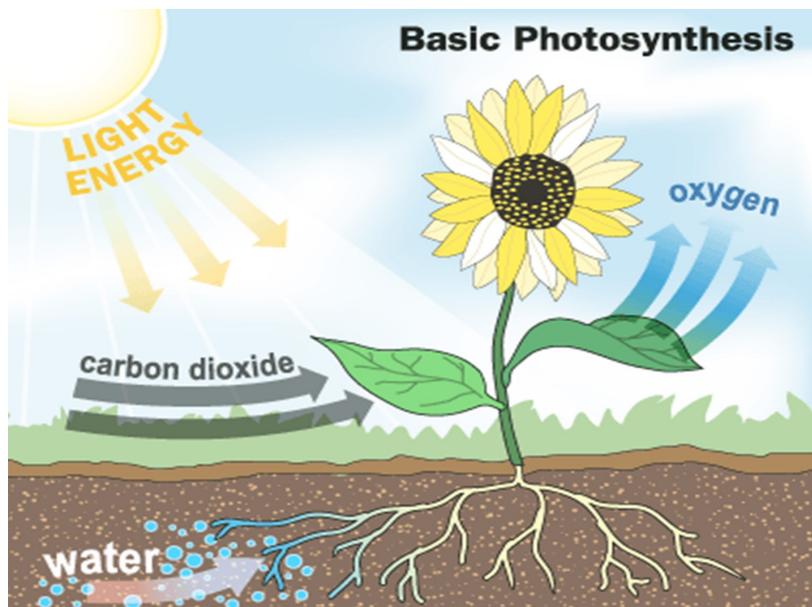




BGE Summary Notes

Photosynthesis and Food Production

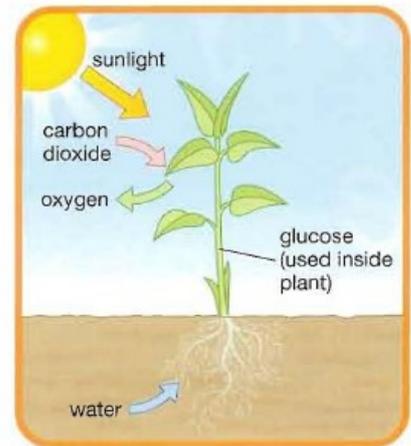


Photosynthesis

Our bodies use up energy all the time - for growth; to keep us warm and to make our muscles move. Our bodies get this energy from the food we eat. The energy in the food comes from the sun.

Green plants use sunlight to make food in a process called **PHOTOSYNTHESIS**.

This process also uses water and carbon dioxide.

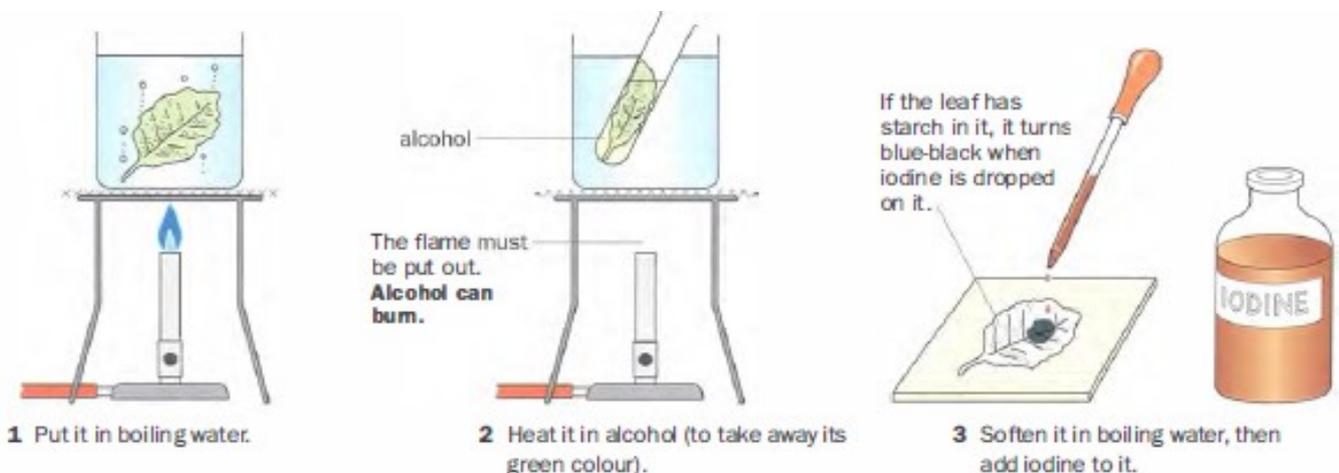


The plant uses the green pigment in its leaves to trap the energy from the sun. This green pigment is called **CHLOROPHYLL**. The plant joins the glucose molecules together to form starch which it then stores. Green plants are known as **PRODUCERS**.



Different foods can be tested to see if they contain starch by adding iodine solution. If the iodine solution turns **blue-black**, then the food contains starch.

A green leaf can be tested for starch as shown.



The Greenhouse Effect

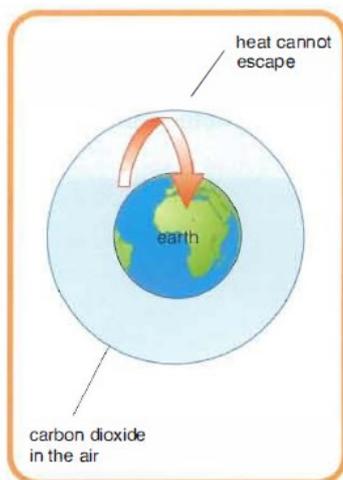
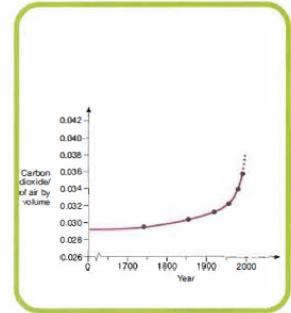
In recent years, the carbon dioxide levels in the air have begun to rise. The balance between oxygen and carbon dioxide levels is no longer being maintained.

One of the main reasons for this is cutting down forests which reduces the amount of carbon dioxide which can be removed

from the air by photosynthesis. The burning of fuels also increases the amount of carbon dioxide in the air.

The carbon dioxide in the air helps to keep the Earth warm. It does this by preventing too much heat being lost from the Earth's surface. This trapping of heat energy is called the

GREENHOUSE EFFECT.



Temperatures around the world are rising steadily. This may well be due to the rise in carbon dioxide levels and is known as

GLOBAL WARMING.

Fertilisers

Many people in the world go hungry through lack of food. It is important that crops produce as good a yield as possible. Plants take in the elements that they need for growth from the soil. The three elements required for healthy plant growth are nitrogen, phosphorus and potassium. When crops are harvested, these essential elements are removed from the soil and must be replaced. This is done by the addition of substances called **FERTILISERS**.

Natural fertilisers are made from plant or animal waste eg manure. Artificial fertilisers are

made by the chemical industry and are needed because of the increased demand for food. To be effective, a fertiliser must be soluble in water. This is so that they can be taken up by the roots of plants.

In recent years, there has been a large increase in the use of artificial nitrate fertilisers.

These are very soluble and are easily washed into rivers and lakes, contributing to nitrate pollution which can leave the water “lifeless”.



Farmers also use other types of chemicals on their land to increase yield of crops.

HERBICIDES are used to kill weeds and **PESTICIDES** are used to control pests. Care also needs to be taken with these chemicals as many of them are toxic.

There are natural methods to control pests eg ladybirds eat greenfly and plant lice but do not harm crops.

