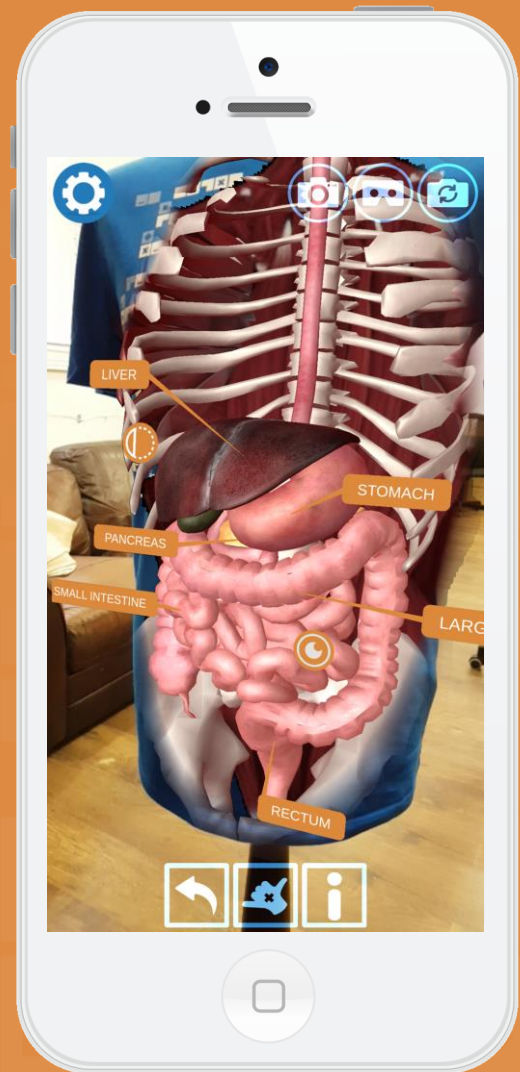
Chemical Digestion

The breakdown of food by the action of chemicals. Listen closely to the information given on the Virtuali-Tee app and list the types of substances that aid the chemical digestion of food:

1. Acids
2. Enzymes
3. Bile

A detailed chemical digestion summary table is available in the teacher resources repository:

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Quiz

Can you fill in the blanks and show what you've learnt today? Use the words in blue to help you.

Our body needs food so that we have enough _____ to survive. Our _____ system is made up of organs that work _____ to _____ down food. Digestion begins in the _____. The _____ squeezes the food down into the _____ by the process of _____. The food goes through the _____ and then the _____ where the proteins, fats, sugars, vitamins, minerals and some water is absorbed. Finally the remaining water is absorbed in the _____ and the left over waste is stored in the _____ until it is expelled through the anus.

together - energy - duodenum - small intestine - colon (large intestine) - mouth - rectum
stomach - digestive - break - oesophagus - peristalsis

Quiz

Can you fill in the blanks and show what you've learnt today? Use the words in blue to help you.

Our body needs food so that we have enough energy to survive. Our digestive system is made up of organs that work together to break down food. Digestion begins in the mouth. The oesophagus squeezes the food down into the stomach by the process of peristalsis. The food goes through the duodenum and then the small intestine where the proteins, fats, sugars, vitamins, minerals and some water is absorbed. Finally the remaining water is absorbed in the colon and the left over waste is stored in the rectum until it is expelled through the anus.

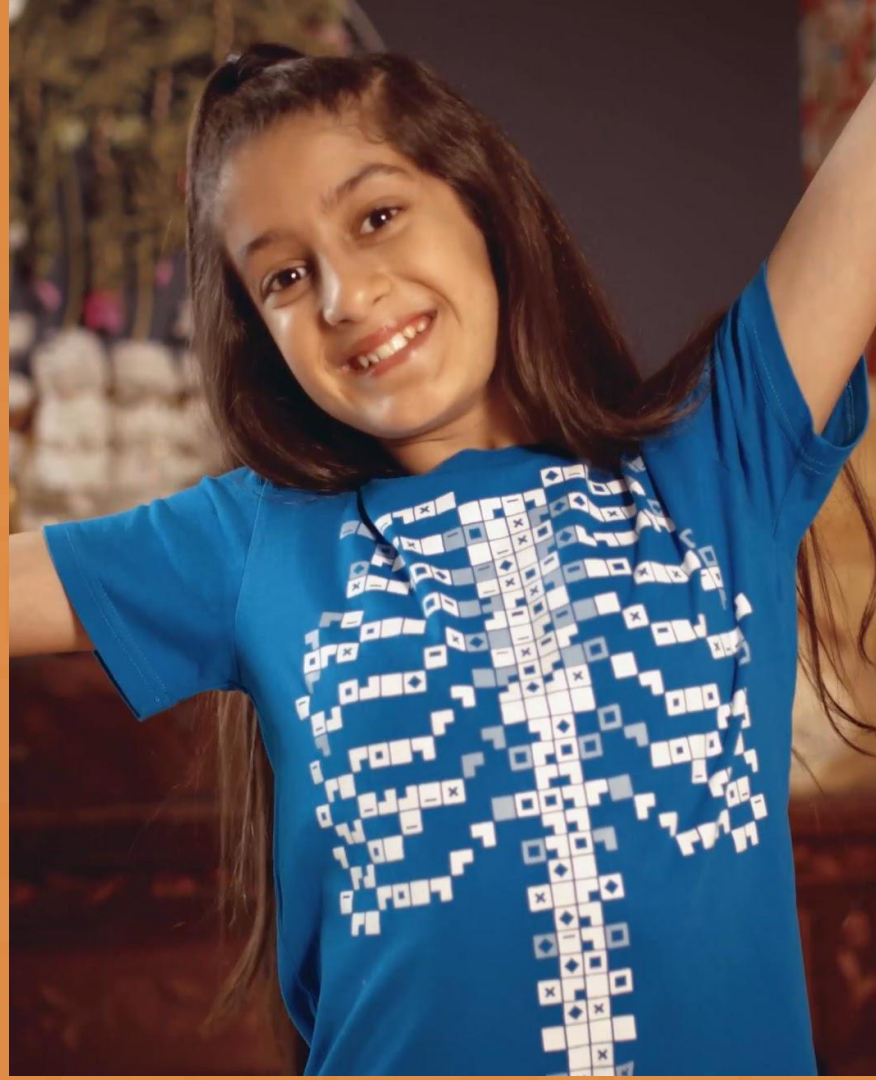
Curious facts!

Did you know that it takes food around 6 hours to complete digestion but it only takes around 7 seconds for food to travel from your oesophagus to the stomach?

It can take 10 hours to several days from mouth to rectum.

An adult stomach can hold up to 1.5 litres of food and this will stay here for around 2-3 hours

The stomach wall has three layers of muscle!



Print friendly take home sheet

Students can enjoy labelling a digestive system diagram. Indicating which organs are which. Arrows to be added to show the direction of food.

The take home sheet is available in the teacher resources repository:

<https://drive.google.com/drive/folders/17N-hPZnEAdBwevuxAYoTi-yasNatYQM9?usp=sharing>

