

محاضرة عن التنفس والبناء الضوئي لطلاب المستوى
الثالث برنامج التكنولوجيا الحيوية
دياسر الحفنى – قسم المحاصيل

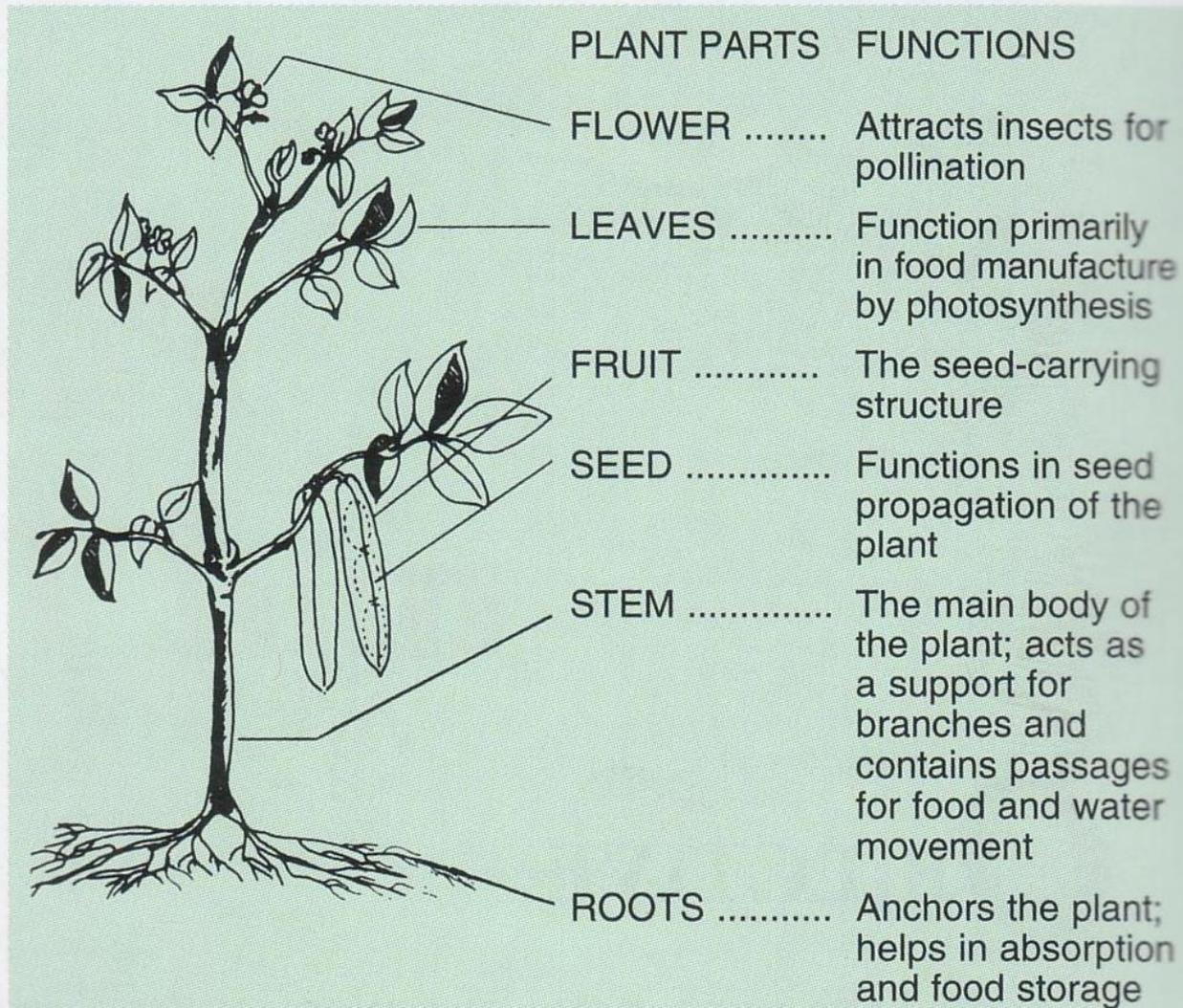
Introduction

As plants grow to maturity, the cells are produced, divide, grow & become specialized organs. ●

