

Photosynthesis



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Photosynthesis

- It is a food making process in the plants.
- Green plants synthesise their food themselves by the process of photosynthesis. So, they are also called autotrophs.
- All other living organisms obtain their food from plants either directly or indirectly.
- This process occurs in leaves of the plants. So, we can also call leaves as FOOD – FACTORIES of the plants.



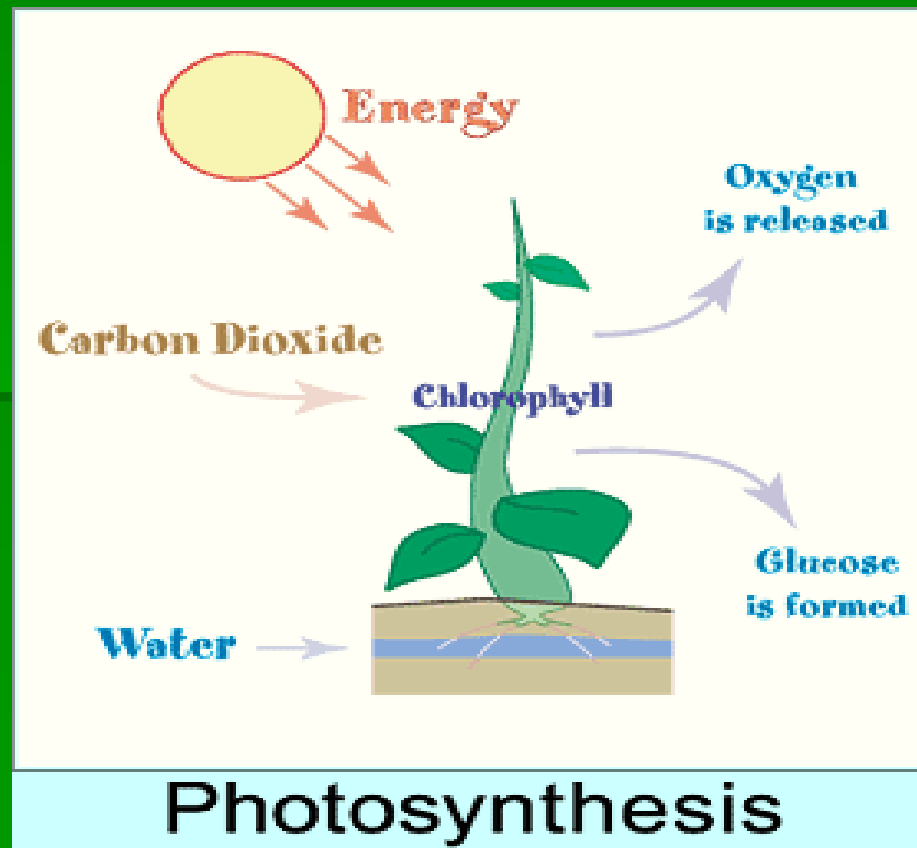
Q1 What is the source of energy in the process of photosynthesis?

Q2 Name the gas that is used by the plants in the process of photosynthesis?

Q3 Which gas is the waste product of photosynthesis?

Q4 What is the source of water in the plants for photosynthesis?

Q5 which part of the plant helps to absorb water and minerals?



- All the raw materials must reach to leaves.
- Water and minerals present in the soil are absorbed by the roots and transported to the leaves.
- Carbon dioxide from air is taken in through the tiny pores present on the surface of the leaves. These pores are called stomata.

What is so special about the leaves that they can only synthesise food but not other parts of the plant ?

The leaves have a green pigment called chlorophyll which helps leaves to capture the energy of the sunlight.

This energy is used to synthesise (prepare) food from carbon dioxide and water. Since the synthesis of food occurs in the presence of sunlight, it is called photosynthesis (PHOTO: LIGHT; SYNTHESIS : TO COMBINE).

