

DIGESTIVE

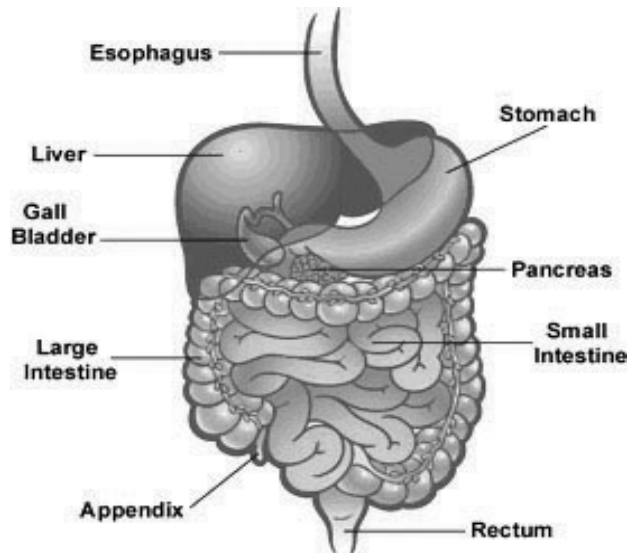


Figure B1-4: Digestive system.

Source: STEM.

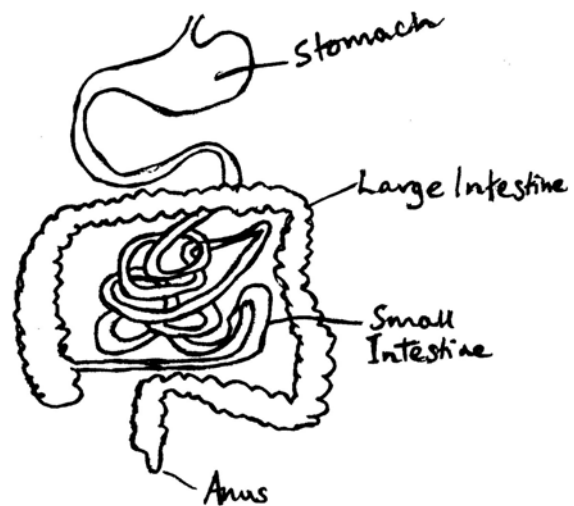


Figure B1-5: Hand drawn digestive system.

Source: ACT.

Key structures

Upper digestive tract: This consists of the buccal cavity, pharynx, oesophagus and stomach. Food enters the buccal cavity (mouth), it is masticated with saliva then passed to the stomach. Here partial digestion of food takes place in low pH (acidic) conditions.

Small intestine: Partially digested food enters the small intestine where digestion, using enzymes, is completed. Proteins are broken down into poly-peptides, carbohydrates in simple sugars. The majority of food is absorbed into the bloodstream in the small intestine.

Large intestine and anus (colon and rectum): Fibre and other indigestible materials pass into the colon. Water is absorbed from this material and then the remainder passes into the rectum for excretion.

Liver: The liver is the body's chemical processing organ. For example, it stores excess sugars and carbohydrates. It also acts as the body's waste treatment plant. It absorbs and destroys poisons that have been ingested. For example, the liver breaks down the poison alcohol, into harmless components which are then excreted. Excessive exposure can damage the liver and in the case of alcohol this results in cirrhosis.

Key terms

Defences: The digestive system has a number of defences against ingesting harmful substances. Taste may warn of potential contamination. Vomiting enables contaminated food to be regurgitated though the stimulation of vomiting by some chemicals can in itself be very dangerous. Detoxified, the liver has the capacity to break down harmful chemicals. Finally excretion of digested or semi-digested food assists in the removal of poisons, or micro-organisms from the body.

Cross contamination: Food or drink that come into contact with chemicals or micro-organisms can become contaminated. For example, foundry workers can contaminate their meals with lead dusts, unless they follow strict hygiene controls before eating.

Accidental contamination: Food or drink can also be contaminated and consumed accidentally.

CIRCULATORY

The circulatory system comprises the heart and blood vessels which maintain a constant flow of blood to all parts of the body. The blood provides a regular supply of oxygen to the tissues and carries away carbon dioxide and other waste products.

The system comprises two parts: the **systemic circulation** which comprises the blood supply to all parts of the body except the lungs and the **pulmonary circulation** which is responsible for reoxygenating the blood via the lungs.

NERVOUS

The nervous system can be defined as the body's information gathering, control and storage system. It comprises the central nervous system (CNS: brain and spinal cord) which consists of billions of interconnected nerve cells called neurons. Input to the CNS is via the special sense organs (e.g. eyes). Output, or motor instructions, go to muscles, internal organs and glands - including the sweat glands of the skin for temperature regulation; this is known as the **peripheral nervous system (PNS)**. Some of these systems are **automatic** or unconscious whereas others are voluntary, requiring a conscious effort of will.