Adult Guidance

Digestive System Functions

Molecules Versus Cells

Everything is made up of molecules. The differences between molecules and cells for the purpose of this unit are that:

Molecules are a group of two or more atoms stuck together.

Cells can be alive or dead whereas molecules exist regardless.

Molecules can contain different elements but only join with other molecules that are the same whereas cells can contain different types of molecules.

Muscles

Although all are located in the same place they all perform separate functions and therefore need to be taught separately. Children may find the idea of saliva distasteful however without them they would not be able to taste food properly, chew or digest food — especially drier foods which would be difficult to break down and swallow.

Pharynx

The pharynx is the part of the throat which receives food from the mouth. It is here that the openings to the windpipe (trachea) and oesophagus reside. While the pharynx does not enable digestion per se (hence it's exclusion from the digestive system part and functions) it is the place where food can go down the 'wrong way' into the trachea. Eating is a complex process as the windpipe needs to be closed so that food enters the oesophagus. Choking occurs most often when food has not been chewed properly, too much food has been eaten at one time or from eating foods that are not easily broken down.

Oesophagus

The oesophagus is a muscular tube that leads to the stomach. The method by which food is moved is called peristalsis. This means that the muscles contract and relax in a wave formation along the tube to move the food down it.

Pancreas, Liver, Gallbladder

Food does not enter these organs, instead they produce and/or release digestive juices that break down the food in the duodenum where they are released. The liver produces bile which is necessary for the absorption of fats. However, the bile is stored in the gallbladder and released via bile ducts into the duodenum. The pancreas is responsible for producing enzymes that break down fats, proteins and carbohydrates.

Stool/Faeces/Poo!

It's the same in the end but I think that it is important to make children aware that there are different words for it. No doubt a mixture of reactions is to be expected from children however it is all part of their learning. Ultimately the digestive system is vital in ensuring that the body breaks down food into nutrients that can be absorbed. This knowledge and understanding will be built on in the Year 6 Animals Including Humans Science Unit.



Animals Including Humans: Digestive System Functions

Aim:

To describe the simple functions of the basic parts of the digestive system in humans by explaining the functions of the different parts of the digestive system.

I can explain the functions of the digestive system.

To use straightforward scientific evidence to answer questions by reading an explanation text and answering questions.

I can use scientific evidence to answer questions.

Success Criteria:

Key/New Words:

glands, enzymes, acid.

I can add functions to the parts of the digestive system.

I can match the parts of the digestive system with their functions.

I can explain the functions of the digestive system.

I can use scientific evidence I have been given to answer questions.

I can distinguish between scientific and non-scientific evidence when answering auestions.

Mouth, tongue, teeth, oesophagus, stomach, duodenum, small intestine, large

intestine, pancreas, liver, gallbladder,

digest, digestive system, functions,

rectum, anus, salivary glands, digestion,

Preparation:

Resources:

Lesson Pack

Scissors

Glue Sticks

Digestive System Function Ideas Activity Sheet - 1 A3 copy per group.

Digestive System Explanation Text and Questions - 1 per child.

Interactive Digestive System Activity Sheet - 1 per child.

Prior Learning: Children will have learnt about the parts of the digestive system in Lesson 1.

Learning Sequence



Digestive System – Parts: What are the parts of the digestive system? Children label the digestives system on IWB.



Digestive System - Functions: How do the different parts of the digestive system work? How do they help humans to digest food? Children discuss with partner and jot down ideas on Digestive System **Function Ideas Activity Sheet**





Parts and Functions: Children to swap with another group and mark their answers as you go through the functions in the Lesson Presentation.





The Functions Of The Digestive System: Children match parts of the digestive system and their functions using the Interactive Digestive System Activity Sheets.





Children add functions to the parts of the digestive system.



Children match parts and their functions.



Children read **Digestive System Explanation Text and Questions** and answer questions.



Digestive System Quiz: Children quizzed over parts and functions of the digestive system.



Researchit: Children research what vitamins and minerals are needed to keep different parts of the digestive system healthy.

