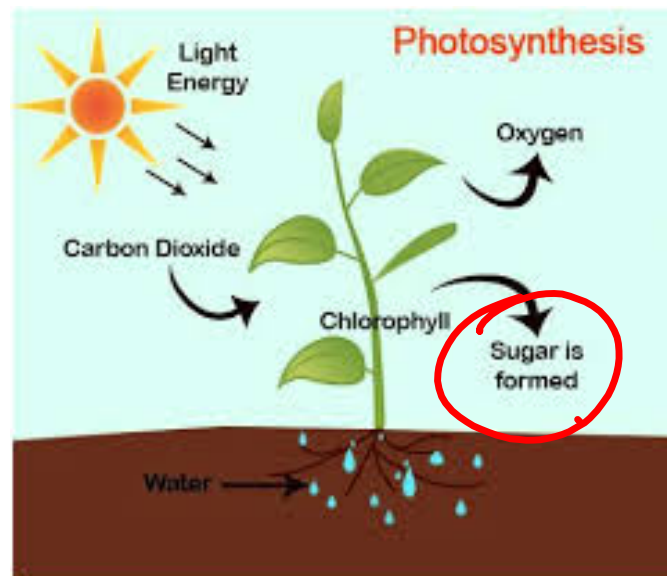


Photosynthesis



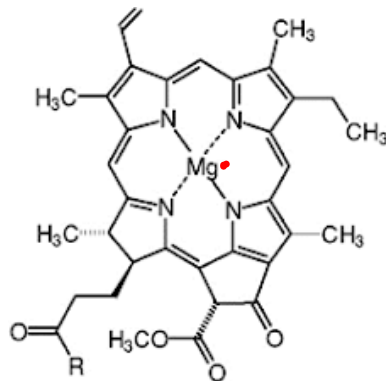
Photosynthesis nourishes almost all of the living world directly or indirectly.

Organisms that create their own food using photosynthesis are called **photoautotrophs**.

They use the carbon from CO_2 to create biomolecules.

Chloroplasts are the sites of photosynthesis in plants.

The pigment, **chlorophyll**, absorbs certain wavelengths of light and converts that energy into chemical energy.



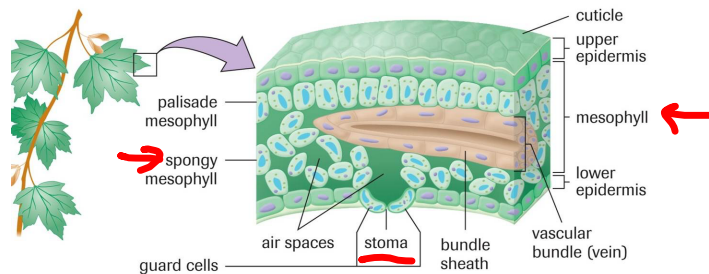
Key Structures in Plants:

Chloroplasts are found in the **mesophyll** of the leaf.

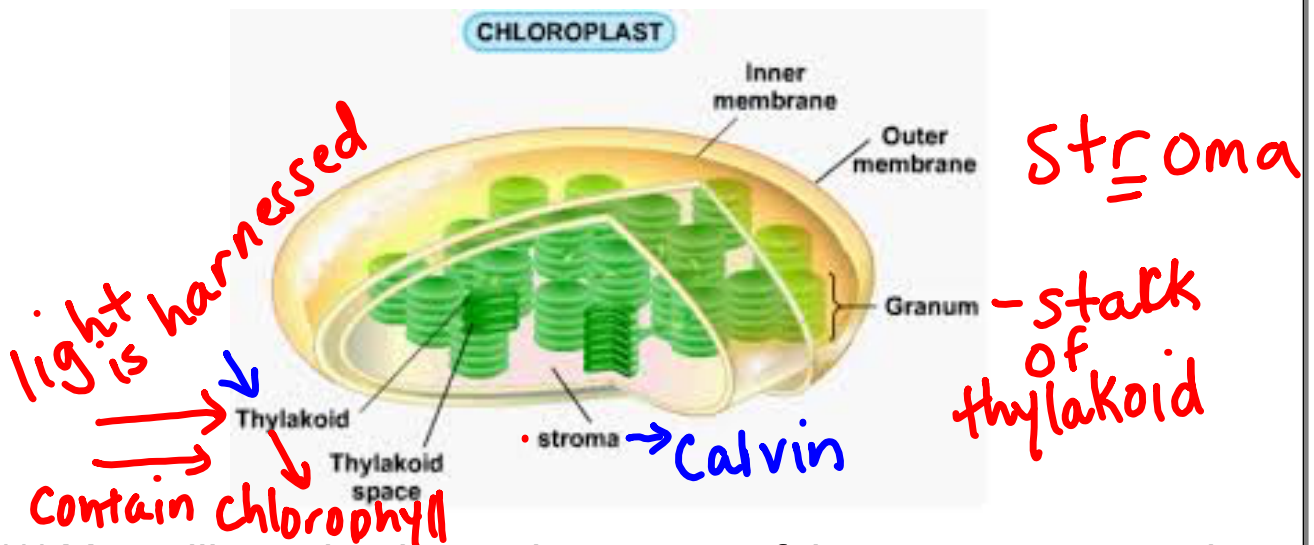
Gas exchange occurs through **stomata**.

