

What is Photosynthesis?



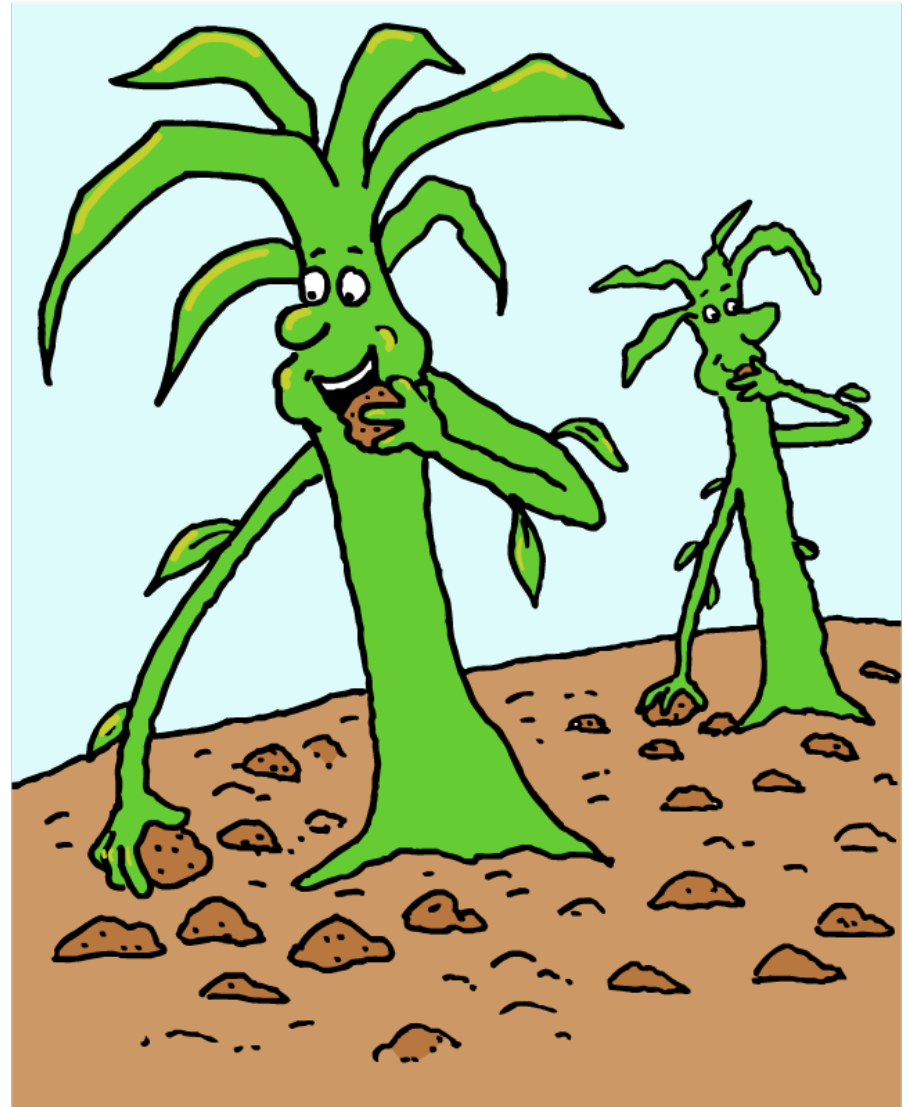
How do plants grow?

Many years ago, people thought that plants ate soil and that made them grow.

But think about it: if that really happened then there wouldn't be any soil left!

Plants actually grow by making their own food, not by eating soil.

So where does the stuff that plants are made of come from?



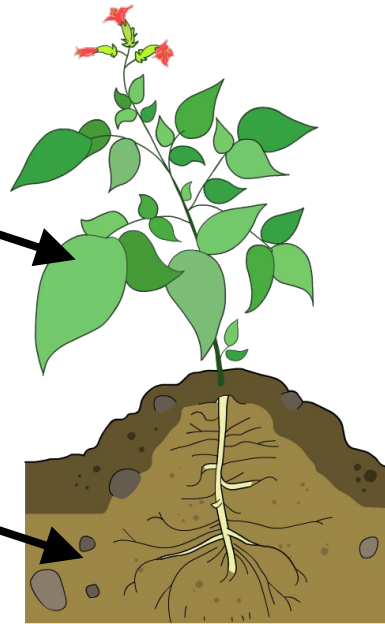
How do plants make their own food?

One of the raw materials that plants need to make food does come from the soil. The other comes from the air.

