

**Digestive System**

Food enters the body through the mouth and is chewed and mixed with digestive enzymes. It travels through the oesophagus to the stomach and mixes with more enzymes and stomach acid. It then travels through the small intestine where nutrients are absorbed and then the large intestine where water is absorbed. The excrement is stored in the rectum and excreted out the anus.

Other organs involved in digestion are the pancreas where most enzymes are produced and the liver which produces bile to break down fats.

**Gas Exchange**

Oxygen enters the body through the lungs and is diffused into the blood in the alveoli in the lungs. At the same time carbon dioxide is diffused into the lungs from the blood and then exhaled. The alveoli are adapted for gas exchange by having a large surface area and being very thin as well as being covered in small blood vessels. Oxygen is used in respiration to release energy and carbon dioxide is produced.

**Alcohol**

Alcohol is a depressant. It is also addictive. People addicted to alcohol are known as alcoholics. Drinking alcohol during pregnancy can lead to foetal alcohol syndrome in the baby which is a lifelong disorder.

**Smoking**

Cigarettes contain nicotine which is addictive. They also contain other chemicals known as carcinogens which can cause cancer.

**Drugs**

Drugs are chemicals that cause a change in the body. Recreational drugs are taken for fun and can be illegal. Medicines are drugs prescribed by medical professionals.

**Respiratory System**

Air is inhaled into the lungs through the nose/mouth and down a tube known as the trachea. The trachea splits into two tubes; the bronchi. Each of these splits into smaller tubes; the bronchioles. At the end of the bronchioles are air sacs known as the alveoli. This is where gas exchange occurs.

Inhalation requires the intercostal muscles in the chest to contract and the diaphragm to relax so that air can be drawn into the lungs. Exhalation is the opposite.

**Enzymes**

Enzymes are biological catalysts which speed up the break down of food in the body so it can be absorbed in the small intestine. There are specific enzymes for each nutrient. Protease breaks down proteins. Amylase breaks down starch. Carbohydrase breaks down carbohydrates. Lipase breaks down lipids (fats).

**Deficiencies**

An unhealthy diet can lead to malnutrition or obesity. Examples of malnutrition include: goitres, kwashiorkor, rickets, and scurvy.

**Nutrients and Food Tests**

There are 7 main nutrients: carbohydrates, protein, fats, vitamins, minerals, water, and fibre.

Testing:

Protein: biuret test, positive result: turns purple

Carbohydrates (starch): iodine, positive result; colour change from orange to blue-black.

Carbohydrates (sugar): benedict’s, positive result: colour change from blue to orange/red

Fats: ethanol, positive result: cloudy white

**Digestion and Breathing**

Humans exchange gases and take in nutrients through diffusion.

**Y8 Digestion and Breathing**

**Key Vocabulary**

**Deficiency**

When a human being does not receive enough of a nutrient

**Oesophagus**

Tube that food travels down and connects the mouth and stomach

**Trachea**

Tube that air travels down, connects the mouth and lungs

**Enzyme**

Biological catalyst that speeds up the breakdown of food molecules

**Alveoli**

Air sacs in the lungs where gas exchange occurs

**Respiration**

Chemical reaction that occurs in all cells and releases energy

**Absorbed**

When a substance is taken in

**Diffusion**

When a substance moves from an area of high concentration to low concentration until the particles are evenly spread.

**Ambitious Vocabulary**

Gas exchange, diffusion, alveoli, deficiencies, enzymes

**Science**