Stems, leaves, roots, flowers, fruits, seeds. –

Physiology – study of how these organs function and the complex chemical processes that permit the plant to live, grow and reproduce. ●

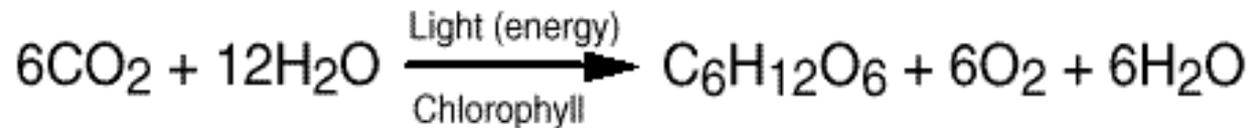
Major Parts of a Plant



Photosynthesis

Photosynthesis is the conversion of carbon dioxide and water in the presence of light (energy) and chlorophyll into glucose, oxygen and water. •

Photosynthesis Formula



Rate of Photosynthesis

The rate of photosynthesis varies with the light intensity, temperature and concentration of carbon dioxide in the atmosphere. ●

Light Intensity is the quality of light, or brightness of light. ●

Photosynthesis occurs best in a temperature range of 65-85°F. ●

Extreme temperatures slow down or stop the process – completely.

A lack of carbon dioxide can be a limiting factor in the photosynthesis process. ●

Respiration

All living cells carry on the process of respiration. ●

Respiration is the process by which living cells (plant or animal) take in oxygen and give off carbon dioxide. ●

Respiration occurs both day and night. ●

Respiration

- Respiration is a breaking down process ●
- Uses sugars & starches produced by photosynthesis and converts them into energy. ●