What are these two raw materials?

carbon dioxide
(from the air)

water
(from the soil)

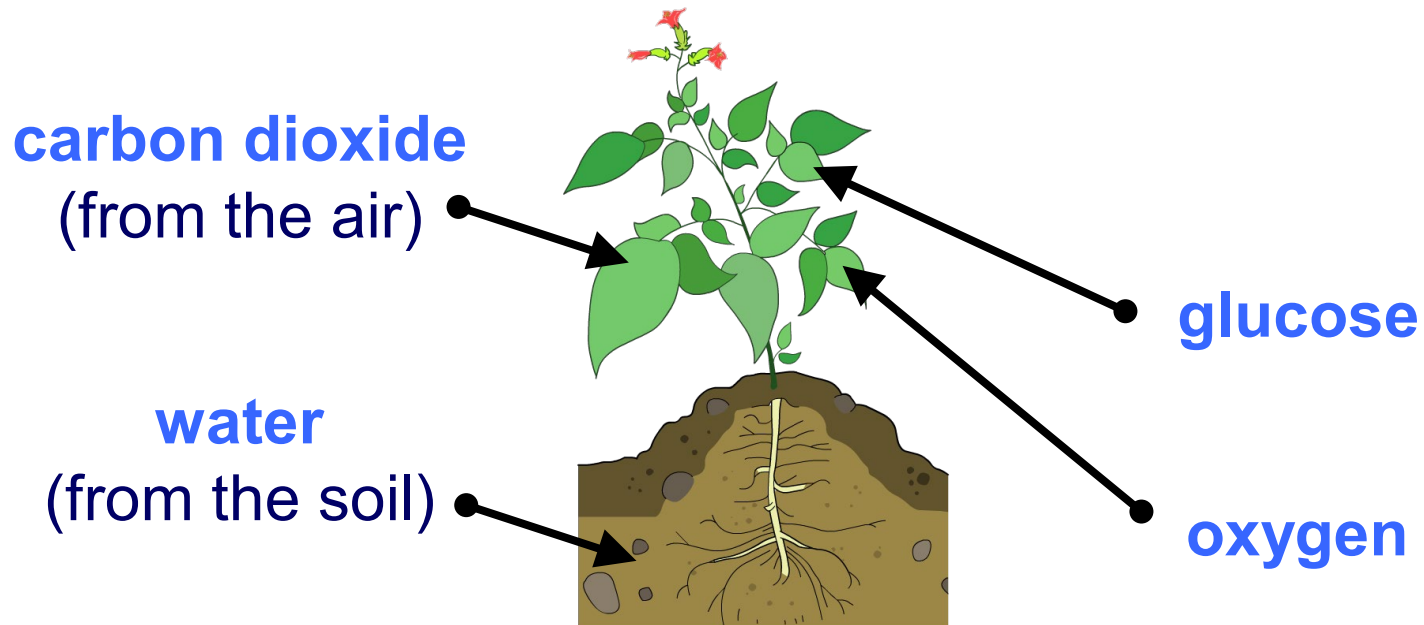


Plants use carbon dioxide and water to make their own food in a chemical reaction. What is the name of this reaction?

What is the name of the process?

Plants make their food from carbon dioxide and water in a chemical reaction called **photosynthesis**.

The food made by photosynthesis is the sugar glucose.