Veins help distribute materials throughout the plant.

stoma →
gas
exchange
(O_2
+ O_2)



Structure of the Chloroplast

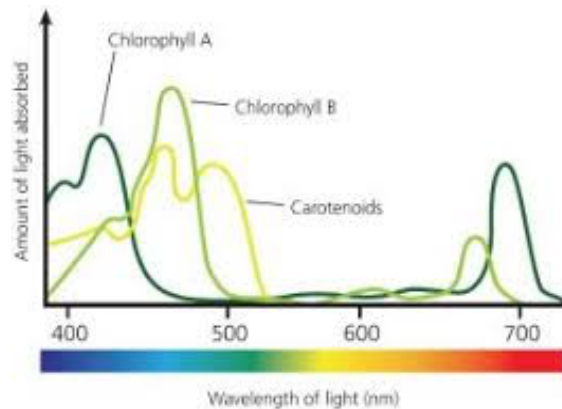


*** You will need to know the names of these structures and what occurs in each structure.

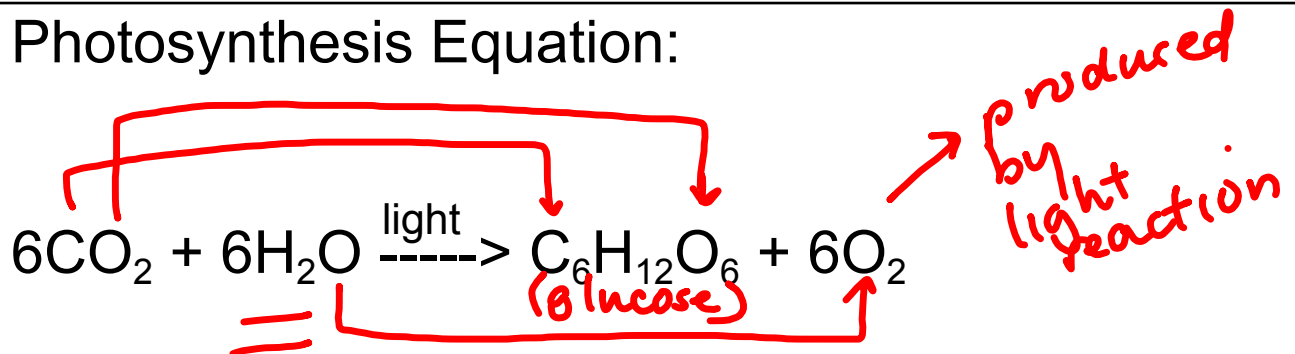
Remember that visible light ranges from 380 to 750 nm.

Different pigments will absorb different wavelengths of light.

Chlorophyll absorbs red and blue. It reflects green light.