Respiration Formula



Photosynthesis vs. Respiration

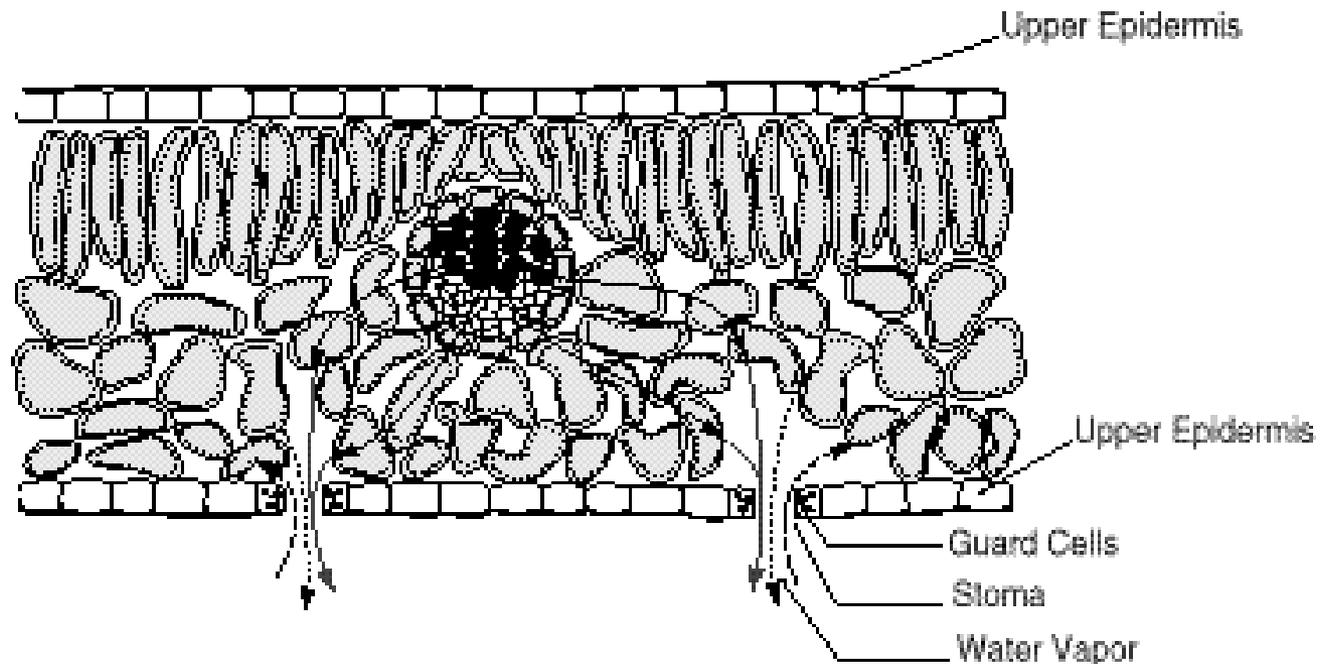
PHOTOSYNTHESIS

RESPIRATION

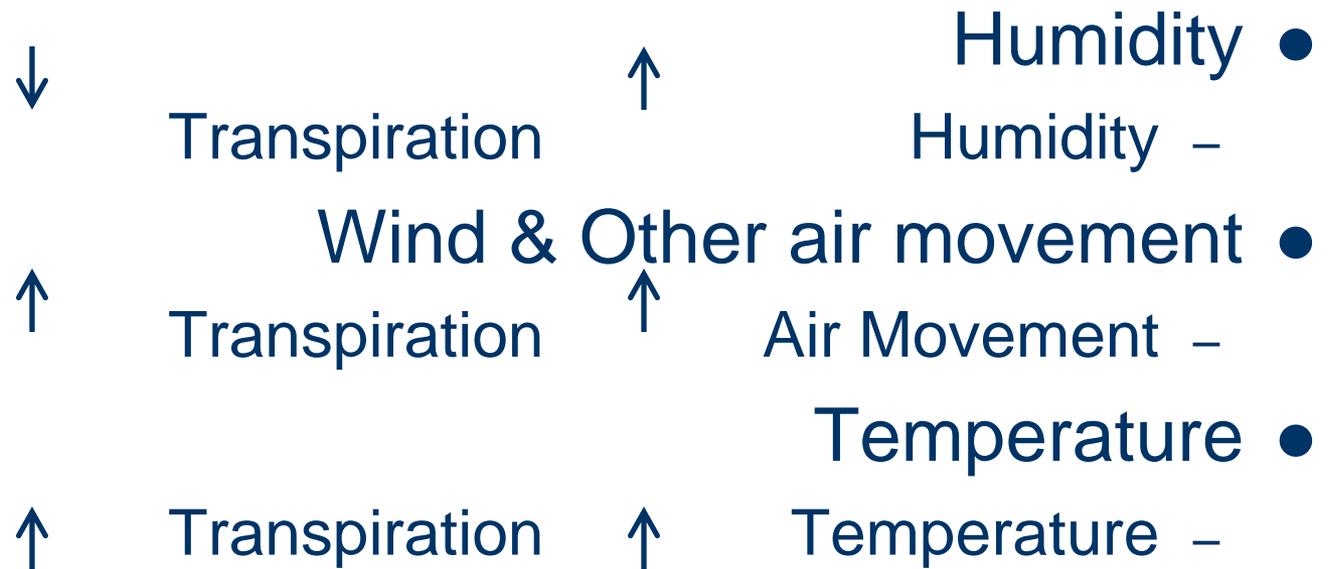
1. Food is produced	1. Food is used for plant energy
2. Energy is stored	2. Energy is released
3. Occurs in cells containing chloroplasts	3. Occurs in all cells
4. Oxygen is released	4. Oxygen is used
5. Water is used	5. Water is produced
6. Carbon Dioxide is used	6. Carbon Dioxide is produced
7. It occurs in sunlight	7. It occurs in light and dark

Transpiration

The Process of Transpiration



How is transpiration affected?



How is transpiration affected?

- During dry weather, transpiration often causes the plant to lose water faster than it can be replaced by the root system.
- When this occurs, the guard cells will close to slow down the rate of transpiration.
- Enables the plant to preserve the water it contains