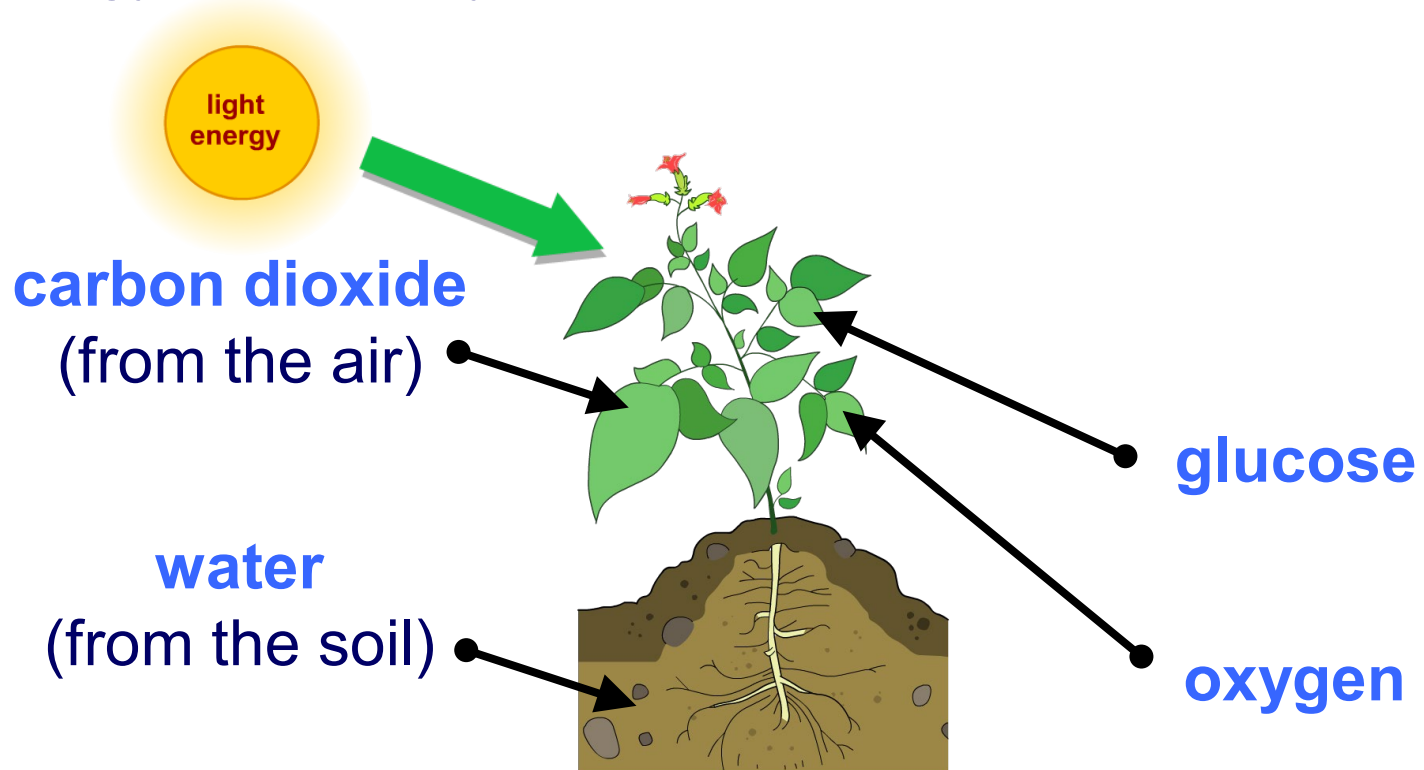


Oxygen gas is also made as a by-product of photosynthesis.



Where does the energy come from?

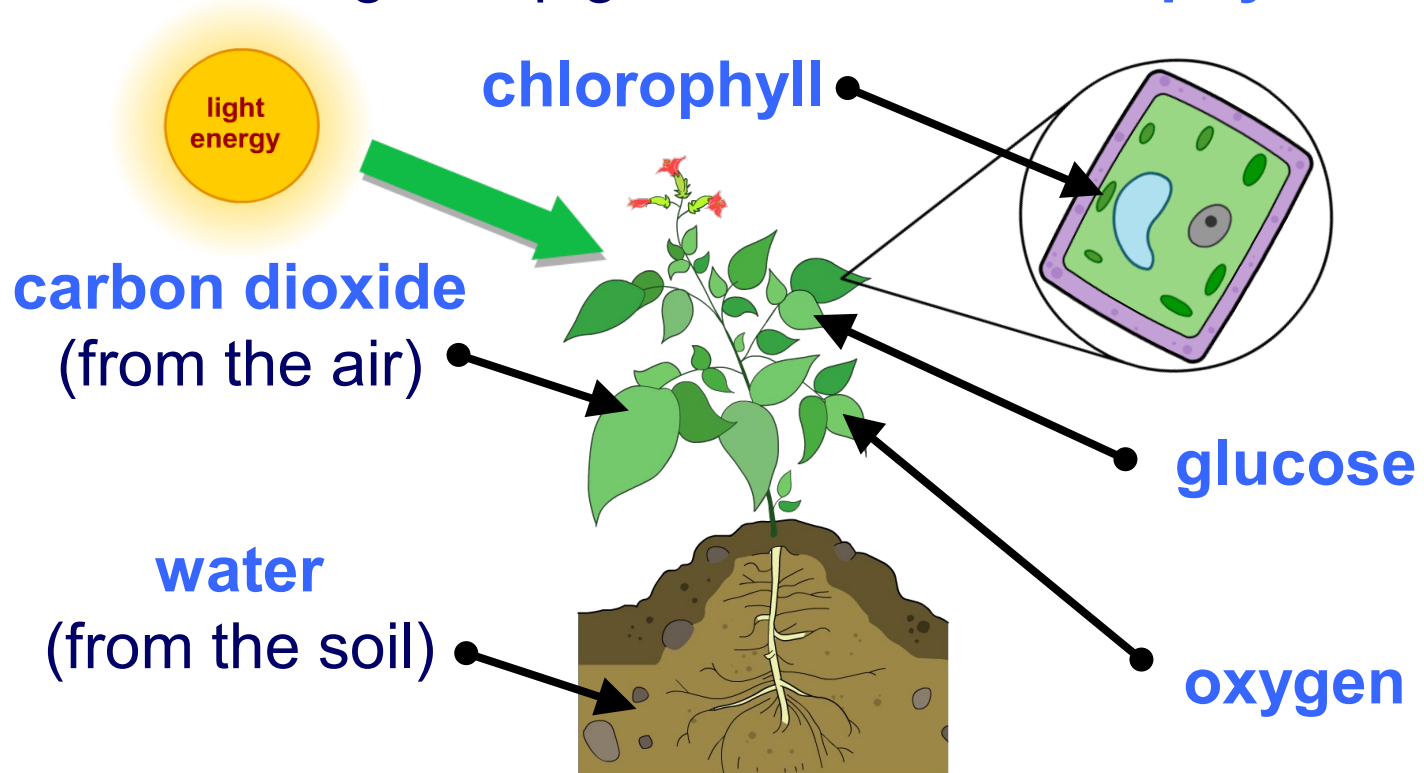
Plants need energy for photosynthesis to take place.
The energy for photosynthesis comes from the Sun.