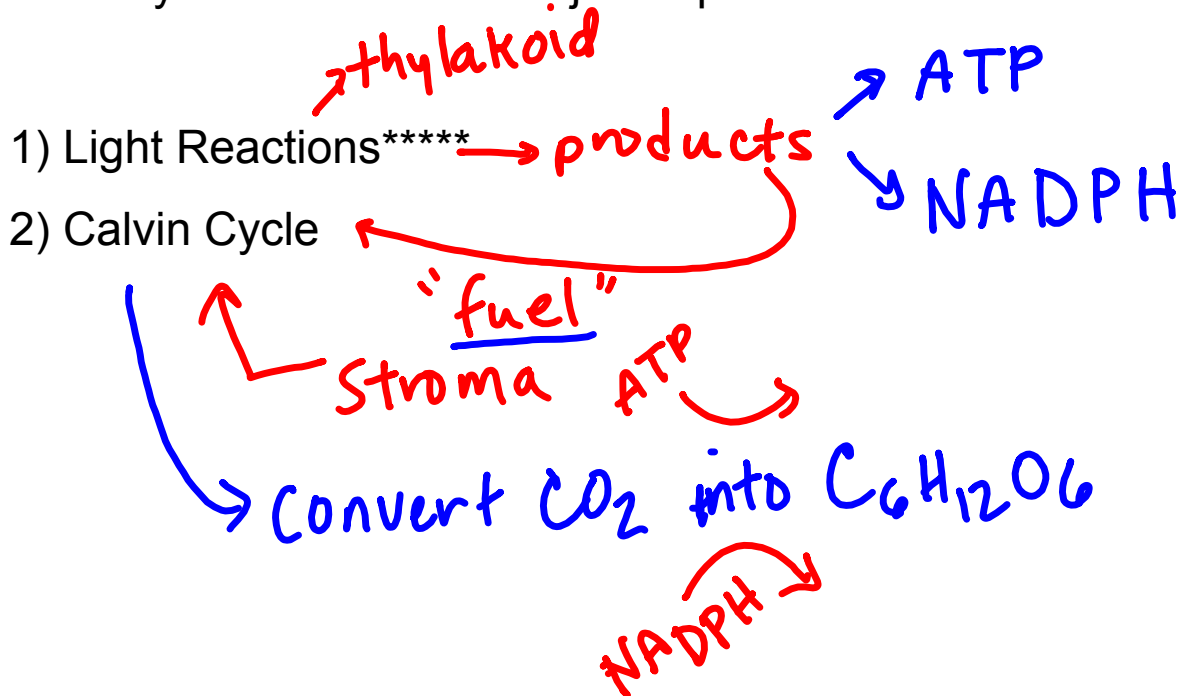


Photosynthesis Equation:



What is the fate of each of the elements in this equation?
Where do the carbon, hydrogen and oxygen go?

Photosynthesis has two major steps:



