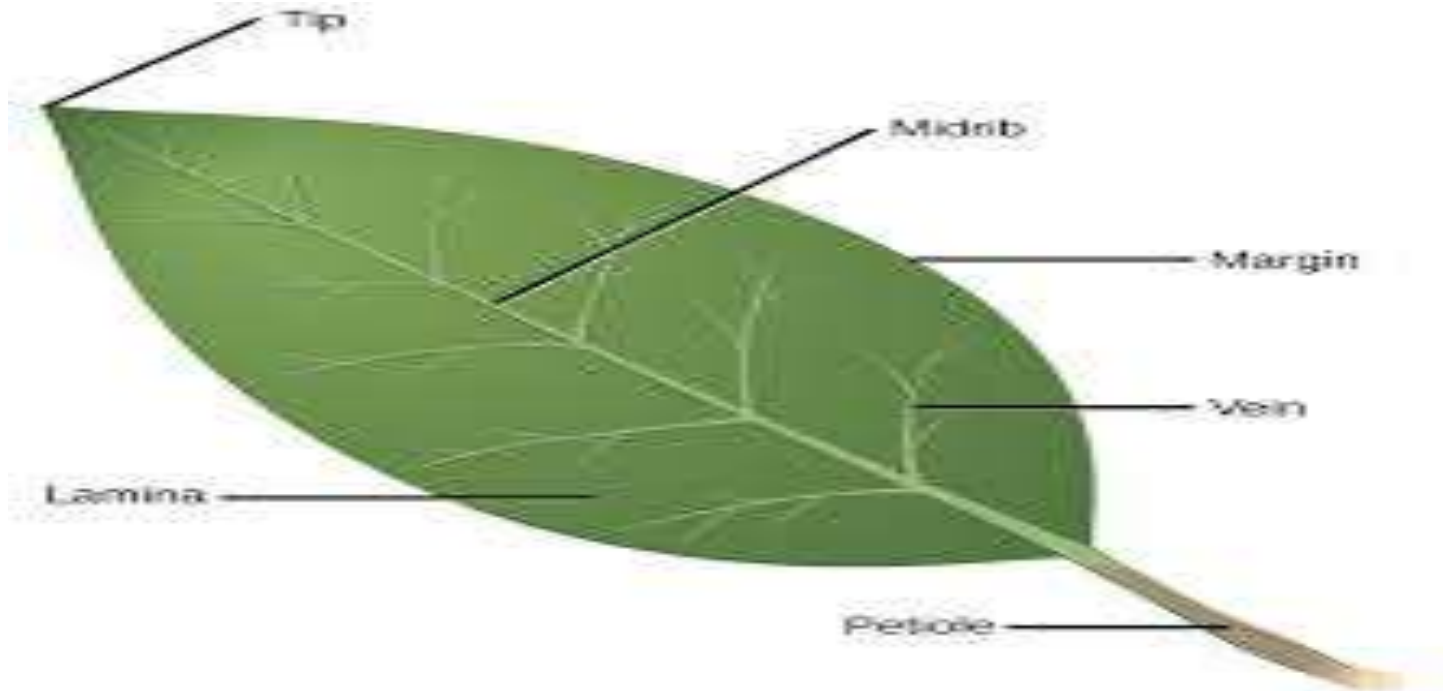




PHOTOSYNTHESIS

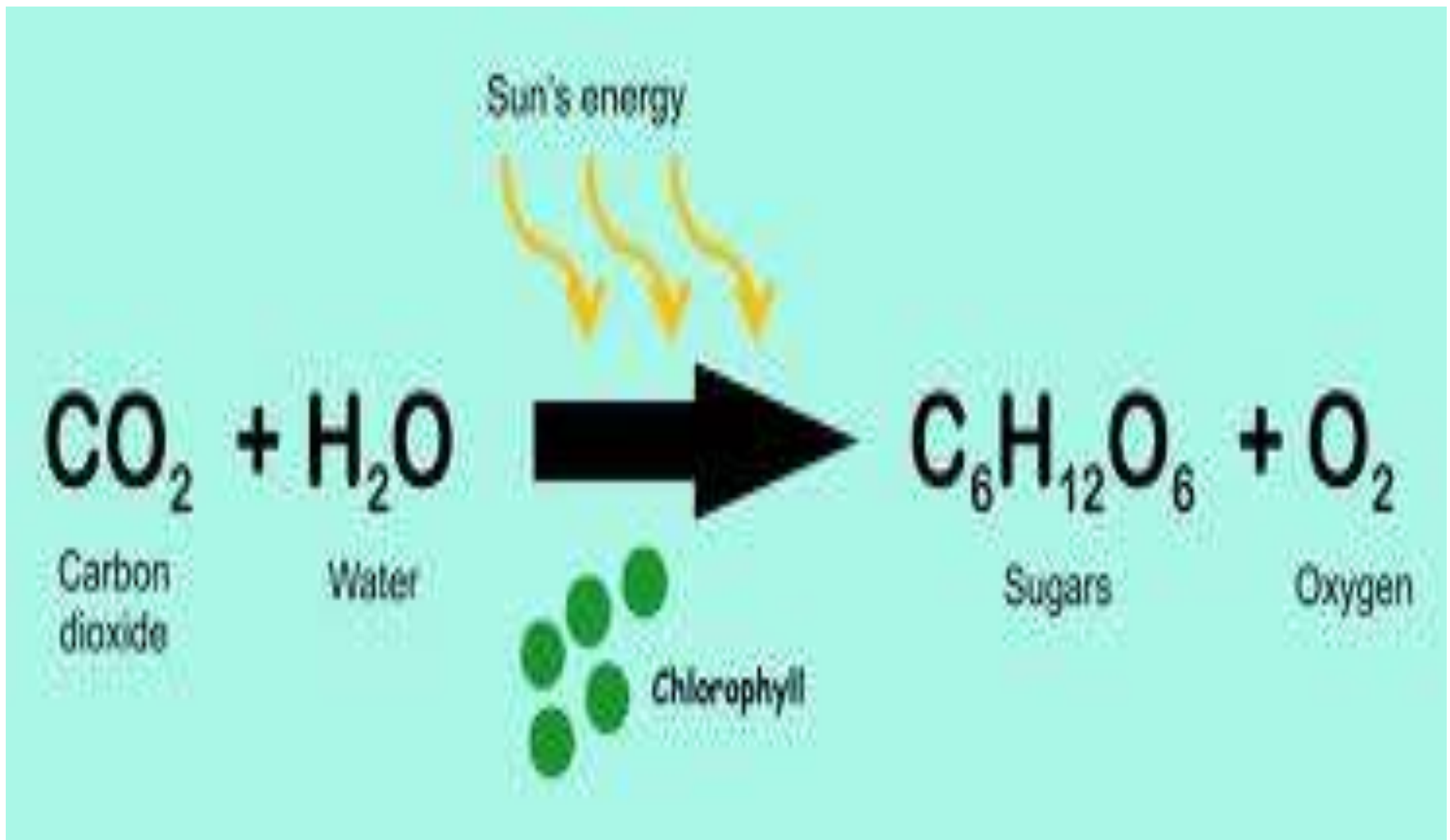


INTRODUCTION

- Photosynthesis is the process by which plants make food substances using **carbon dioxide** ,water and **light** energy.
- **Chlorophyll** found in leaves trap the light energy.
- Glucose is the main product while **oxygen** is the by-product.
- Photosynthesis takes place in the leaves.

- Photosynthesis happens inside **chloroplasts**.
- Chloroplasts contain the green pigment called chlorophyll which **absorbs/ traps** sunlight and uses its energy to convert **carbon** dioxide and **water** into **glucose**.

Word and symbol equations.



Photosynthesis



carbon dioxide + water \longrightarrow glucose + oxygen

Importance of photosynthesis.

- Photosynthesis is an important process because it converts light energy to chemical energy which is stored as glucose and eventually converted to starch for long term storage.
- This chemical energy is released when glucose is broken down during respiration.

