

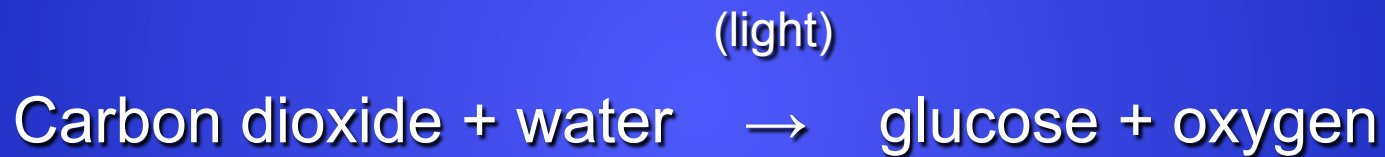
# Chapter 8-2: Photosynthesis: An Overview

## Essential Questions:

- What is the overall equation for photosynthesis?
- What is the role of light & chlorophyll in photosynthesis?
- What happens in the light-dependent reactions?
- What happens in the Calvin cycle?

- The Photosynthesis equation

- Words:

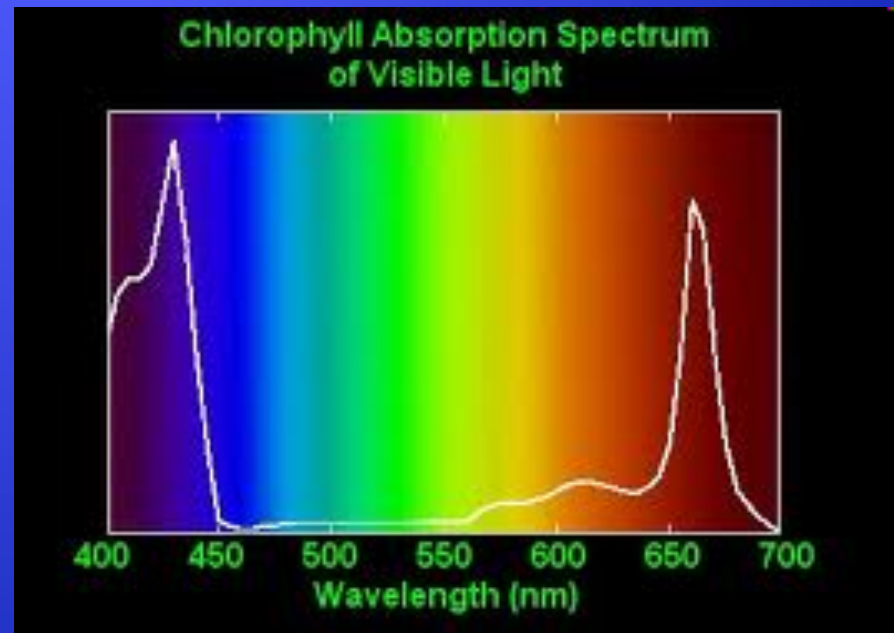


– Chem. Formula



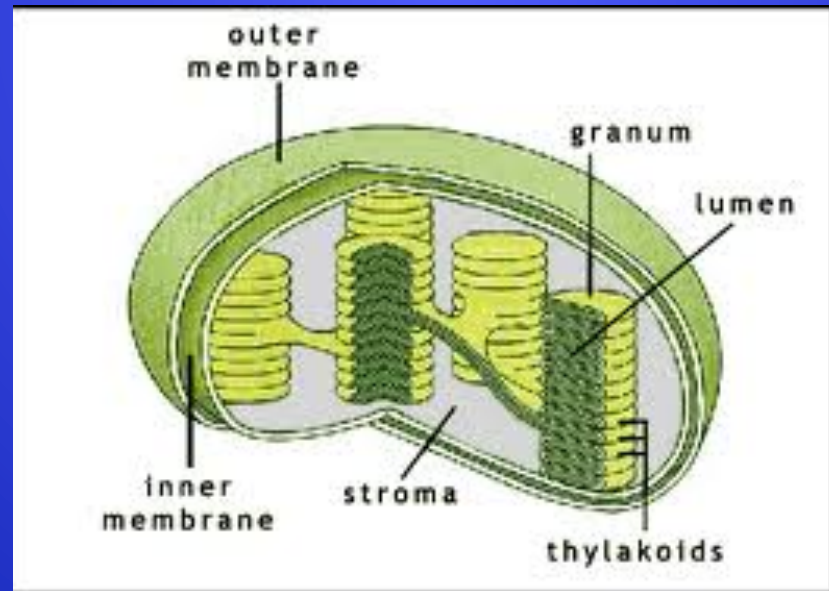