Advertiseit: Children create poster or video clip advertising enzymes and why they are important.

Wordsearchit: Children to complete containing the names of the parts of the digestive system.









Aim

- I can explain the functions of the digestive system.
- I can use scientific evidence to answer questions.

Success Criteria

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- I can match the parts of the digestive system with their functions.
- I can explain the functions of the digestive system.
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Digestive System - Parts



Label the parts of the digestive system

mouth

pancreas

oesophagus

liver

duodenum

anus

salivary glands

gallbladder

teeth

large intestine

stomach

rectum

small intestine

tongue



Digestive System - Functions



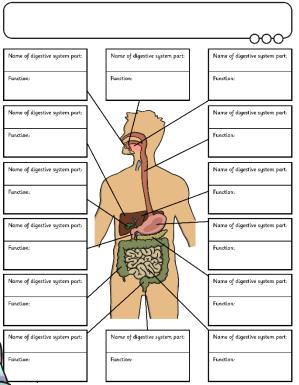
How do the different parts of the digestive system work?

How do they help humans to digest food?

Discuss with your group and write down ideas next to the part on your sheet.



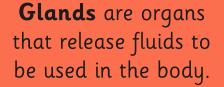
Digestive System Function Ideas





Glands

You will come across the word **glands** in this lesson so we should find out what they are!



Tear glands produce tears.

Sweat glands produce sweat.





Enzymes

Similarly, you will come across the term enzymes.

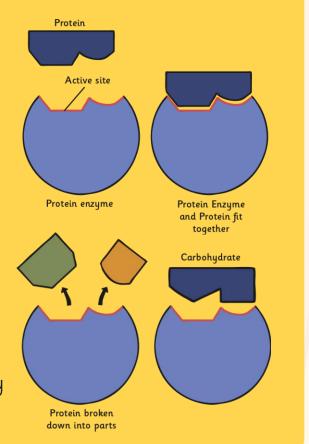
Enzymes are special molecules in the body (molecules make up cells, which make up tissue, glands, organs, etc).

They act to create a chemical reaction.

In the digestive system the reaction they produce breaks down food.

There are lots of <u>different types of enzymes</u> as a type of enzyme can only do one thing — so **enzymes** that break down protein can not also break down carbohydrates. You need different enzyme for that!

They are often thought of as a lock — only the right key will fit!





Salivary Glands

Function:

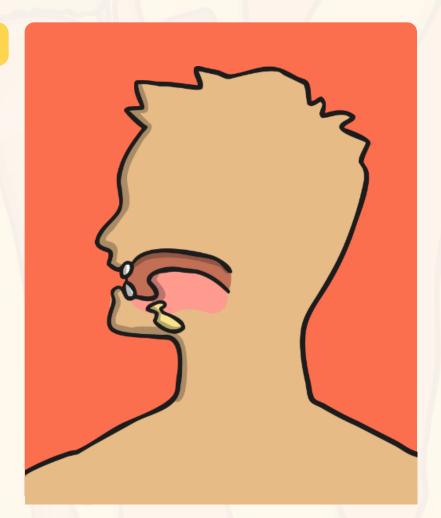
First part of the digestion process starts without you even eating!

The smell of food triggers the salivary glands to produce saliva (some call it your mouth watering).

The amount of saliva increases as you taste the food.

Saliva is mostly made of water and it helps you to chew, taste and swallow food.

Contains enzymes which start to break down the food we eat.





Mouth

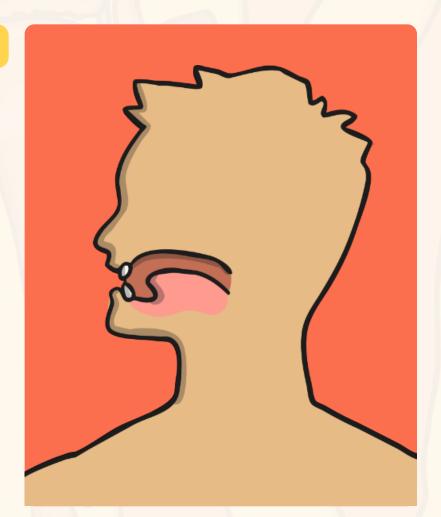
Function:

Entry point for food.