Respiration equation

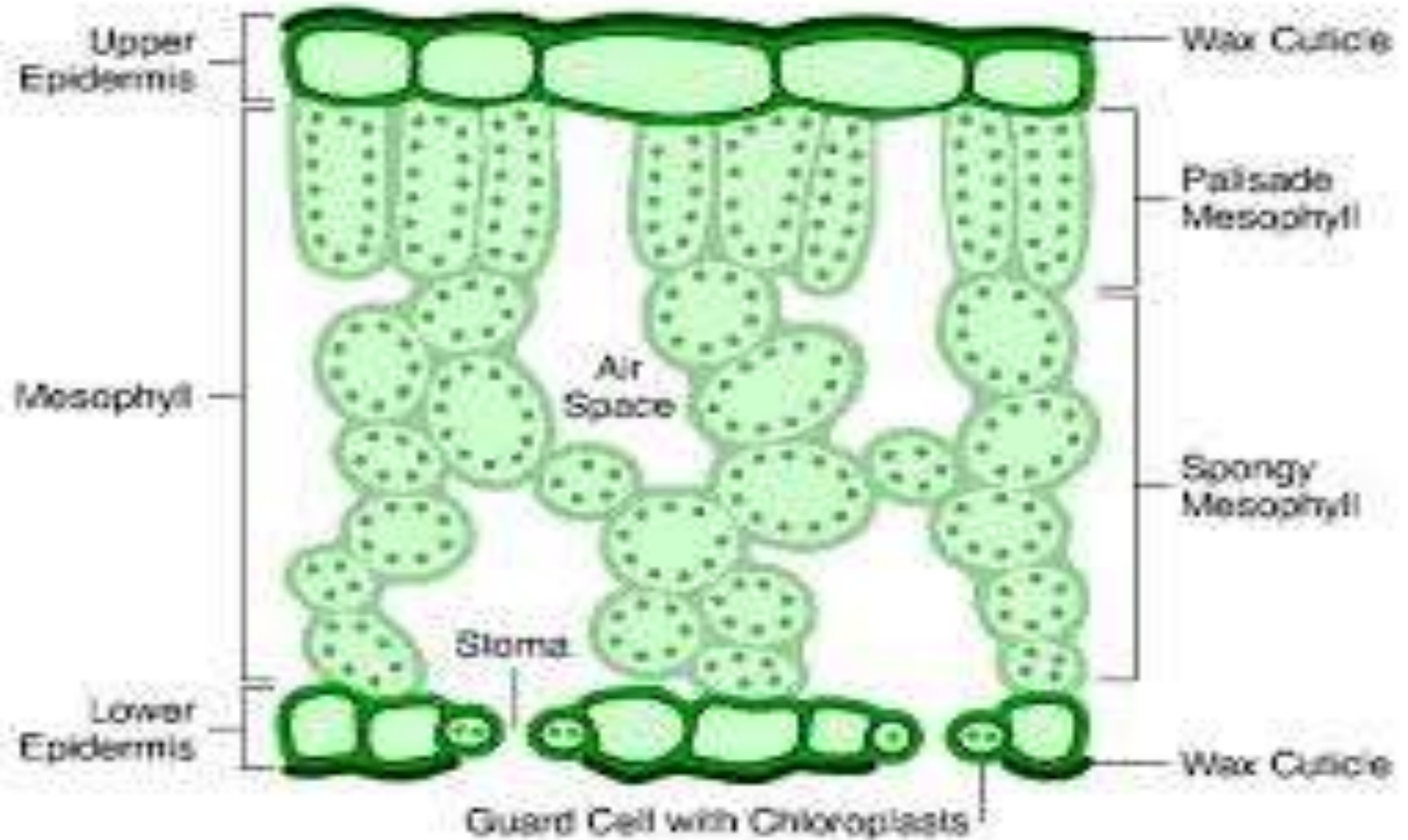


(glucose + oxygen → water + carbon dioxide + energy)