Where in a plant does photosynthesis take place?

Where does photosynthesis happen?

Plant cells in the upper surface of leaves have chloroplasts which contain the green pigment called **chlorophyll**.



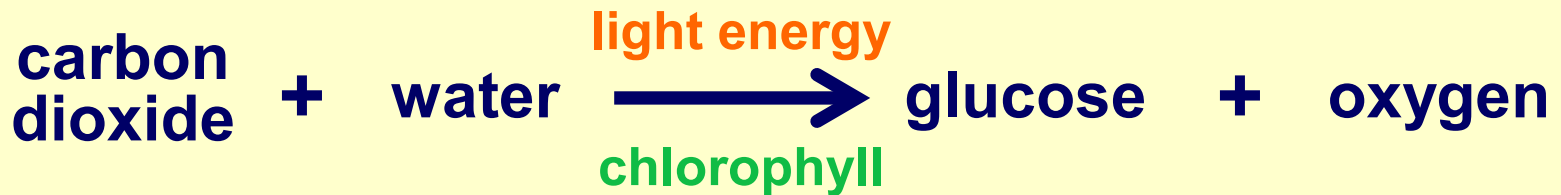
It is chlorophyll, which absorbs light energy from the Sun, that enables plants to carry out photosynthesis.

What is the equation?

Plants make their own food through **photosynthesis**.

In this chemical reaction, chlorophyll in plant cells absorbs light energy to change carbon dioxide and water into **glucose** and the by-product oxygen.

What is the word equation for photosynthesis?



This equation can be read as:

“Carbon dioxide and water, in the presence of light energy and chlorophyll, react to form glucose and oxygen.”



What is needed for photosynthesis?

What four things do plants need to make food by photosynthesis?