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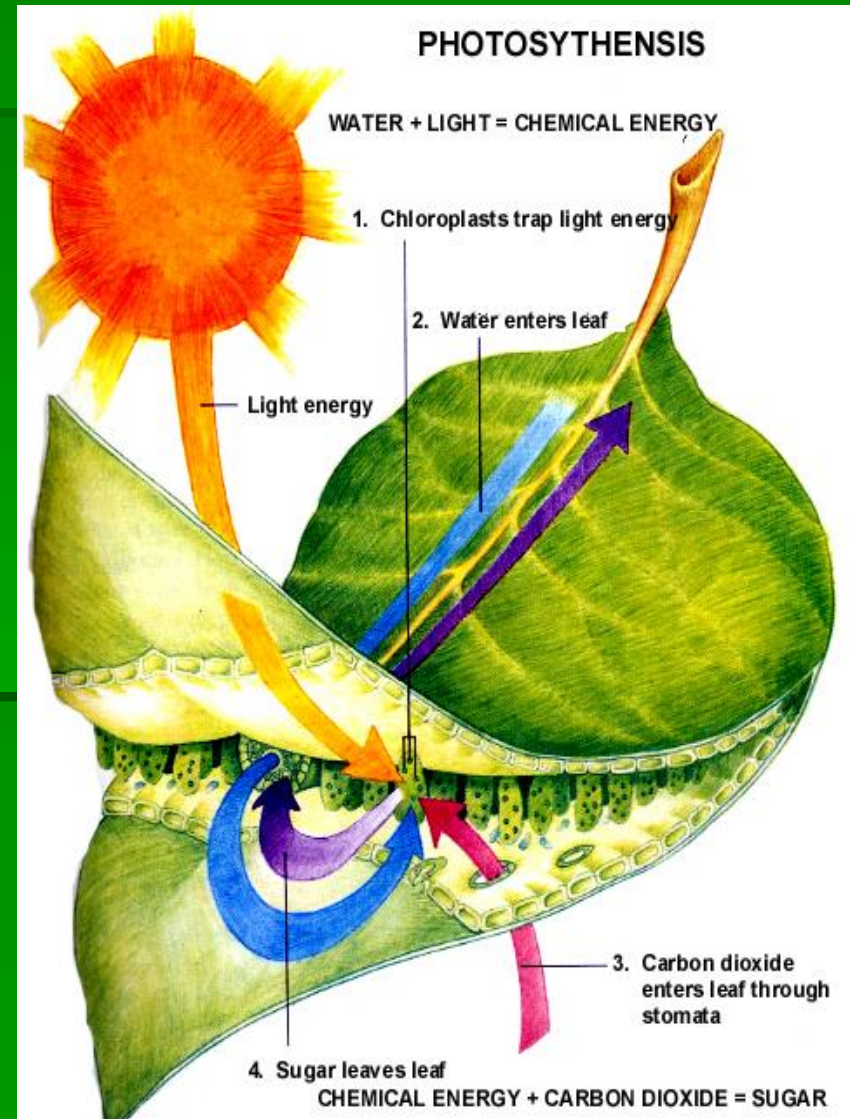
SHAPE OF THE LEAF