Where saliva mixes with food.

Location of tongue and teeth.

Top part of the mouth (soft palate) helps move food along to the oesophagus.

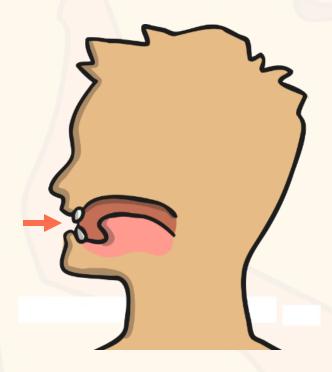


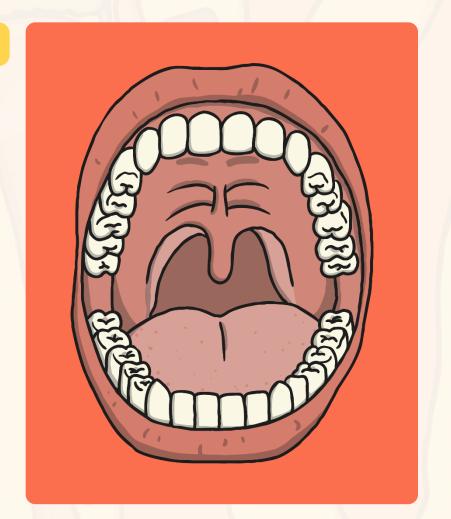


Teeth

Function:

Tear, cut and grind food into smaller pieces.







Tongue

Function:

Helps mix the food and saliva.





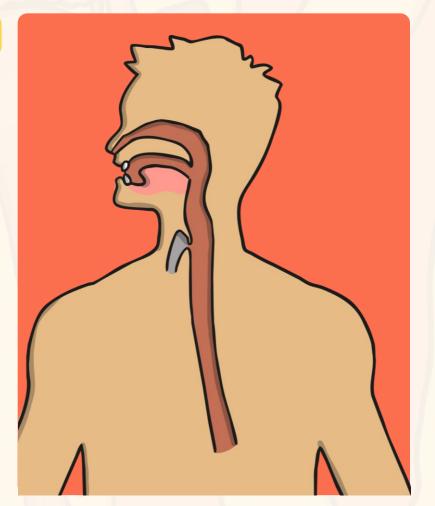


Oesophagus

Function:

A muscular tube which forms the path from the mouth to the stomach.

Muscles contract and relax to move food down the oesophagus to the stomach.



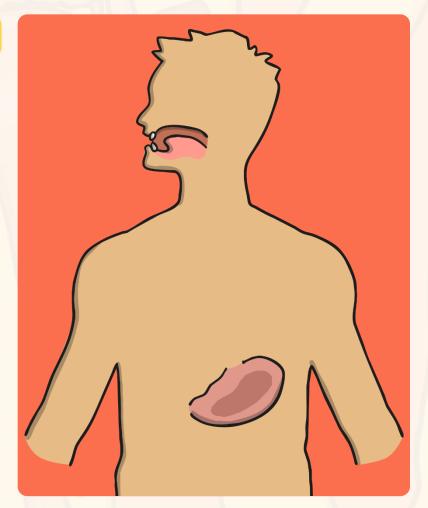


Stomach

Function:

Glands line the stomach produce acid and **enzymes** which breaks the food down further.

Muscles in the stomach mix the food.



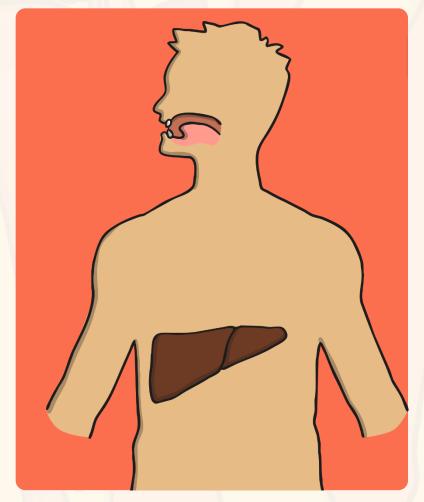


Liver

Function:

Produces bile which helps to absorb fats.