– Light & pigments

- Chlorophyll is main pigment
  - Absorbs red & blue well
  - Reflects green



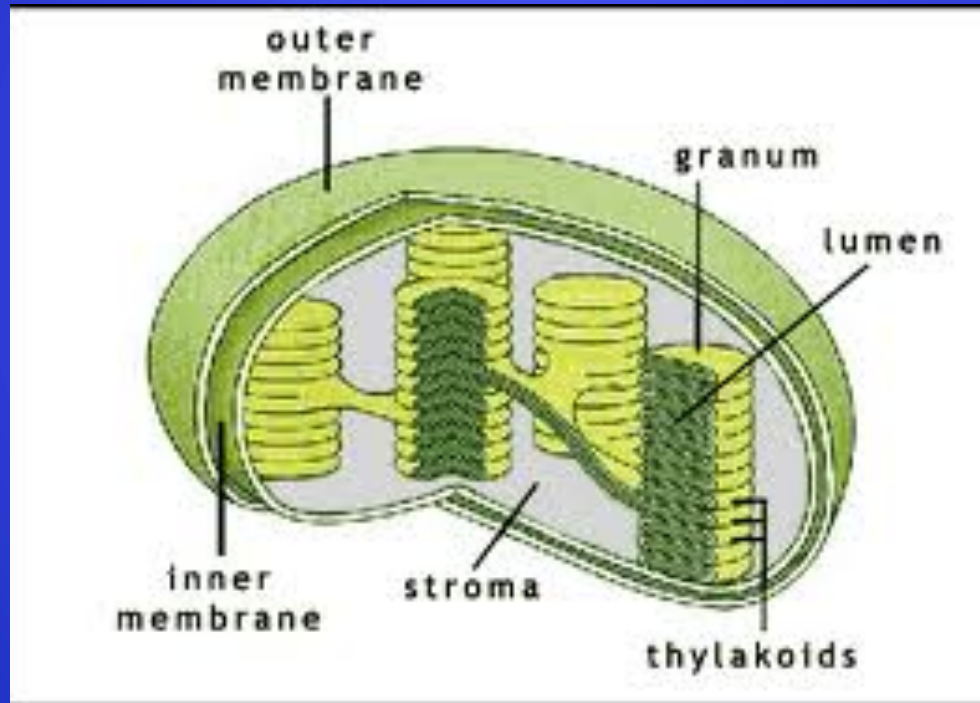
# Chapter 8-3: The Reactions of Photosynthesis

- Inside a chloroplast
  - Thylakoids – photosynthetic membranes stacked in grana (singular: granum)



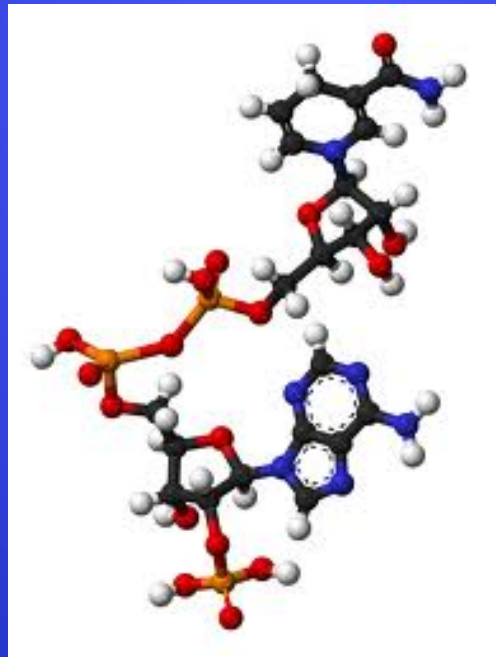
## – 2 stages of photosynthesis

- Light dependent: happens in thylakoids
- Light independent: happens in stroma (outside thylakoids)

