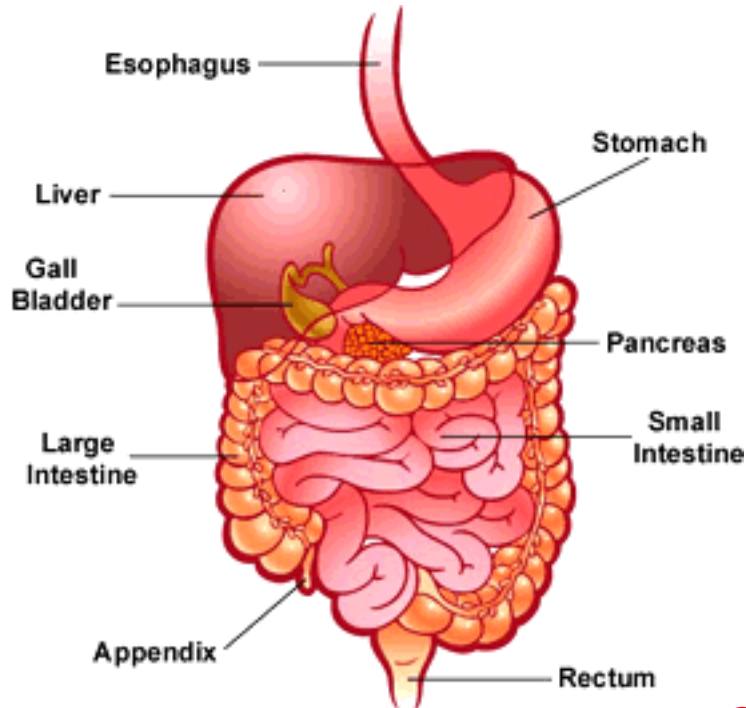


Respiration

Glands produce enzymes that are used to break down large molecules into smaller ones that are ready for absorption.

The digestive system provides an interface between the body and the environment because it allows food to pass through it.

Major parts of the digestive system



The **Oesophagus** is made up of a thick muscular wall and is adapted so that food can pass down it easily from the mouth to the stomach. Therefore it is used for transport, as opposed to digestion.

The **stomach** is a muscular sac with an inner layer that produces enzymes. Its roles are to store and digest food (especially proteins). There are glands within it that produce enzymes to digest protein. Mucus is also produced in the stomach by glands. The mucus prevents the stomach lining from being digested by its own enzymes.

The **small intestine** is a long muscular tube. Food is further digested by enzymes in the small intestine. The enzymes enter the small intestine through its walls and through glands. The inner walls of the small intestine are folded into villi, giving them a larger surface area. The surface area of villi is further increased by millions of tinier projections called microvilli. The microvilli are found on the epithelial cells of each villus. This adapts the small intestine so that it can absorb substances into the blood stream.

The **large intestine** absorbs water. Often the water is reabsorbed by the secretion of digestive glands. Because there is little water within the large intestine, the food becomes drier, thus forming faeces.

The **rectum** is where faeces are stored before it is removed through the anus in a process called **egestion**.

The **salivary glands** are positioned near the mouth. They pass their secretion via a duct into the mouth. This secretion will contain the enzyme amylase.

Respiration

Respiration involves chemical reactions that break down nutrient molecules in living cells to release energy.

Aerobic respiration needs oxygen. It is the release of a relatively large amount of energy in cells by the breakdown of food substances in the presence of oxygen:

Aerobic respiration happens all the time in animals and plants. Note that respiration is different to breathing (ventilation). Most of the reactions in aerobic respiration happen inside mitochondria in cells.

Blood

Blood transports materials and heat around the body, and helps to protect against disease. It contains:
plasma