

Plant Screencast

Notebook: [aNote] Classroom
Created: 4/20/2011 10:07 PM

Updated: 4/20/2011 11:28 PM

Plants

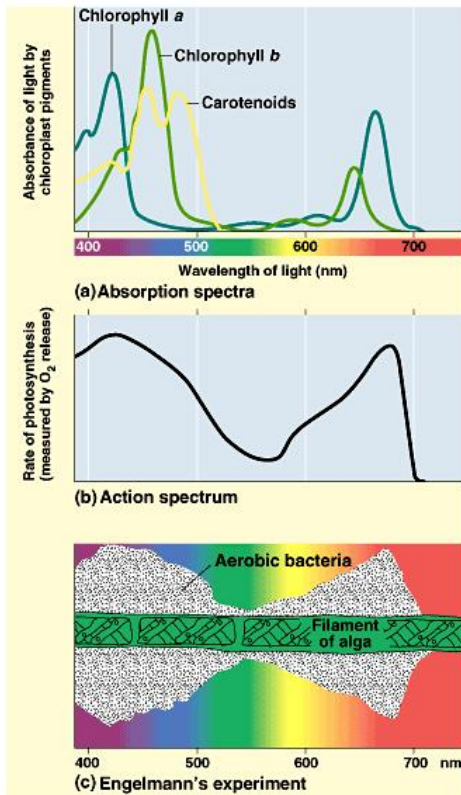
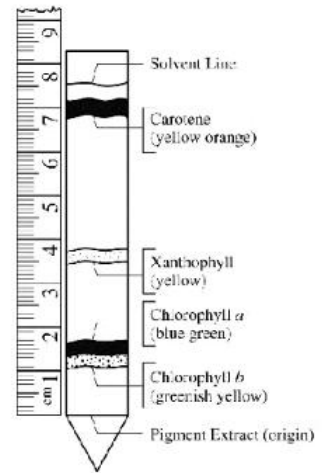
Energy and Metabolism

**2010 Chromatography

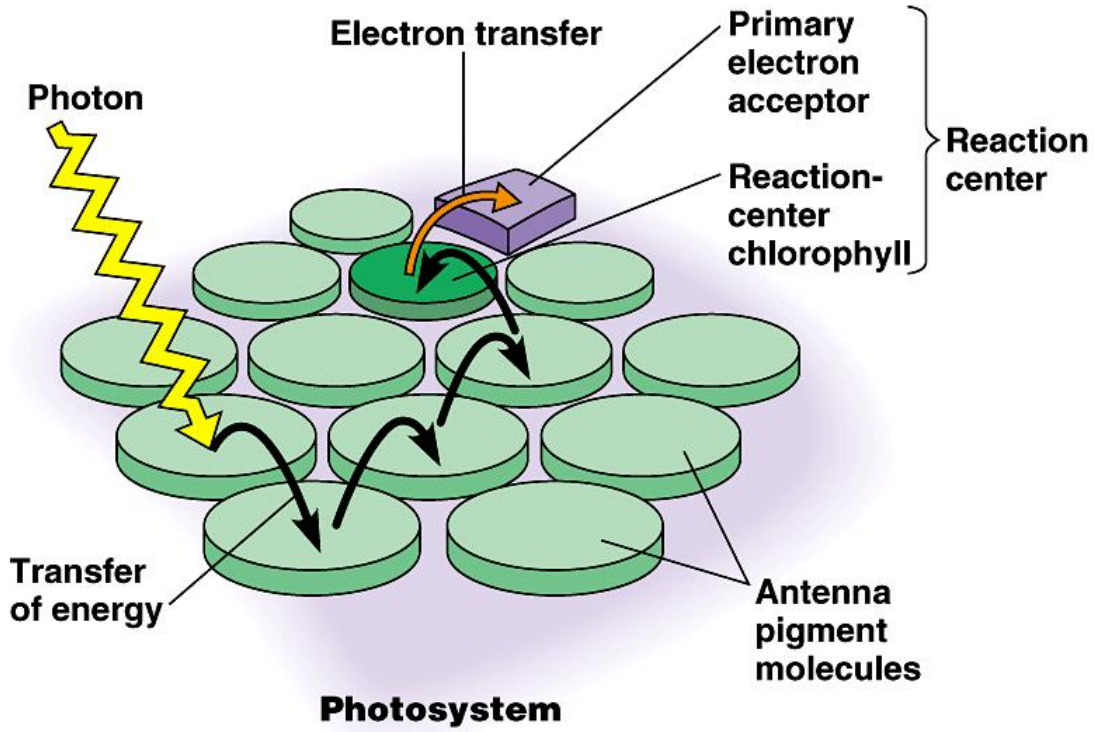
2010

Biological molecules can be separated by using chromatographic techniques. The diagram above shows the separation of several spinach leaf pigments by paper chromatography. Using the diagram above