Wide

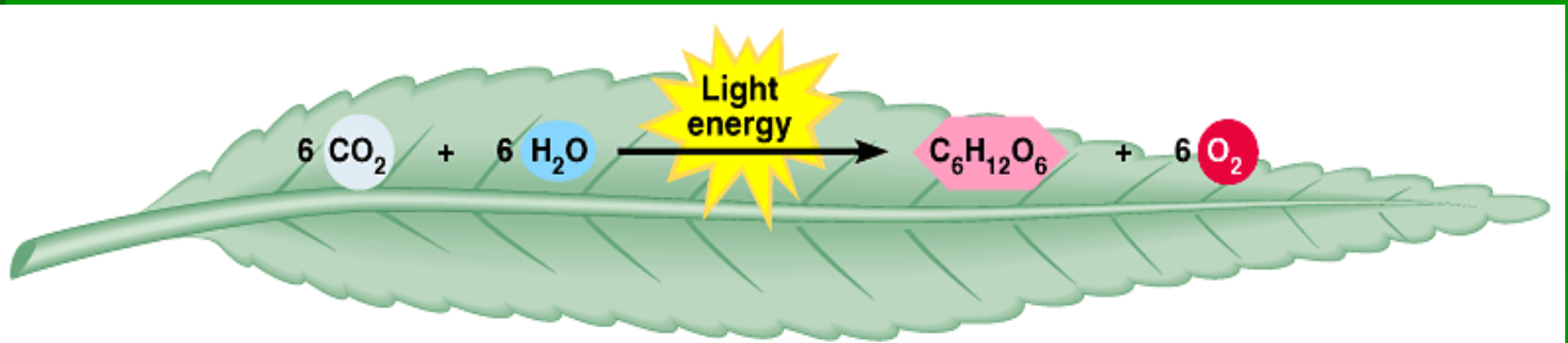
Helps to catch more light energy

Thin

Help get carbon dioxide from bottom to top of leaf for photosynthesis



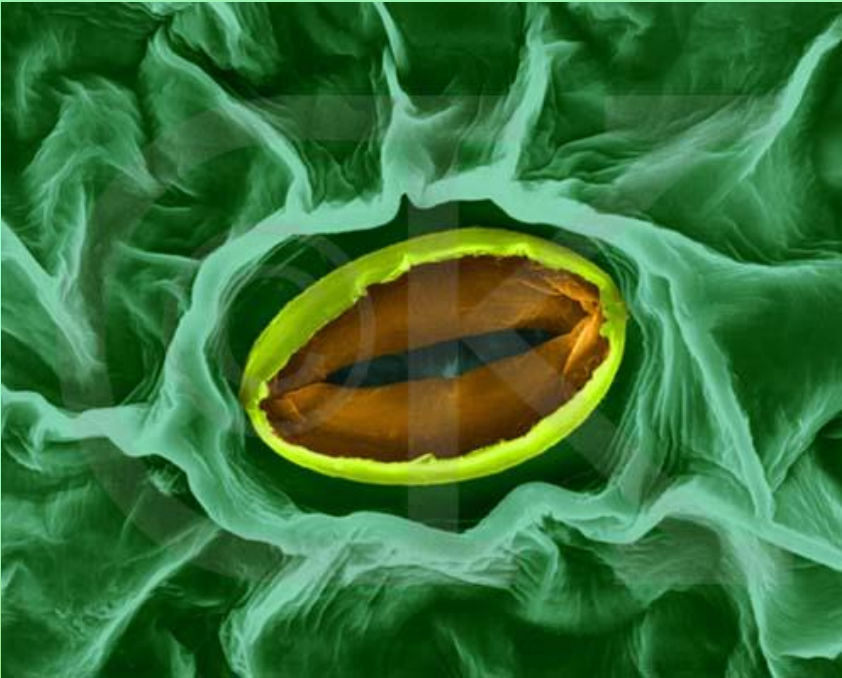
During photosynthesis, chlorophyll containing cells of leaves in the presence of sunlight, use carbon dioxide and water to synthesise carbohydrates . The process can be represented as an equation:



Stomata

- The leaves have small holes called stomata on the under surface.
- Stomata in leaves are designed to allow carbon dioxide to get to the main chlorophyll layer at the top of the leaf.
- Each hole is open & closed by 2 guard cells.

