Ormiston Victory Academy

Subject: Science

Victory Vitals

Food and Nutrition

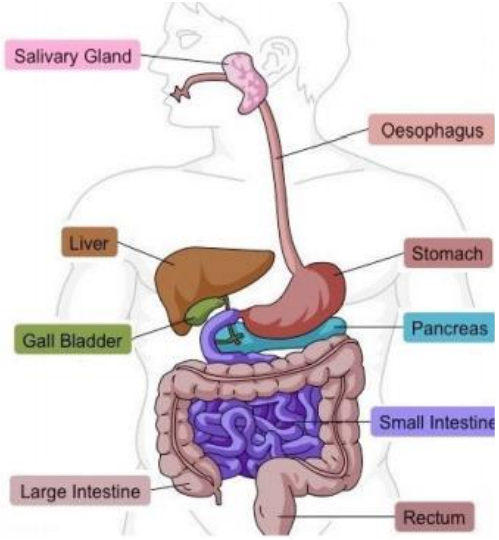
Whenever we move, our body uses energy. To get this energy, we must eat food. Food also provides us with all of the key nutrients that allow our bodies to grow and be healthy. Key nutrients include carbohydrates, fats, proteins, vitamins and minerals. Different foods contain different nutrients which can be tested for using different tests.

Food samples should be ground into a paste, add water to turn into a liquid, filter out the solid. Then carry out these tests with the liquid:

Protein: • Add 10 drops of blue **Biuret solution** to the food sample. • Leave for a few minutes. • If protein is present the mixture will turn **purple**.	**Fat/Lipids:** • Add **Ethanol** to the food sample. • Shake gently. • If fats are present the mixture will have a cloudy white layer.
Sugar: • Add 10 drops of blue **Benedict's solution** to sample. • Heat in a waterbath at 80°C. • If sugar is present the it will turn **Green** to **Orange** to **Red**	**Starch:** • Add 1 drop of orange/**brown Iodine solution** to sample. • If protein is present the mixture will turn **blue/black**.

Digestive System

Stomach and Mouth -break down food into smaller pieces, stomach contains hydrochloric acid.
Pancreas - makes enzymes.
Liver - makes bile.
Gall bladder - stores bile.
Small intestines – makes enzymes that break down large molecules (substrates) into smaller molecules so they can be absorbed into the blood.
Large intestines - absorb water.



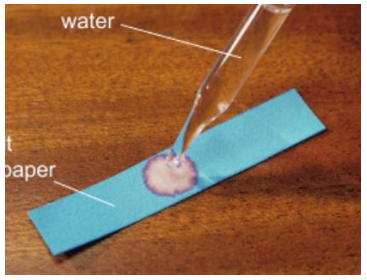
Combustion

Combustion means **burning** (with fuel and oxygen). There are 2 types of combustion: **Complete** (plenty oxygen) & **Incomplete** (limited oxygen).

Methane + Oxygen → Carbon dioxide + Water

$$CH_4 + 2\,O_2 \rightarrow CO_2 + 2\,H_2O$$

We can test for the products of combustion. To test for carbon dioxide, we bubble the gas through limewater. This will turn cloudy if carbon dioxide is present. To test for water, we use dry cobalt chloride paper. This is usually blue but will change colour to pink when water is present.



In this reaction, we can see that the carbon is gaining oxygen. When an element gains oxygen, it is called oxidation. For a fire to occur, it requires 3 things. We find them in the fire triangle. To put a fire out, one of the three things in the fire triangle needs to be removed.

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Vocabulary:

Word	Meaning
diet	The food that you eat.
nutrient	A substance needed in the diet to provide raw materials for making new substances and for energy release.
fuel	A substance that contains a store of chemical or nuclear energy that can be easily transferred.
respiration	A process in which energy is released from substances so it can be used by an organism. All organisms respire.
malnutrition	A problem caused by having too much or too little of nutrient in the diet. Obesity, starvation and deficiency diseases are all examples.
digestive system	An organ system that breaks down food.
faeces	Waste food material produced by the intestines.
insoluble	Describes a substance that cannot be dissolved in a certain liquid.
diffusion	When particles spread and mix with each other without anything moving them.

Word	Meaning
oxidation	Reacting with oxygen. For example, when a fuel combusts or when a metal reacts with oxygen to form a metal oxide.
exothermic	A reaction that gives out energy that can be felt as it heats the surroundings, such as combustion.
control variable	A variable other than the independent variable, which could affect the dependent variable and so needs to be controlled.
pollutant	A substance that can harm the environment or the organisms that live there.
greenhouse gas	A gas, such as carbon dioxide, water vapour or methane, in the Earth's atmosphere, which absorbs energy emitted from the Earth's surface and then emits it back to the surface.
combustion	Burning, usually in air. The reaction gives out energy, which is transferred to the surroundings by heating or light.

Videos

Quizzes