Bile is sent to the gallbladder to be stored.

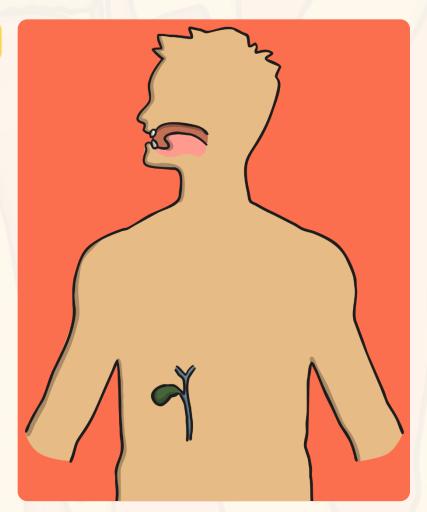




Gallbladder

Function:

Releases bile into the duodenum when needed.



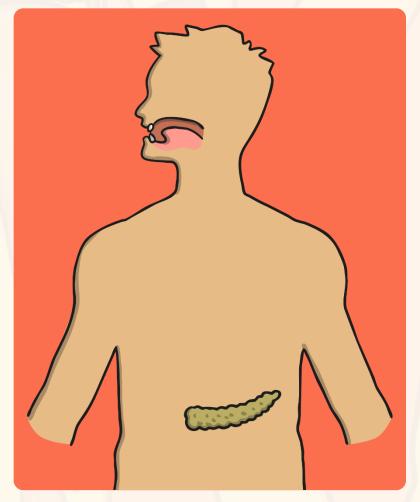


Pancreas

Function:

Produces enzymes to break down fats, proteins and carbohydrates.

Releases them into the duodenum.



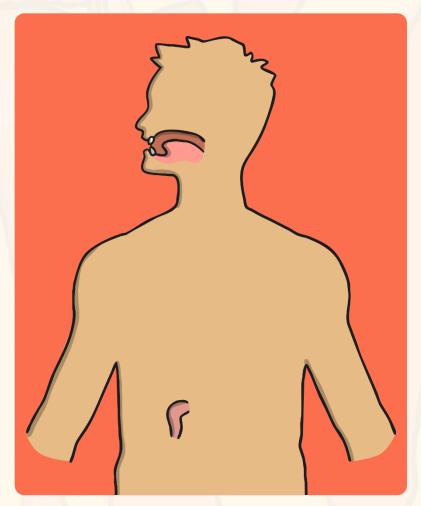


Duodenum

Function:

First part of the small intestine

Food is broken down by bile from the gallbladder and enzymes from the pancreas.



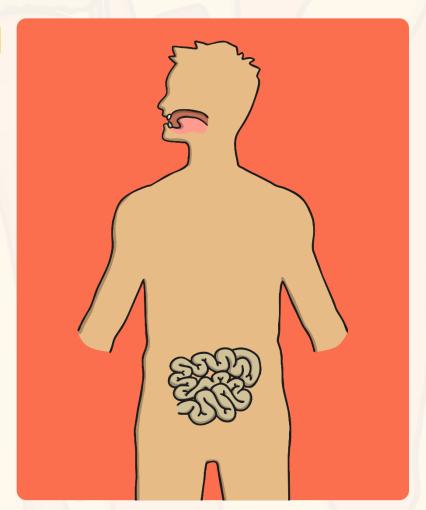


Small Intestine

Function:

The other parts of the small intestine – (jejunum and ileum) absorb nutrients from the food.

Pass any leftover broken down food to the large intestine.