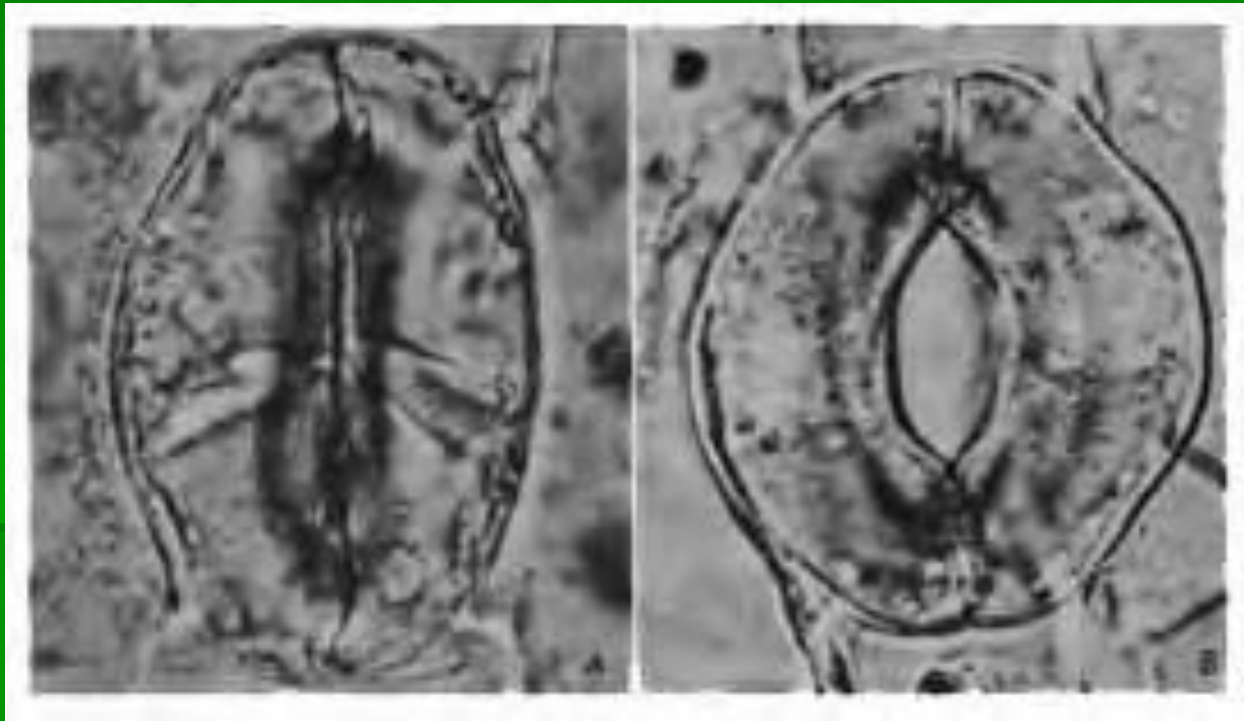
STOMA



- 'Stoma'- from the Greek word for mouth
- Stoma were so named because of their appearance