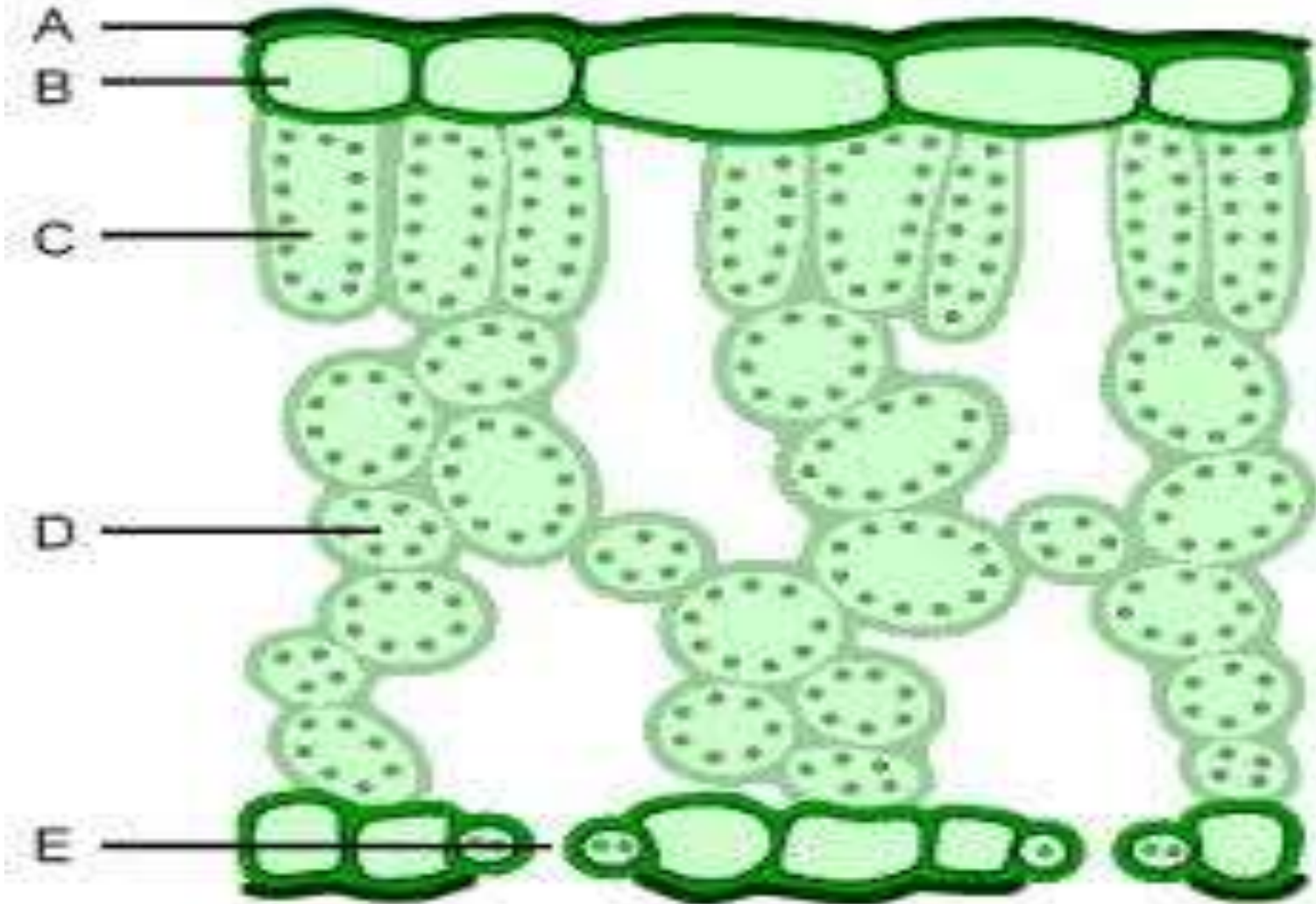
The leaf structure.