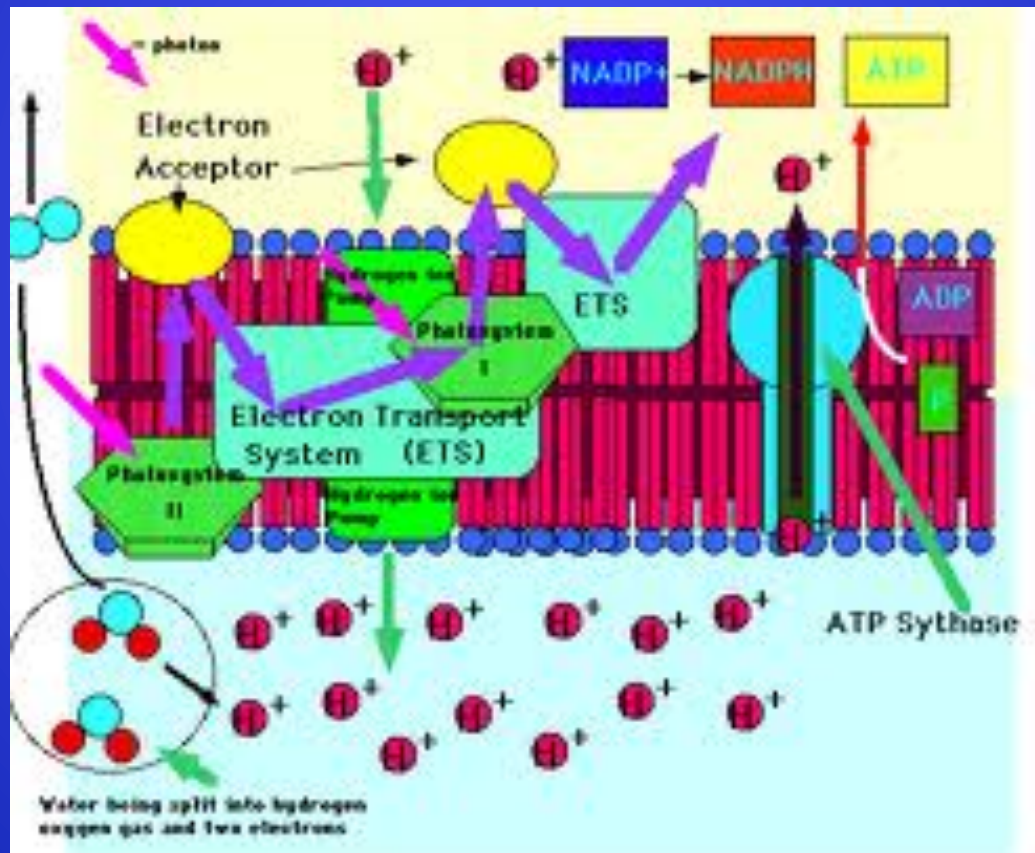


## ■ NADPH

- NADP<sup>+</sup> is a carrier molecule for high-energy electrons and an H<sup>+</sup> ion
- It becomes NADPH –this traps energy into a chemical form

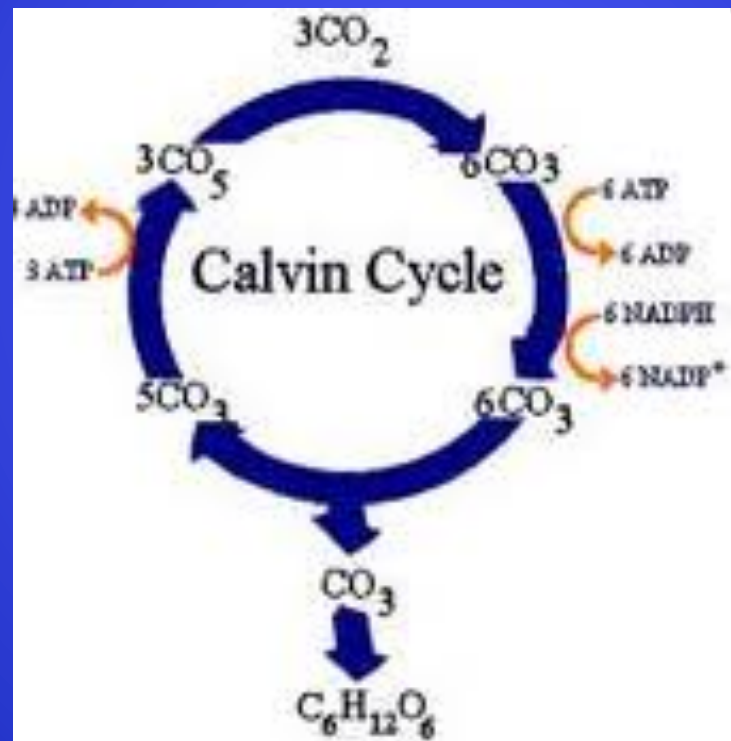


- Light-dependent reactions
  - Produce  $O_2$  and convert ADP and  $NADP^+$  into energy carriers ATP and NADPH



## ■ The Calvin Cycle

- Light – independent reactions – use ATP and NADPH to produce high-energy sugars





# ■ Factors affecting photosynthesis

- Light intensity
- Amount of water
- Temperature