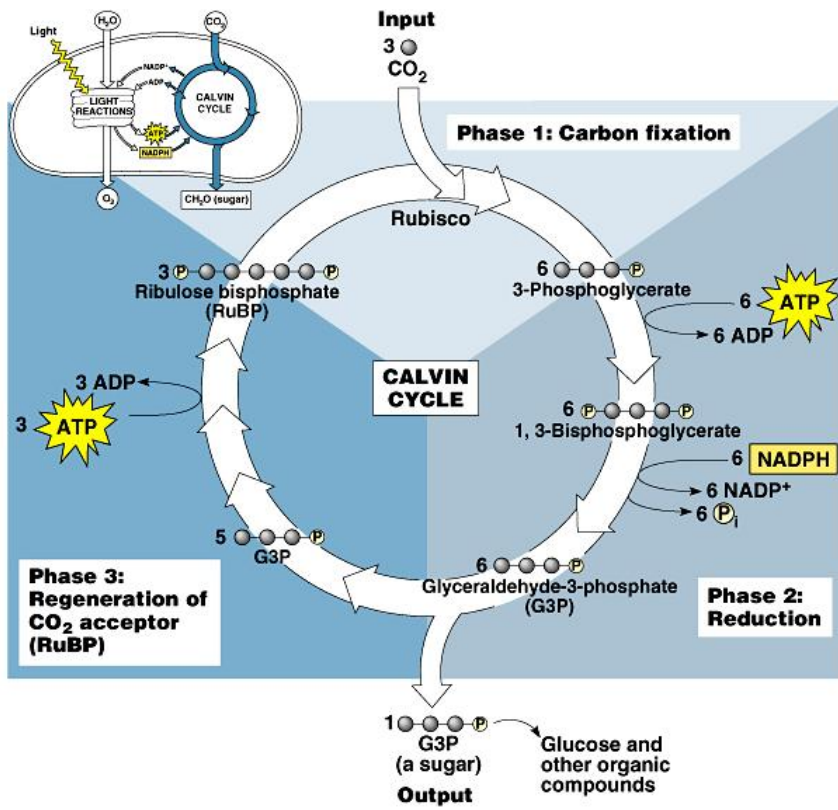
- Explain** how paper chromatography can be used to separate pigments based on their chemical and physical properties_
- Discuss** the role of pigments both in capturing light energy and in converting it to the chemical energy of ATP and NADPH.
- Use the ruler shown above to **determine** the R_f value of xanthophyll. **Show** your calculations.



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Science as a process

A controlled experiment was conducted to analyze the effects of darkness and boiling on the photosynthetic rate of incubated chloroplast suspensions. The dye reduction technique was used. Each chloroplast suspension was mixed with DPIP, an electron acceptor that changes from blue to clear when it is reduced. Each sample was placed individually in a spectrophotometer and the percent transmittance was recorded.

The three samples used were prepared as follows.

Sample 1 - chloroplast suspension + DPIP

Sample 2 chloroplast suspension surrounded by foil wrap to provide a dark environment + DPIP

Sample 3 - chloroplast suspension that has been boiled + DPIP

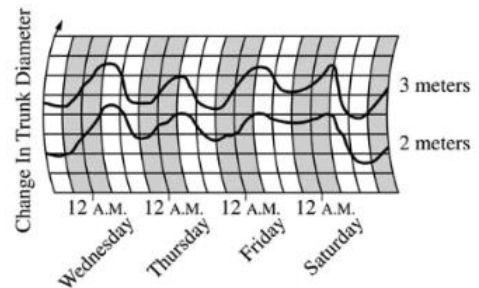
Percent Transmittance in Three Samples

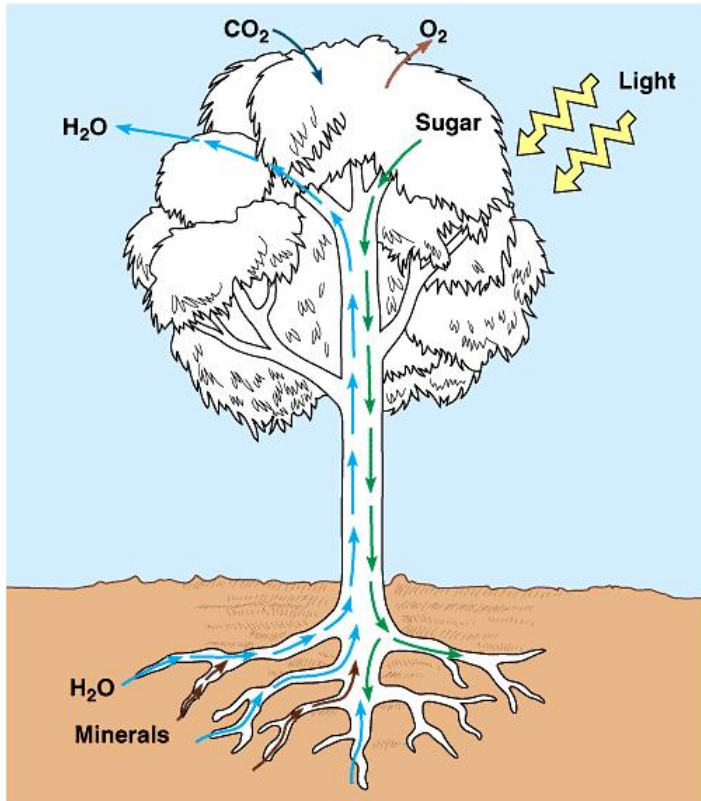
Time (min)	Light, Unboiled % Transmittance	Dark, Unboiled % Transmittance	Light, Boiled % Transmittance
	Sample 1	Sample 2	Sample 3
0	28.8	29.2	28.8
5	48.7	30.1	29.2
10	57.8	31.2	29.4
15	62.5	32.4	28.7
20	66.7	31.8	28.5