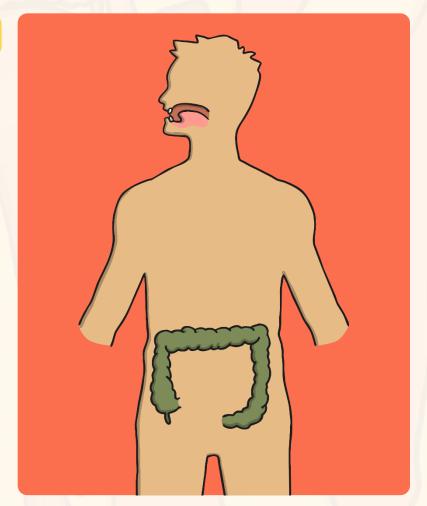
Large Intestine

Function:

Connects the small intestine to the rectum.

Absorbs water from waste food.

Forms stool from waste food.



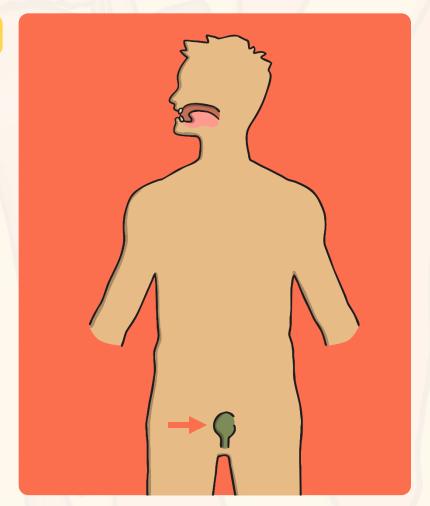


Rectum

Function:

Stores stool passed to it from the large intestine.

Makes brain aware of need to go to the toilet.



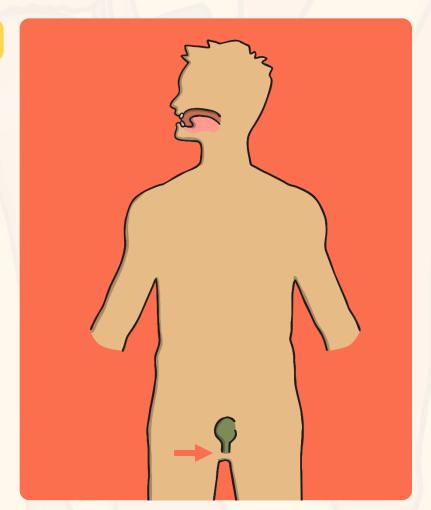


Anus

Function:

Releases the stool.

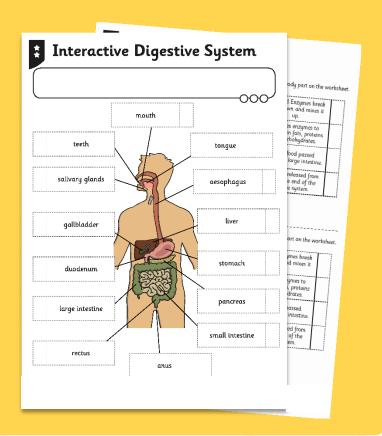
End of the digestive process.





The Functions Of The Digestive System





Digestive System Explanation Text

The mouth is where food enters the digestive system but the process of digestion starts even before that happens! The salivary glands produce saliva when food is smelt. You may have come across the phrase 'mouth-watering', which indicates food that smells so good that your mouth is full of salva.

Saliva contains an enzyme called amplese (pronounced am- uh - legs). This breaks down states would is a tupe of carbohydrate. The tangue is important as it mixes the food with the solve

Teeth tear, cut and grind food in the mouth so that it can be transported through the body more easily.

The soft palate is the name of the top of the mouth, this part of the mouth moves the food through the mouth and towards the desophagus.