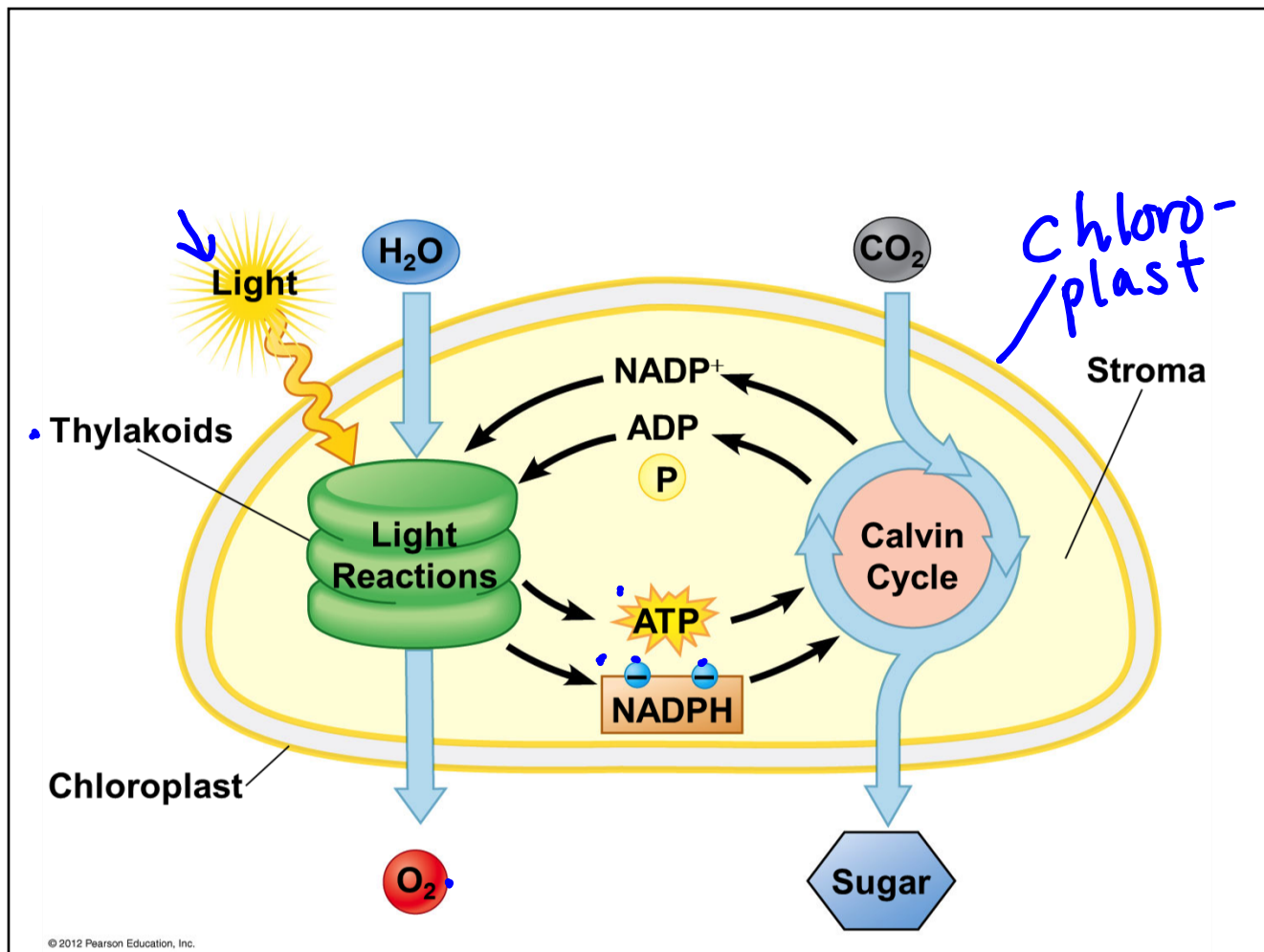


Figure 7.9-0

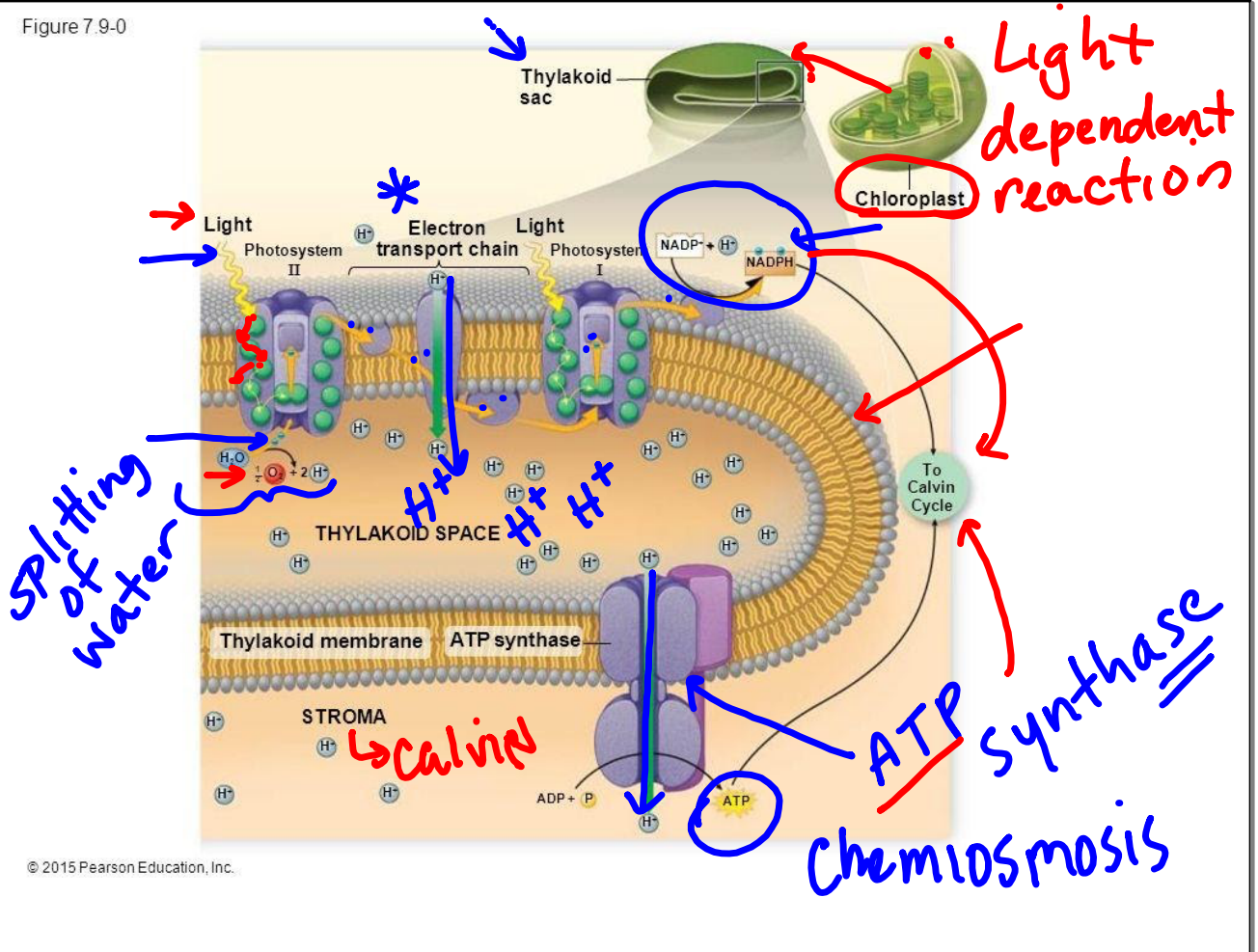
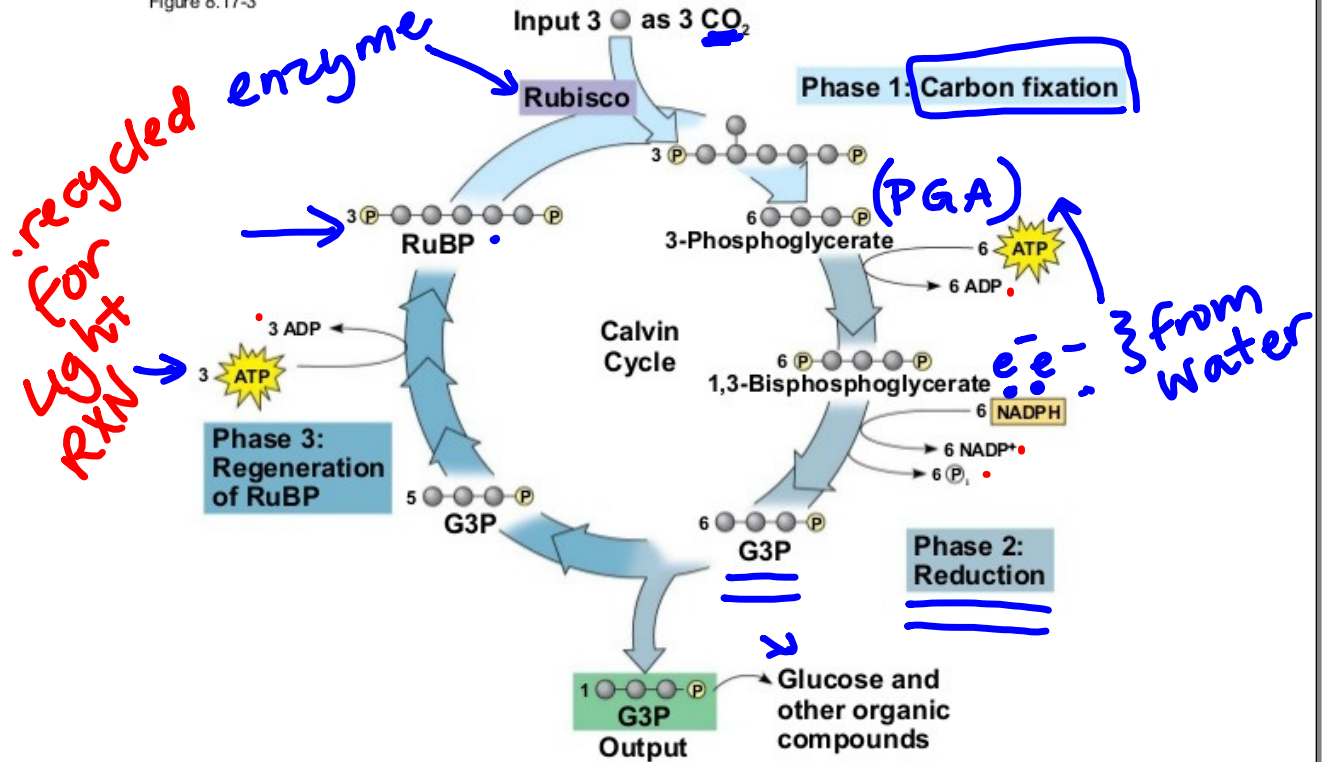


Figure 8.17-3



Summary of Photosynthesis Reactions:

- Photosynthesis has two major steps (Light Dependent Reactions and the Calvin Cycle)
- Parts of the Light Dependent Reactions (Photosystems I & II, Electron Transport Chain, NADPH, ATP Synthase)
- **Chemiosmosis** creates ATP at the end of the light reaction to fuel the Calvin Cycle (This term will come up again in cellular respiration)
- Steps of the Calvin Cycle (Fixation, Reduction, Regeneration)