- On the axes provided, **construct** and label a graph showing the results for the three samples.
- Identify** and **explain** the control or controls for this experiment.
- The differences in the curves of the graphed data indicate that there were differences in the number of electrons produced in the three samples during the experiment. **Discuss** how electrons are generated in photosynthesis and why the three samples gave different transmittance results.

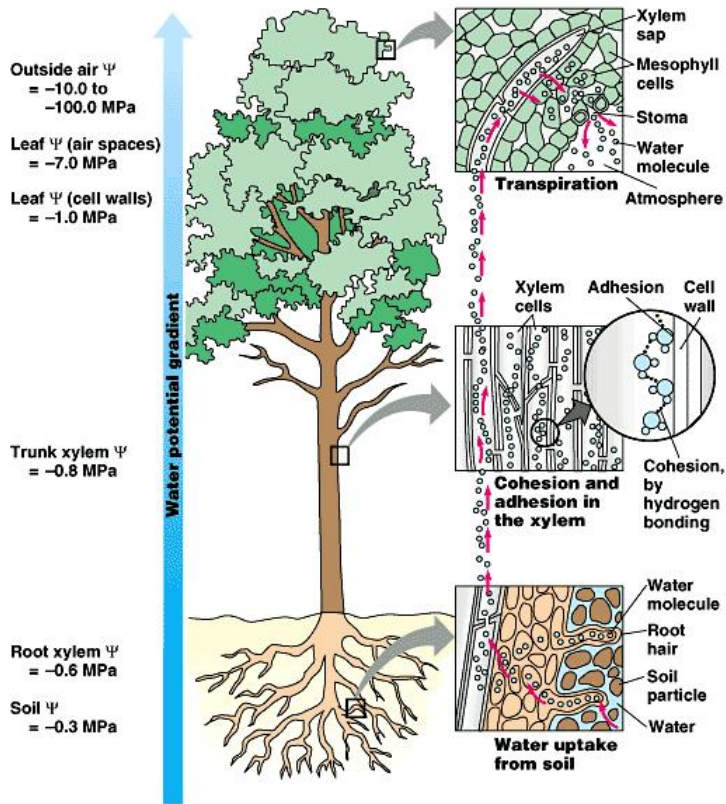
While studying transpiration, a scientist used a dendrometer to record the small daily changes in the diameter of a tree trunk at two different heights (2 meters and 3 meters) above the ground at the same time. The diameter decreased in the daytime. This decrease happened first at the higher location. Discuss the following in relation to water movement in plants_

- Identify how **two** different environmental factors could be involved in the daily fluctuations shown above.
- Discuss the mechanisms involved in the uptake and transport of water by vascular plants.
- Discuss the role of water in the normal functioning of plants_

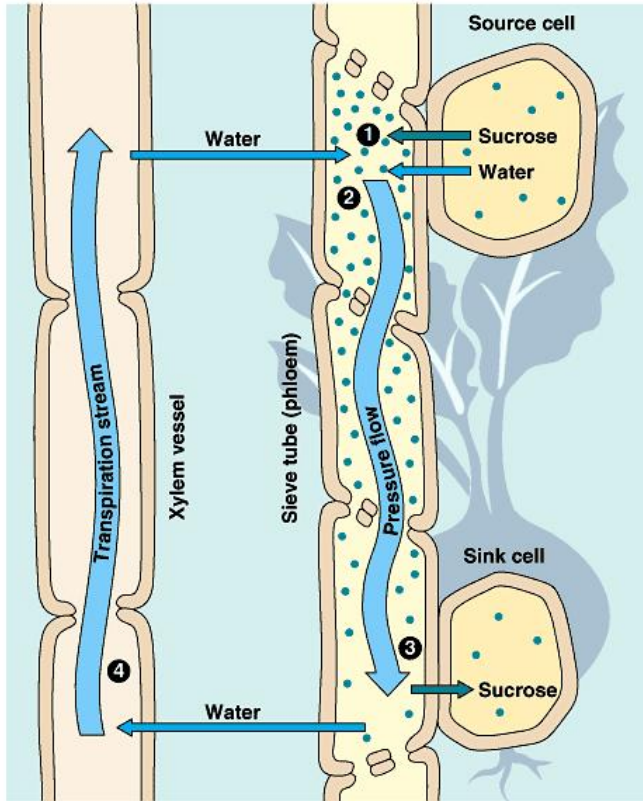




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Cont. and Divers.
2009 - Plant Lifecycles

Adaptation
**2005 Angiosperms vs Mosses