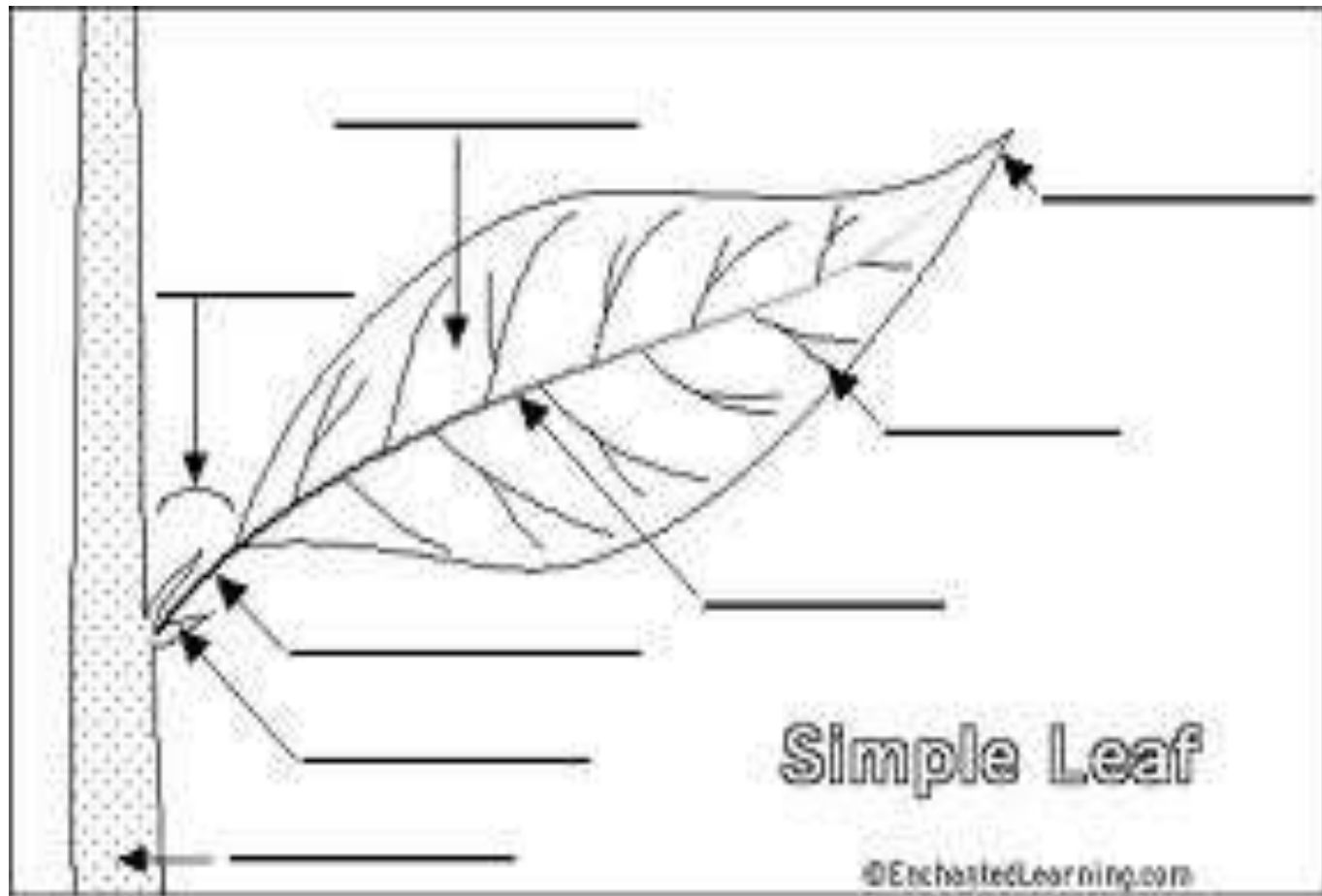
Internal structure



Write these labels in the worksheet



External structure

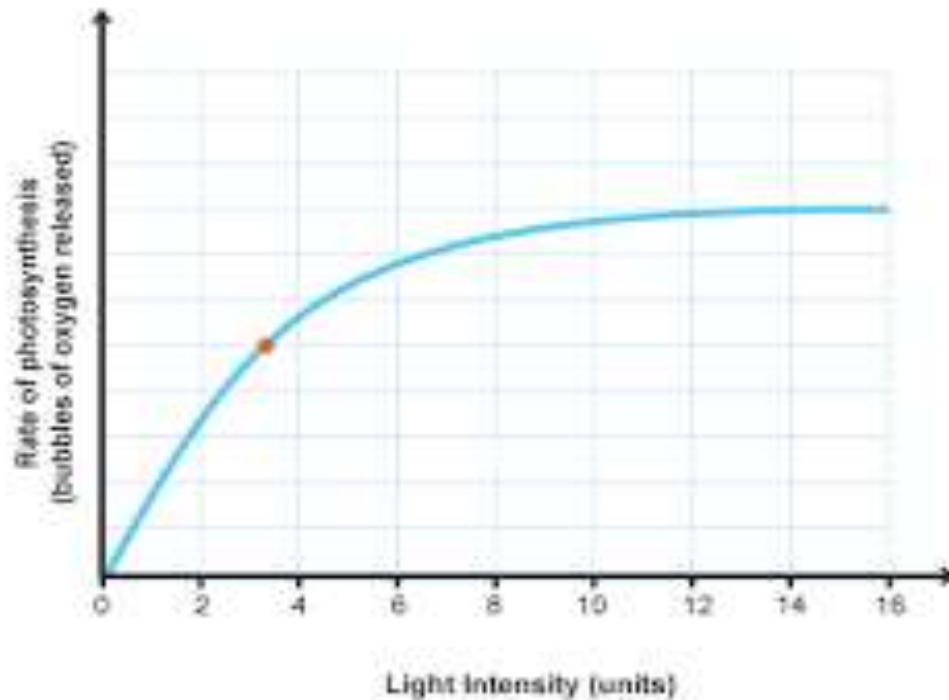


Adaptations of leaves.

1. The leaves are wide to increase surface area for light absorption.
2. Most of the chloroplasts are found in the **palisade layer** the top of the leaf for more **light** absorption.
3. Upper epidermis is **transparent** to allow light to pass through to the palisade layer.
4. Leaves have **veins** to transport substances to and from the leaves.
5. **Waxy cuticle** helps to reduce water loss by **evaporation**
