

Lesson 11 - Digestive System

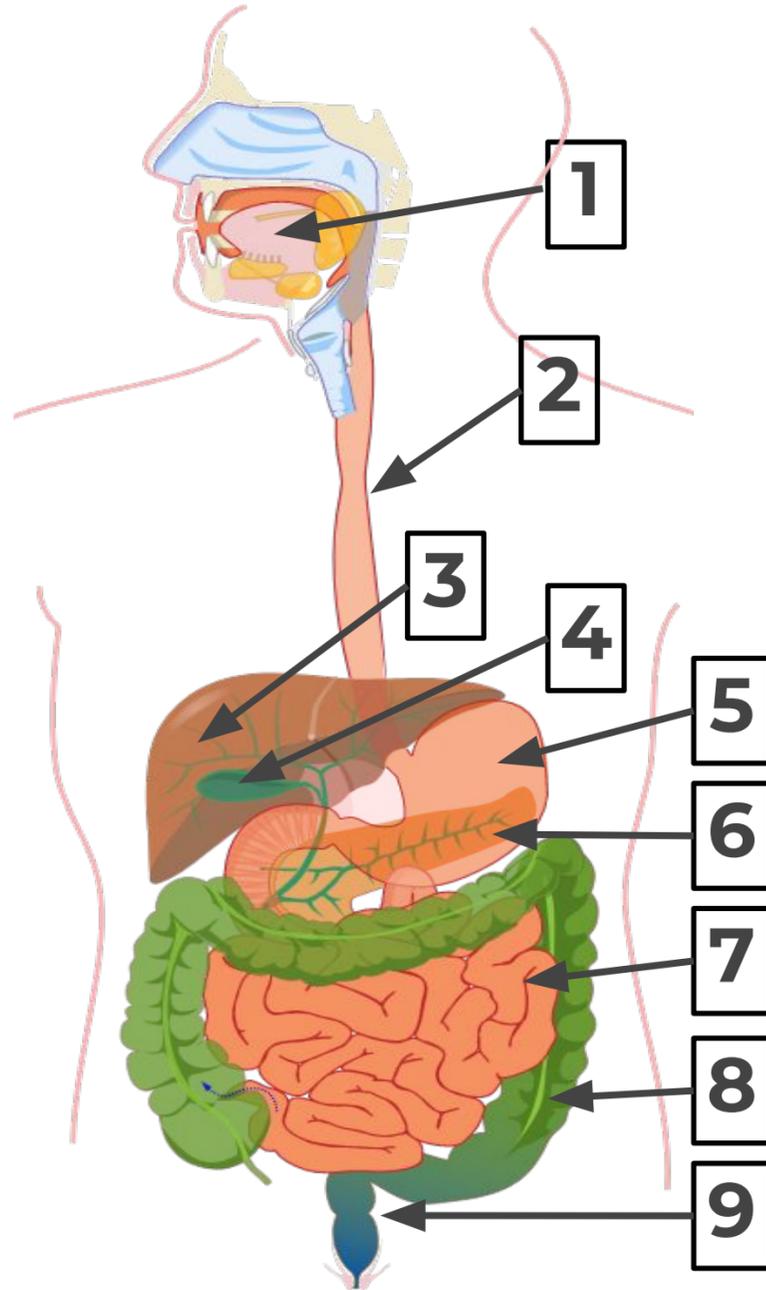
Science - Biology - Key Stage 3

Cells, Tissues and Organs

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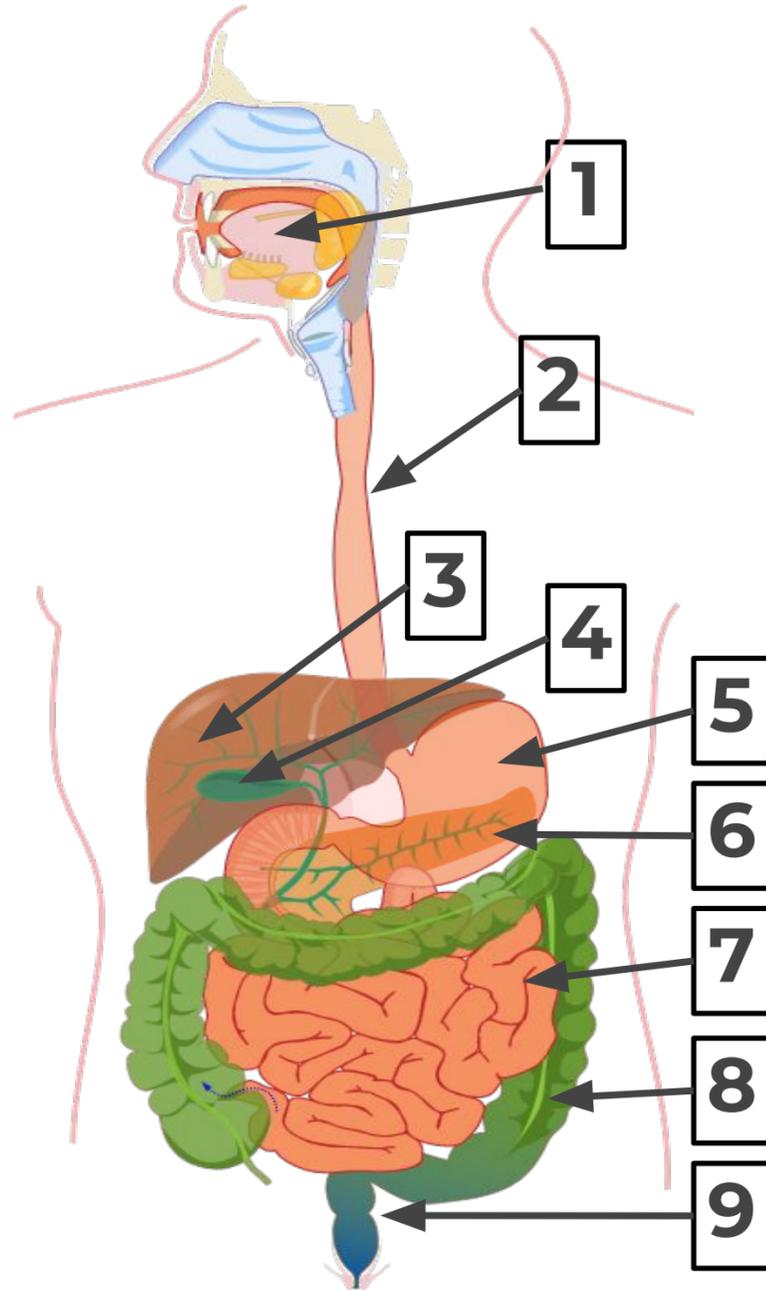
Match up - organs to their names