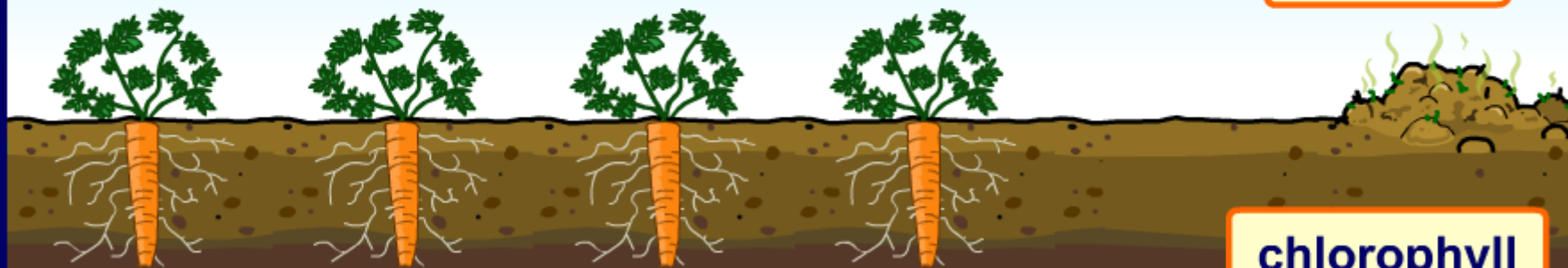
water

oxygen

carbon
dioxide

sunlight

fertilizer



nitrogen

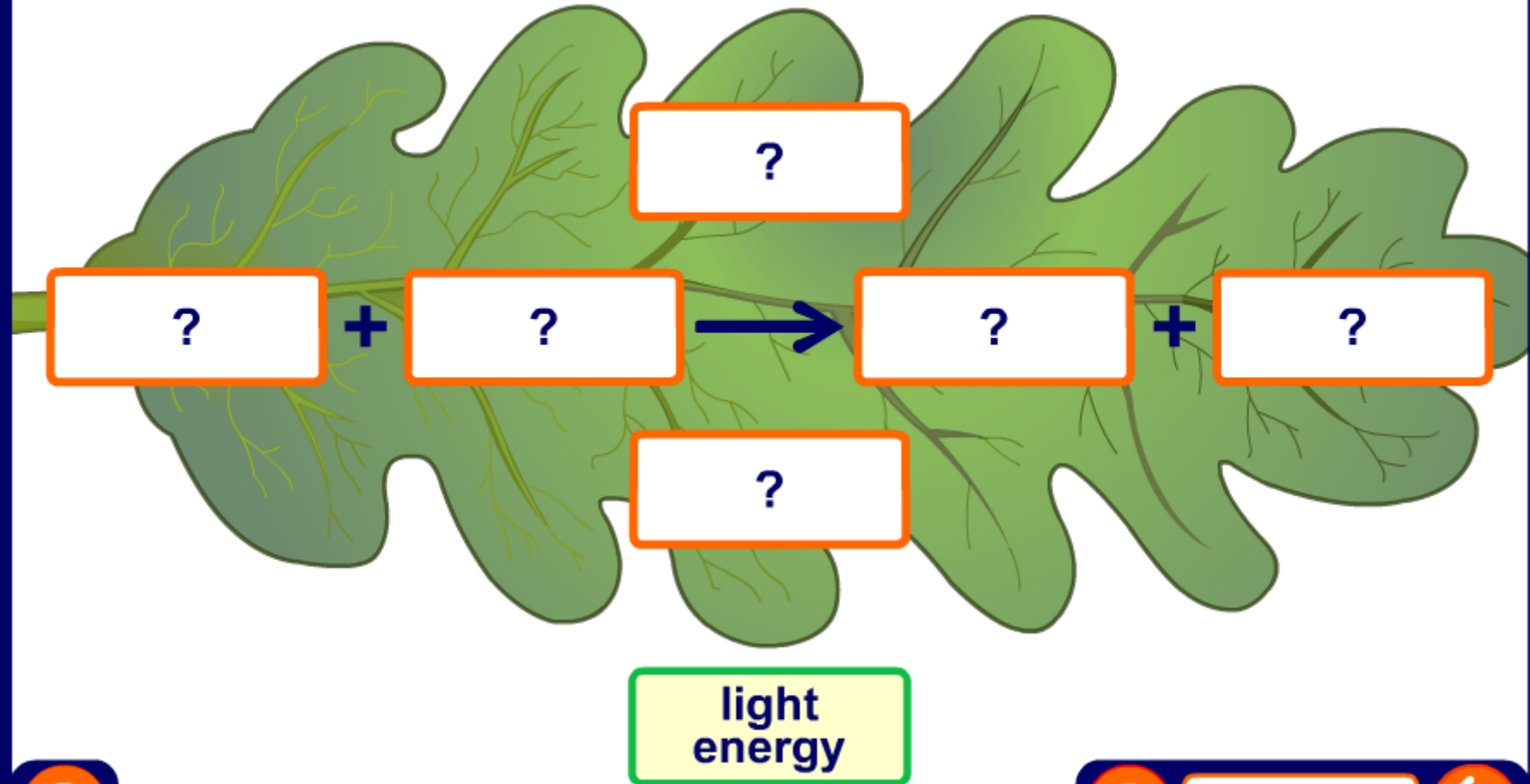
chlorophyll

?



What is the word equation?

What is the word equation for photosynthesis?



solve



Photosynthesis and the atmosphere

Before plants, the atmosphere was mainly made up of carbon dioxide and water vapor.

Gradually, carbon dioxide was converted into oxygen as **photosynthesis** in plants and algae evolved.

The increased level of oxygen slowly made the planet more suitable for other forms of life.



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