Stoma is a small hole

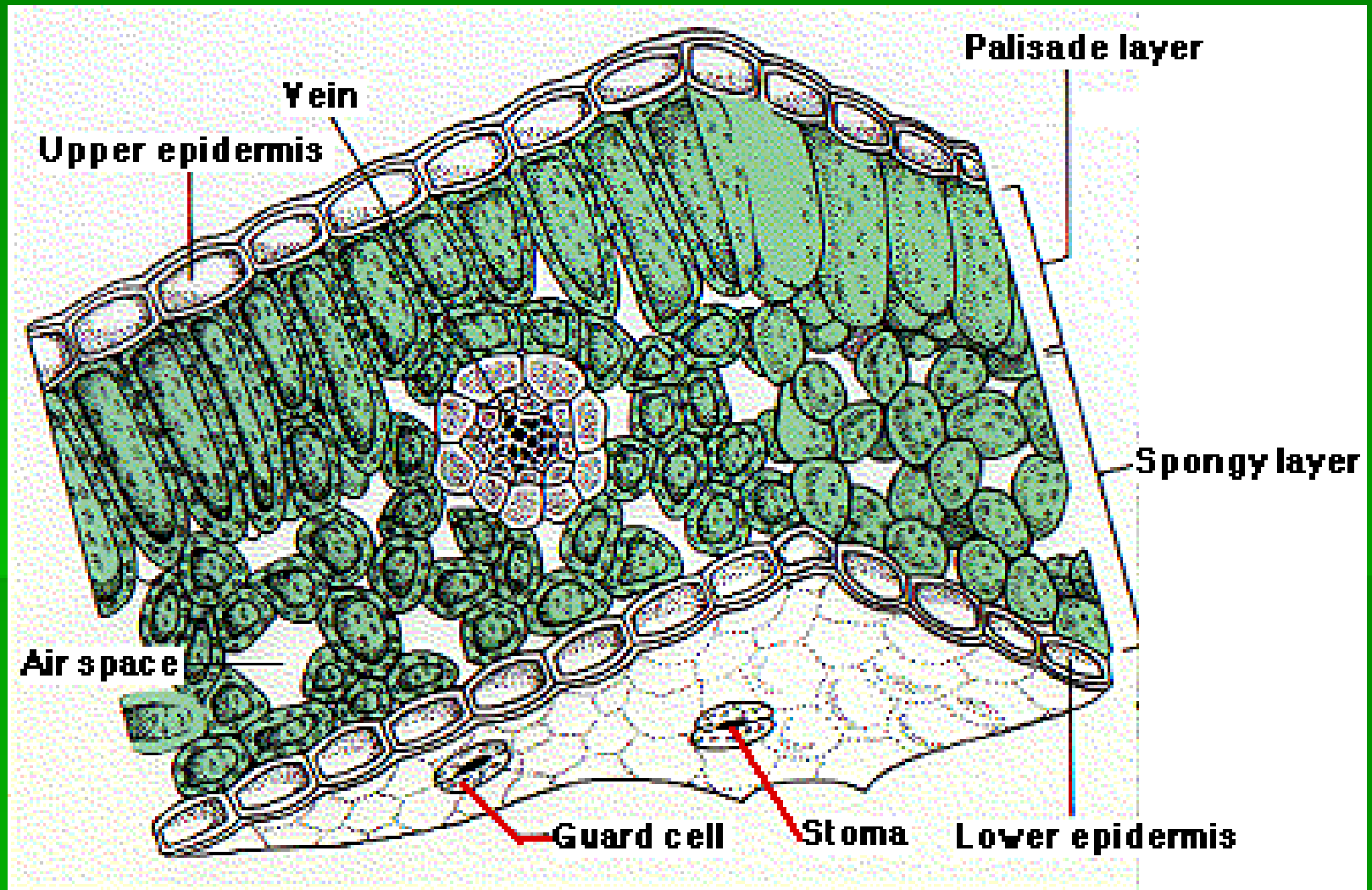
Its size is controlled by 2 guard cells



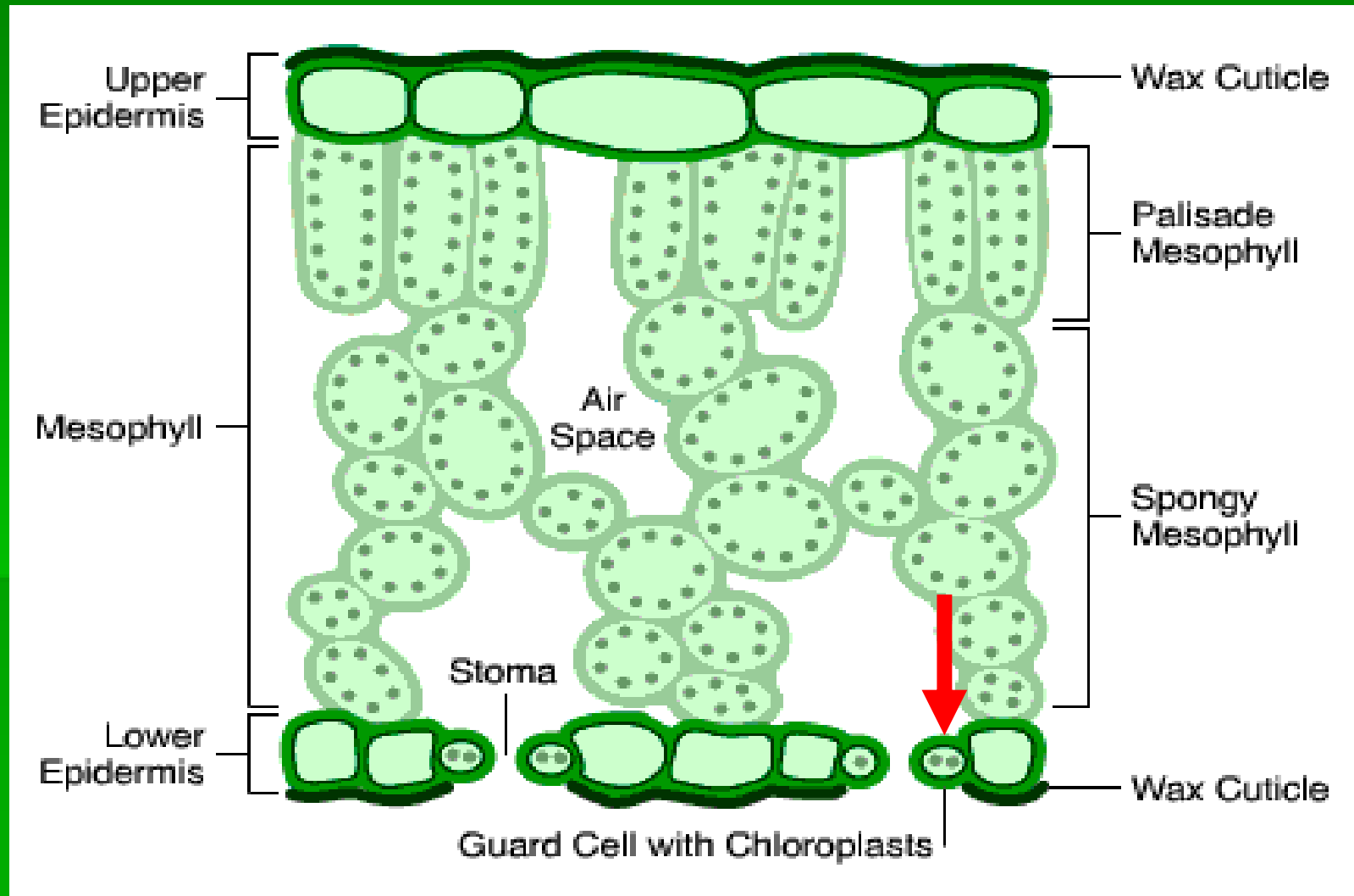
closed

open

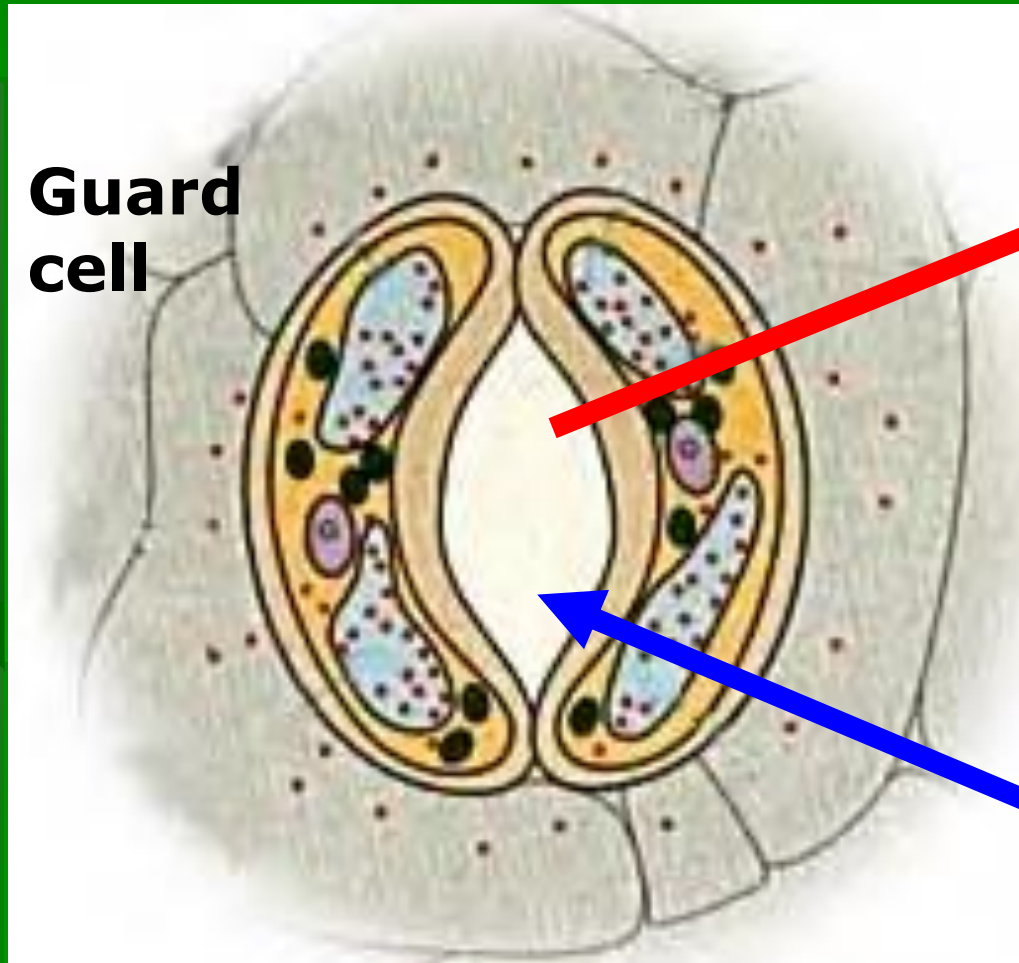
Stoma position