The next part of the digestive process takes part in the pesophagus. This is a long muscular tube that leads to the stamach. Here the food is moved down by the muscles in synchronised waves (pairs of muscles contracting and relaxing at the same time). This movement is called peristalsis. Muscles in your intestine also work

Enzymes and acids are produced in the stomach lining to break powerful musdes that thurn and mix food into smaller and smaller moves the stools to the rectus. The rectus has two functions: firstly it stores the

scools until they are readu to be released. Seconaly, it sends signals to the brain that there are stools that need releasing. The final process in the digestive process is when stools move from the rectus are released from the In order to be

The large intestine

healthy the body needs to both take nutrients from the food and also get rid of the parts of the fond it does not

are vital to the digestive process even though food ages not pass

The pancreas produces enzumes to break down fats, carbohudrates and proteins which are released in the

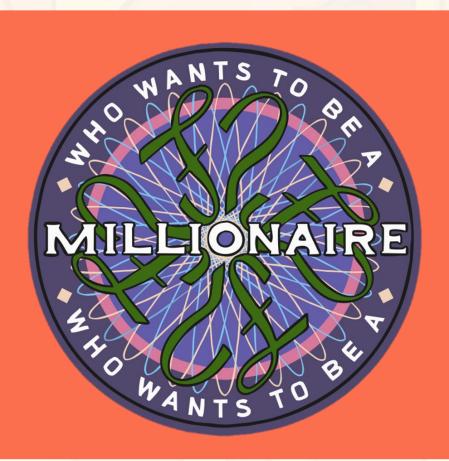
The liver produces bile - this is an important full which breass down fats in our diets. It sends the bile to the galloladder to store, which releases it into the duodenum when

After the other two parts of the small intestine absorb the nutrients they need, any part of the food that s not needed travels to the large intestine. The large intestine absorbs water from the remaining food and the rest forms into stools.

The small intestine is split into three parts. The duadenum is the first part of the small intestine and it is here that the food is broken down bu enzumes and bile



Who Wants To Be a Millionaire — Digestive System





Aim



- I can explain the functions of the digestive system.
- I can use scientific evidence to answer questions.

Success Criteria

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Animals Including Humans | Digestive System Functions

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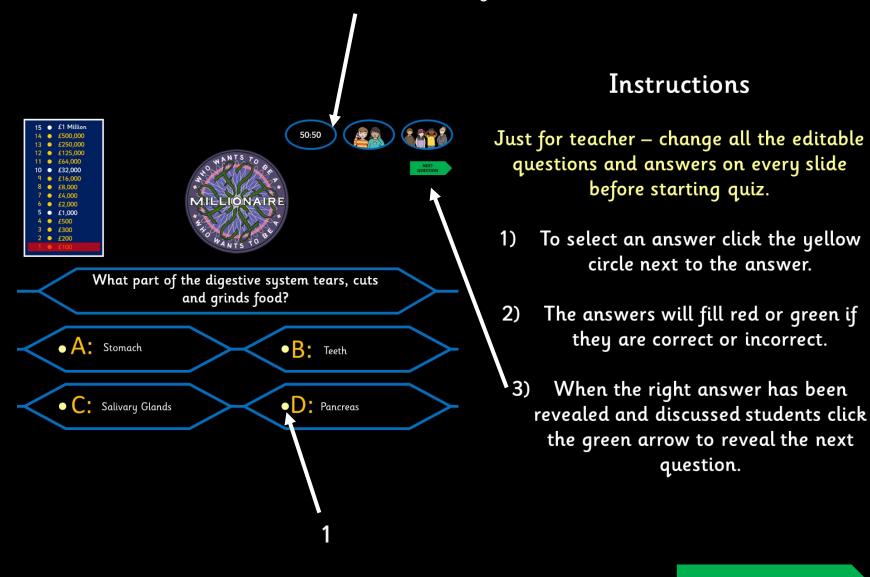
Animals Including Humans | Digestive System Functions

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The 50:50 will hide 2 wrong answers





START!

15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 • £4,000

6 • £2,000

5 • £1,000

4 • £500

3 • £300

2 • £200

1 • £100















What part of the digestive system tears, cuts and grinds food?

B: Teeth

• C: Salivary Glands

15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 • £4,000

6 • £2,000

5 • £1,000

4 • £500

3 • £300

2 ● £200

1 • £100















Which part of the body produces saliva?