Oesophagus
Stomach
Liver
Pancreas
Rectum and
anus
Mouth
Large intestine
Small intestine
Gallbladder



Name the organs of the digestive system



1 = mouth

2 = oesophagus

3 = liver

4 = gallbladder

5 = stomach

6 = pancreas

7 = small intestine

8 = large intestine

9 = rectum and anus



Task - Journey of a cheese sandwich

Jimmy wrote the following paragraph to describe the movement of a cheese sandwich through the digestive system. Spot and correct the mistakes and see if you can add in any parts he has completely missed.

Part 1 - The sandwich is chewed in the mouth by saliva and swallowed, then travelling down the oesophagus. The process of pushing moves the food down into the stomach. The stomach is a muscular bag which contains hydrochloric alkali which has a low pH of 1, this contains enzymes to break down food molecules.



Task - Journey of a cheese sandwich

Part 1 - The sandwich is chewed in the mouth by **teeth (not saliva)**, **saliva contains enzymes starting to break down food**. The chewed food is swallowed, then travelling down the oesophagus. The process of **peristalsis (not pushing)** moves the food down into the stomach. The stomach is a muscular bag which contains hydrochloric **acid (not alkali)** which has a low pH of 1, this contains enzymes to break down food molecules.



Task - Journey of a cheese sandwich

Jimmy wrote the following paragraph to describe the movement of a cheese sandwich through the digestive system. Spot and correct the mistakes and see if you can add in any parts he has completely missed.

Part 2 - The sandwich will move from the stomach into the large intestine where the food is broken down more by enzymes. Bile is released to neutralise the stomach alkali. The broken down food molecules diffuse into the bloodstream, anything left is fibre which cannot be broken down, this moves in the small intestine. Here, the small intestine absorbs any excess water, forming faeces which is stored in the rectum and released from the anus.



Task - Journey of a cheese sandwich

Part 2 - The sandwich will move from the stomach into the **small (not large)** intestine where the food is broken down more by enzymes. Bile is released to neutralise the stomach **acid (not alkali)**. The broken down food molecules diffuse into the bloodstream, anything left is fibre which cannot be broken down, this moves in the **large (not small)** intestine. Here, the **large (not small)** intestine absorbs any excess water, forming faeces which is stored in the rectum and released from the anus.

EXTRA: Pancreas produces the digestive enzymes. Liver produces bile and is stored in the gallbladder.



True or false?

1. Villi has a small surface area.
2. The villi has a good blood supply.
3. There is only a single layer of cells between the contents of the small intestine and the blood vessels of the villi.
4. Diffusion occurs at a faster rate when there is a smaller surface area.
5. The large intestine absorbs excess water.
6. The stomach contains hydrochloric acid which is a high pH of 13.



True or false?

1. Villi has a small surface area. **False**
2. The villi has a good blood supply. **True**
3. There is only a single layer of cells between the contents of the small intestine and the blood vessels of the villi. **True**
4. Diffusion occurs at a faster rate when there is a smaller surface area. **False**
5. The large intestine absorbs excess water. **True**
6. The stomach contains hydrochloric acid which is a high pH of 13. **False**



Task

Explain why we need a digestive SYSTEM?

Include:

1. Function of the digestive system
2. Names of organs
3. Adaptations of villi

Stretch:

4. Can you link this to the concept of cells, tissues and organs?

Support:

- The digestive system breaks ...
- The villi has a ...



Mark your answers

1. The digestive system breaks down large food molecules into **small food molecules** (1) - **fulfills the 'nutrition'** life process. (1)
2. The organs of the digestive system include; **mouth, oesophagus, stomach, liver, gallbladder, pancreas, small intestine, large intestine, rectum and anus.** (1)
3. The villi provide a very **large surface area** for the **absorption of digested food.** (1)
There is a **single cell layer** between the inside of the villus and the contents of the gut, **minimising the diffusion pathway.** (1) There is a **capillary network inside each villus**, providing a **good blood supply** (1), so food molecules diffuse almost directly into the blood and are moved away in the circulation, which maintains a **good concentration gradient between the contents of the small intestine and the blood.** (1)
4. Groups of muscle cells make a muscle tissue, a group of tissues make an organ e.g. stomach, which is part of the digestive system. (1)

