8A Summary Sheets

Food and digestion

We need to eat a wide variety of foods to provide our bodies with all the substances that are needed. When we do this, we are said to have a **balanced diet**.

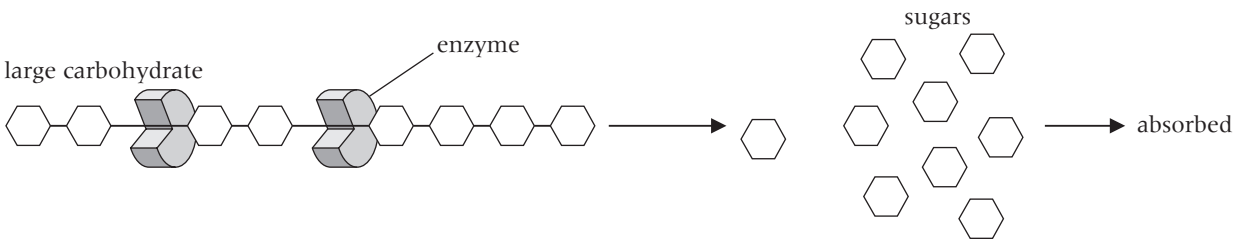
Substance needed	Examples	Why it's needed	Good sources
carbohydrate	starch, sugars	for respiration to release energy	pasta, bread
protein		for growth and repair	meat, beans
vitamins	vitamin C	for health	fruits and vegetables – oranges contain a lot of vitamin C
minerals	calcium	for health	fruits, vegetables and dairy products – milk contains a lot of calcium
fibre		for health; helps to keep our intestines clean and stop them getting blocked up (**constipation**)	wholemeal bread
water		for health; water is an important **solvent** in the body	

We can do tests to find out which substances are in foods. For example, starch makes iodine solution go a blue–black colour.

Nutrition information labels on foods tell us what the food contains. The labels also tell us how much chemical energy is stored in the food. The amount of energy is measured in **kilojoules** (**kJ**).

Eating too much of some foods can cause problems. Too much fat may cause **heart disease**.

To make use of the food, our bodies need to break it up into smaller sized molecules. This is called **digestion**. Digestion turns large **insoluble** substances into small **soluble** ones. The organs of the **digestive system** help us digest food. Many of them produce **enzymes** (chemicals that break up food).

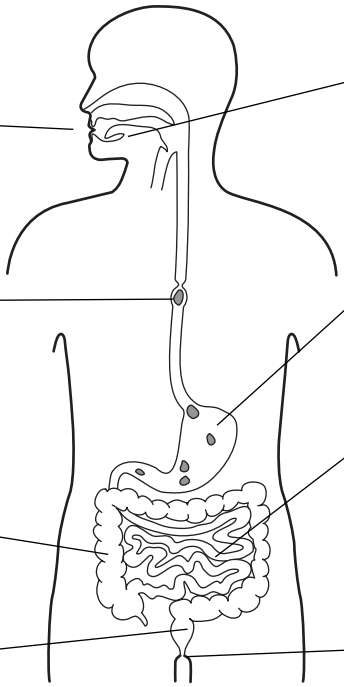


Putting food in the **mouth** is called feeding or **ingestion**. The teeth grind up the food and mix it with a **digestive juice** called **saliva**. Digestive juices contain **enzymes**.

Food is swallowed down the **gullet** (or **food pipe**). The muscles above the swallowed food get smaller (they **contract**) pushing the food down.

The **large intestine** removes water from the food that cannot be digested.

Food that cannot be digested forms **faeces**. Faeces are stored in the **rectum**.



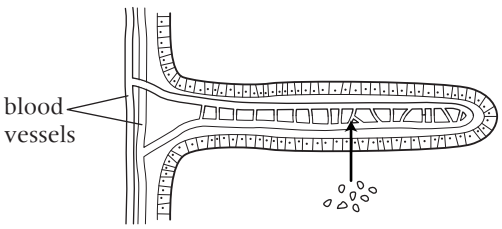
Saliva is produced by the salivary glands. Saliva breaks down starch into sugar.

In the **stomach**, strong acid is added to the food and more digestive juices are added to break down proteins into amino acids.

In the **small intestine** more digestive juices are added. Carbohydrates are digested into sugars. Sugars and amino acids are small and so can be taken into the blood stream in the small intestine. The food substances are **absorbed**.

Faeces are eventually pushed out of the **anus**. This is called elimination or **egestion**.

To help absorb the digested food, the small intestine is covered with **villi**. These increase the surface area.



The digested food substances are carried around the body in the **blood**. The blood travels through **blood vessels**. **Arteries** carry blood away from the heart and **veins** carry blood towards the heart. The smallest blood vessels are **capillaries.** Substances enter and leave the blood through capillaries. Cells get the substances they need from the blood in capillaries.

Cells need food substances to:

- release energy
- make new substances.

Cells use a **chemical reaction** called **respiration** to release energy from a sugar called glucose.