15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 • £4,000

6 • £2,000

5 • £1,000

4 • £500

3 • £300

2 • £200

1 • £100





3 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 £16,000

8 • £8,000

7 • £4,000

6 • £2,000

5 • £1,000

4 • £500

3 • £300

2 • £200 1 • £100











What is the function of the tongue?





- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
- 9 £16,000
- 8 £8,000
- 7 £4,000
- 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100















Which part of the digestive system forms stools?

• A: Rectum

• Large Intestine

- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
- 9 £16,000
- 8 £8,000
- 7 £4,000
- 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100















Which is the only part of the digestive system which needs to signal to the brain?

• A: Rectum

• D

Anu



You are at the £1,000 mark.

Get ready for the next question!





15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 • £4,000

6 ● £2,000

5 • £1,000

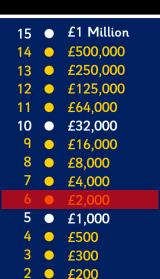
4 • £500

3 • £300

2 • £200

1 • £100





£100











Which of these is a function of the stomach?

• B: Produces bile.

Produces acid

15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 ● £4,000

6 • £2,000

5 • £1,000

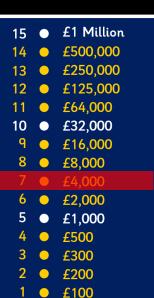
4 • £500

3 • £300

2 • £200

1 • £100















Where is bile stored?





Gallbladder

- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
- 9 £16,000
- 8 £8,000
- 7 £4,000
- 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100











NEXT QUESTION



How many parts of the small intestine are used to digest food?

• **B**: On

None

- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
 - 9 £16,000
 - 8 £8,000
 - 7 £4,000
 - 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100





13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16.00

8 • £8,000

7 • £4,000

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5 ● £1,000

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2 • £200

1 ● £100





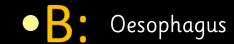






Which part moves the food to stomach?







- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
 - 9 £16,000
- 8 £8,000
- 7 £4,000
- 6 £2,000
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- 3 £300
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- 1 £100











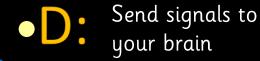




What do glands do?









You are at the £32,000 mark.

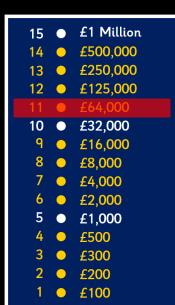
Get ready for the next question!





- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
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- 9 £16,000
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- 7 £4,000
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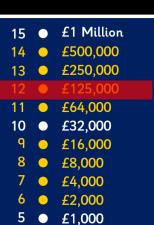


How many different parts of the digestive system does food enter?



• B: Ten

- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
- 9 £16,000
- 8 £8,000
- 7 £4,000
- 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100



£500 £300 £200 £100











What are enzymes?

• B: Molecules that break down food

Glands that break down food.

- 15 £1 Million
- 14 £500,000
- 13 £250,000
- 12 £125,000
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- 10 £32,000
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- 8 £8,000
- 7 £4,000
- 6 £2,000
- 5 £1,000
- 4 £500
- 3 £300
- 2 £200
- 1 £100















What is the name of the top part of the mouth?

• A: Hard palate

Soft palate

15 • £1 Million

14 • £500,000

13 • £250,000

12 • £125,000

11 • £64,000

10 • £32,000

9 • £16,000

8 • £8,000

7 • £4,000

6 • £2,000

5 • £1,000

4 • £500

3 • £300

2 • £200

1 • £100















What two substances break down food in the duodenum?

• A: Acid and Enzymes

• Enzymes and Bile

- 15 £1,000,000
- 14 £500,000
- 13 £250,000
- 12 £125,000
- 11 £64,000
- 10 £32,000
- 9 £16,000
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- 4 £500
- 3 £300
- 2 £200
- 1 £100















The name of the wave movement of the muscles in the Oesophagus and Intestines is called....

• B: Perisic

Peristalsis