INTERNAL STRUCTURE OF THE LEAF



Stoma function is to exchange gases in the leaf



**Guard
cell**

oxygen

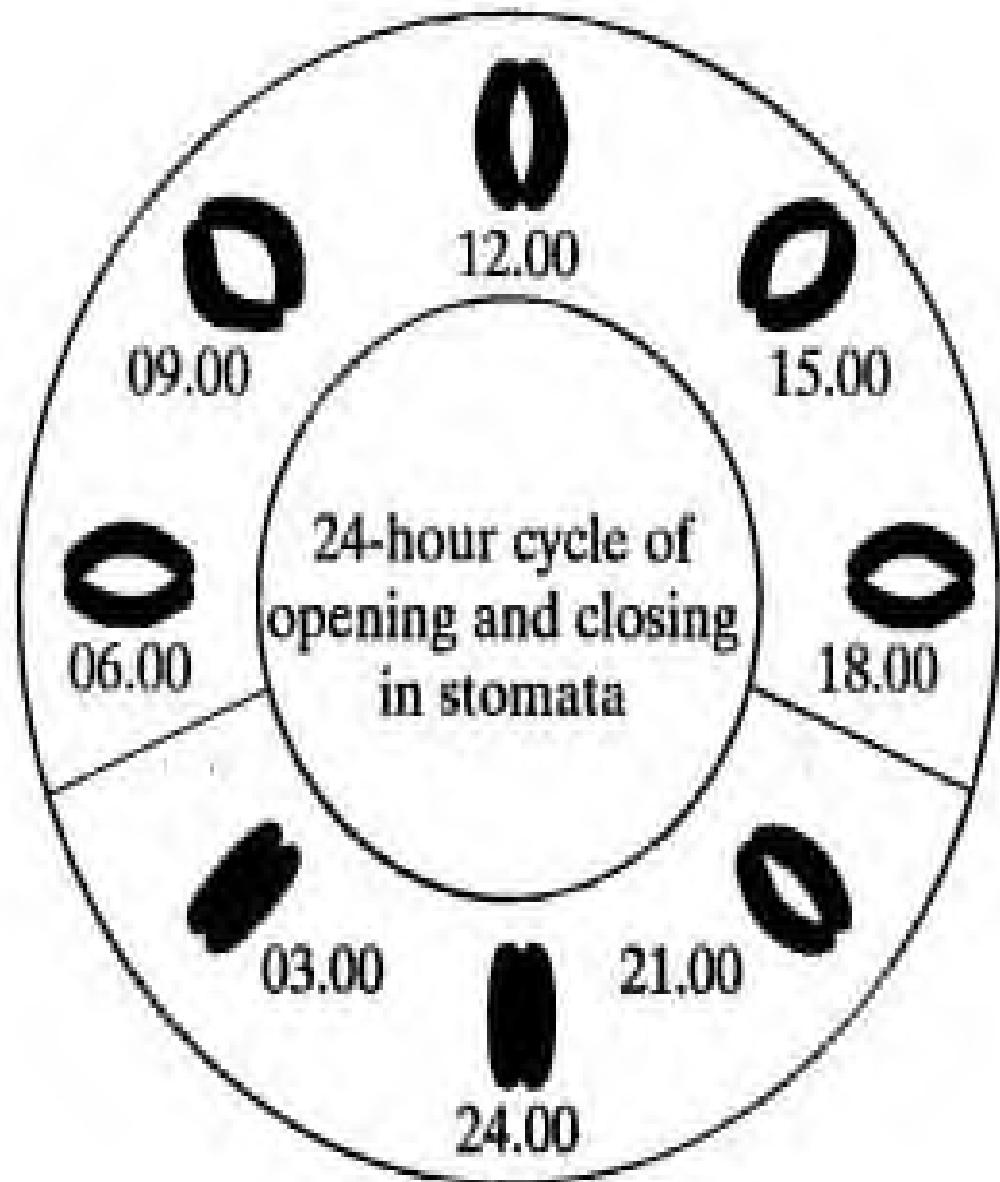
Provided plant is
photosynthesising

Carbon
dioxide

Stomata open and close at different times of the day

When it is light the plant needs CO_2 for photosynthesis so the stoma open

At night (darkness) they close



RECAPITULATION

Photosynthesis – what we know (or *should* know!!..