6. Leaves have many **stomata** and air spaces for efficient gas exchange.
7. Leaves are **thin** to reduce **diffusion** distance for gases.

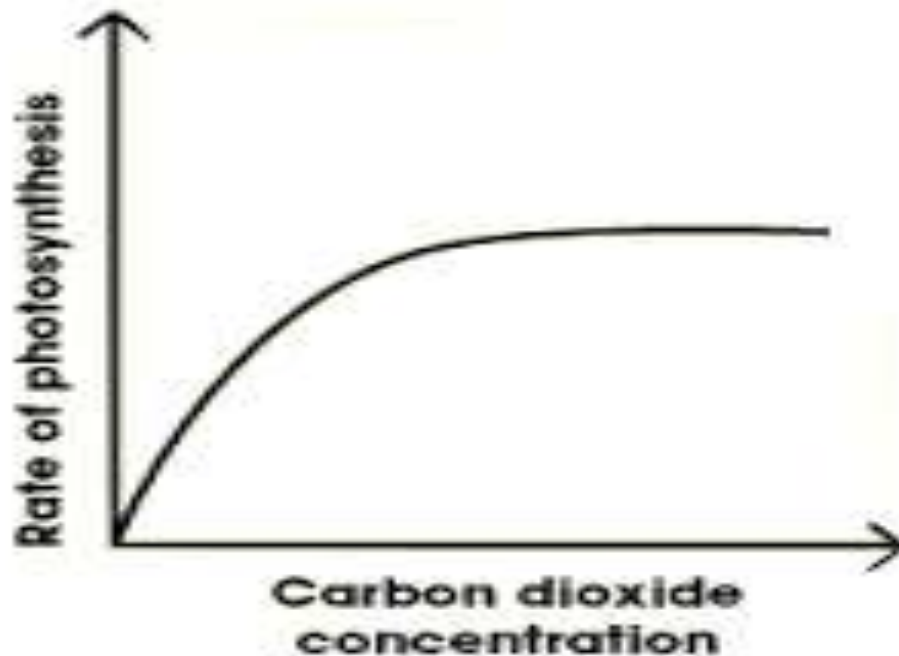
Factors that affect the rate of photosynthesis.

- **Light intensity.** The higher the light intensity the faster the rate of photosynthesis.



Carbon dioxide concentration.

- As carbon dioxide concentration increases , the rate of photosynthesis increases.



Temperature

- As temperature increases the rate of photosynthesis increases Up to the optimum temperature

