

Cues

- PSN
- green
- food web
- light
- chloroplasts
- e^-
- energy
- spectrum
- particle
- $e=hc/\lambda$
- absorption
- chlorophyll
- red & blue
- sugar & O_2
- equation

Questions

Why are plants green?

Where does plant mass come from?

What frequencies of light are best?

What is the equation of photosynthesis?

Where does photosynthesis occur?

Notes

Photosynthesis (PSN) - plants capture & use light energy

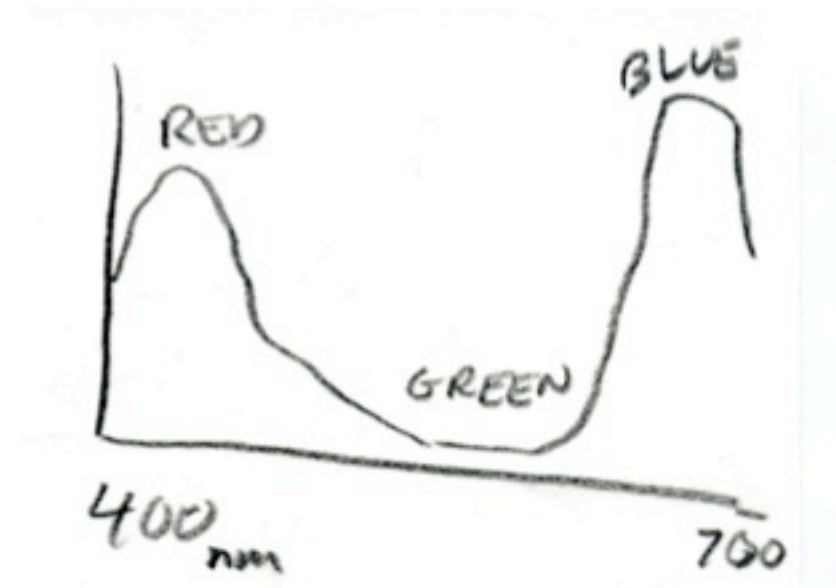
- Occurs in green things
 - algae
 - plants
- Foundation of food web
- Light ($h\nu$) energy used to produce sugars
 - In chloroplasts
 - Organelles of PSN
 - Membranes
 - Grana - capture $h\nu$
 - Contains electron (e^-) transport chain



Light - Energy

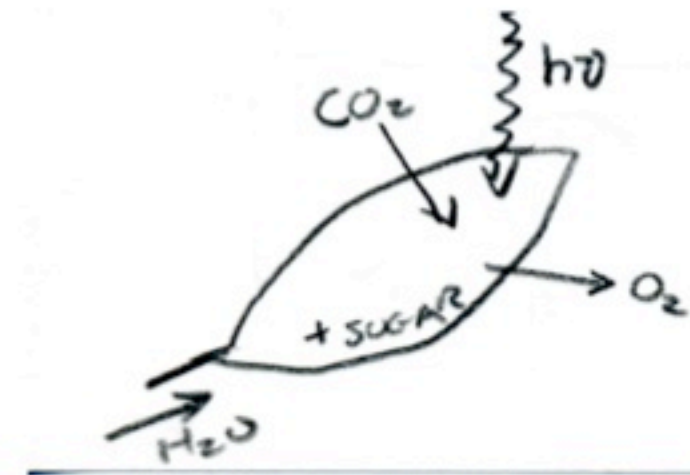
Light is a wave

- part of EM spectrum
 $IR \leftarrow ROYGBIV \rightarrow UV$
- $R=760nm$ $V=380$
nm

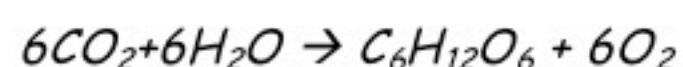


Light is a Particle

- Quanta - packets of energy
- $E=hc/\lambda$
- E =energy; h =Planck's constant, c =speed of light, L =wavelength
- Violet more energetic
- Light must be absorbed to have bio effect
- Pigments absorb light
 - chlorophyll- green
 - carotenoids - orange
- absorption spectrum
 - plants use red & blue
 - reflect green! reason plants are green!



PSN produces sugars & oxygen



Summary:

Photosynthesis occurs in chloroplasts within the cells of green plants. Energy is captured from light and used to make sugars from water and atmospheric water. Red and blue light are the more usable than green.

Figure 3.1 Cornell note-taking system - sample from a lecture on photosynthesis