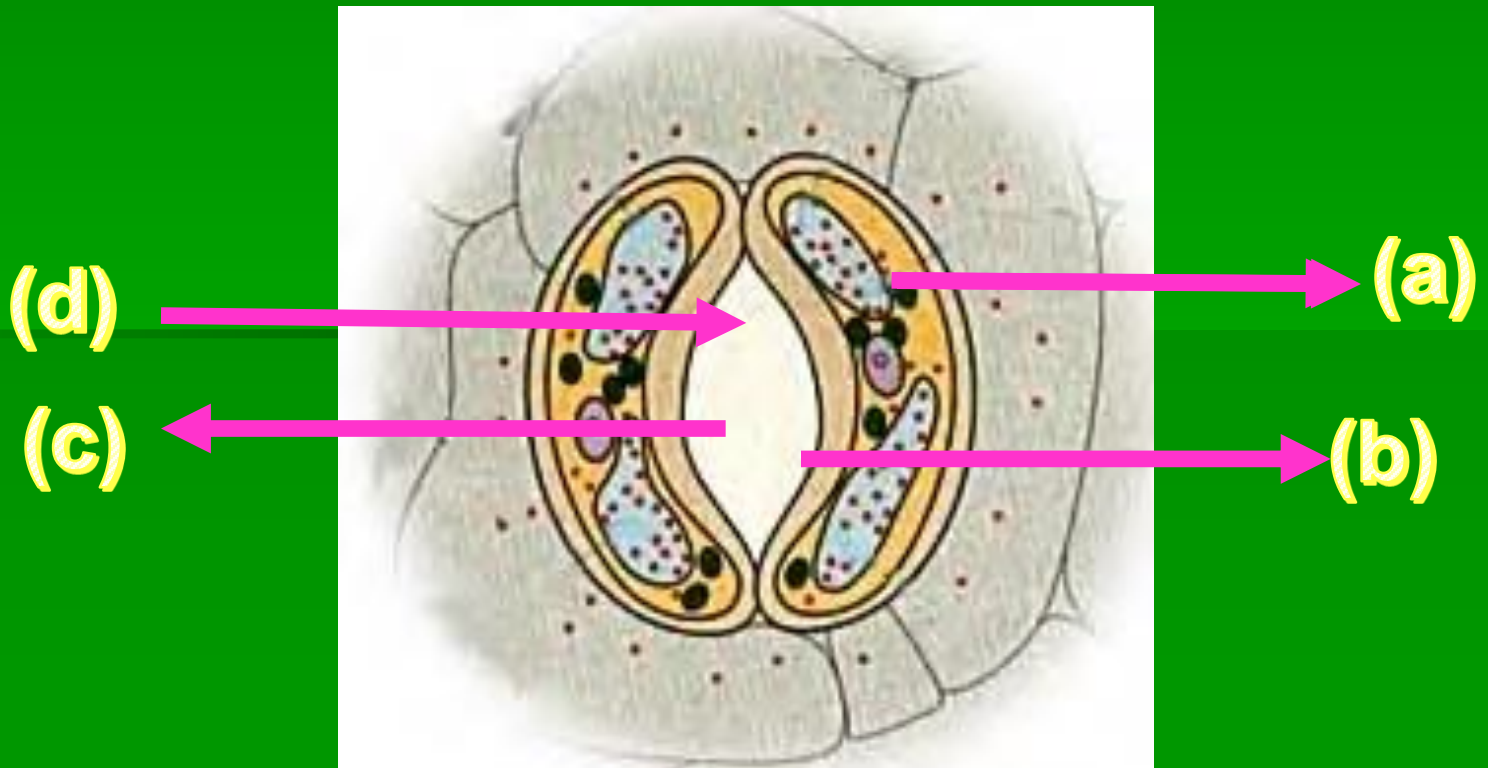
- “Building from light.”
- So we find that chlorophyll, sunlight, carbon dioxide and water are necessary to carry out the process of photosynthesis.
- Converts carbon dioxide into carbohydrates.
- Carried out by autotrophs
- All life either depends on it directly as a source of energy, or indirectly as the ultimate source of the energy in their food.

LEARNING ASSESSMENT TEST

Q1. Where is chlorophyll found in the plants?

Paste the given stickers according to the instructions given.

- (1) Name the part (a)
- (2) Name the part (b)
- (3) which gas goes out from (c)
- (4) which gas comes in from (d)



HOME ASSIGNMENT

Answer the following questions-

1. What is the function of stomata?
2. Why leaves are green in colour?
3. Write the equation of the photosynthesis.

**"Life is bottled
sunshine"**

Wynwood Reade, Martyrdom of Man, 1924

