SUBJECT:
UNIT: Year 8: Photosynthesis

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While you were away.

Lesson one: Photosynthesis

1. What is the equation for photosynthesis?
2. Where does photosynthesis take place?

Lesson two: Structure of a leaf

1. What is the job of the stomata?
2. What is the job of the upper epidermis?

Lesson three: Limiting factors: Carbon dioxide

1. What is a limiting factor?
2. Describe the graph for the limiting factor of carbon dioxide

Lesson Four: Limiting factors: Light intensity

1. Describe the graph for the limiting factor of light intensity
2. What happens to the rate of photosynthesis when the light intensity is low?

SUBJECT: Science

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Key Vocabulary

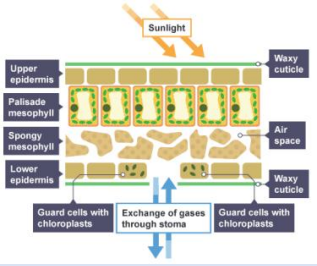
Chloroplasts
An organelle that is where photosynthesis occurs

Chlorophyll
A green pigment which absorbs light for photosynthesis

Photosynthesis
A process that occurs in the leaves of a plant that produces glucose using light energy

Palisade layer
A layer has the most chloroplasts to carry out photosynthesis

Upper Epidermis
Allows light through to the palisade layer so photosynthesis occurs



Photosynthesis

Photosynthesis is a process that occurs in the leaves of a plant and needs both chlorophyll and light energy.
During photosynthesis, the chlorophyll in leaves help convert carbon dioxide and water into the products oxygen and glucose.
The product glucose acts as a vital source of food for the plant. Carbon dioxide, water and light are all needed for photosynthesis to take place.

Photosynthesis

Carbon Dioxide + Water -> Oxygen + Glucose

Photosynthesis takes place inside plant cells in small objects called chloroplasts. Chloroplasts contain a green substance called chlorophyll. This absorbs the light energy needed to make photosynthesis happen. Plants and algae can only carry out photosynthesis in the light.

Plants get carbon dioxide from the air through their leaves, and water from the ground through their roots. Light energy comes from the Sun.

The oxygen produced is released into the air from the leaves. The glucose produced can be turned into other substances, such as starch and plant oils, which are used as an energy store. This energy can be released by *respiration*.

The Leaf

Palisade layer has the most chloroplasts to carry out photosynthesis.

Stomata let carbon dioxide into the leaf.

Upper epidermis allows light through for photosynthesis.

The whole leaf has a large surface area to absorb sunlight.

Ambitious Vocabulary

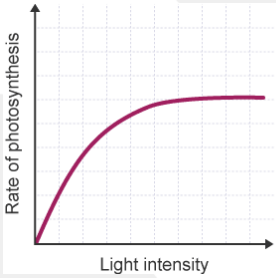
Lower epidermis, waxy cuticle, stomata

Limiting Factors

A plant's rate of photosynthesis is affected by factors such as light intensity, the concentration of carbon dioxide and the temperature of its surroundings.
A limiting factor is something that constrains the growth or abundance of any organisms or population.
Photosynthesis slows down or stops if the conditions aren't sufficient enough.

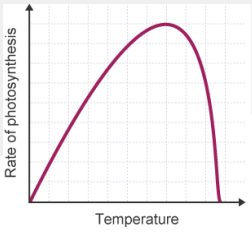
Light Intensity

Low light intensity would slow down the rate of photosynthesis as light provides the energy for the process of photosynthesis.



Carbon Dioxide

If there is too little carbon dioxide, the rate of photosynthesis will slow down. Carbon dioxide may be limited in enclosed spaces. Plants



Temperature

If it is too cold, the rate of photosynthesis will decrease as the enzymes can't work effectively.
Equally plants cannot photosynthesise if it gets too hot as this causes their enzymes