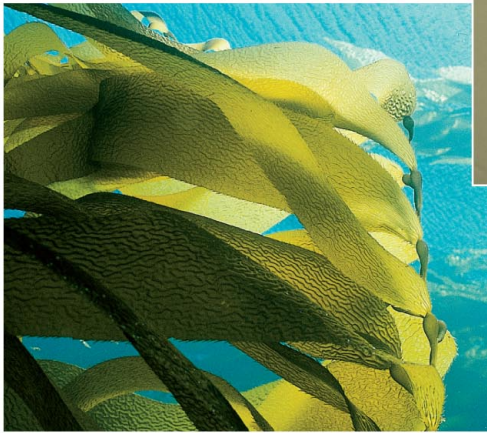




(a) Plants



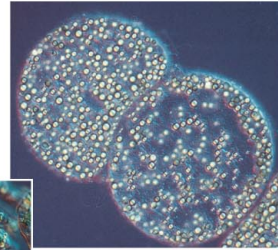
(b) Multicellular alga



(c) Unicellular protist 10  $\mu\text{m}$



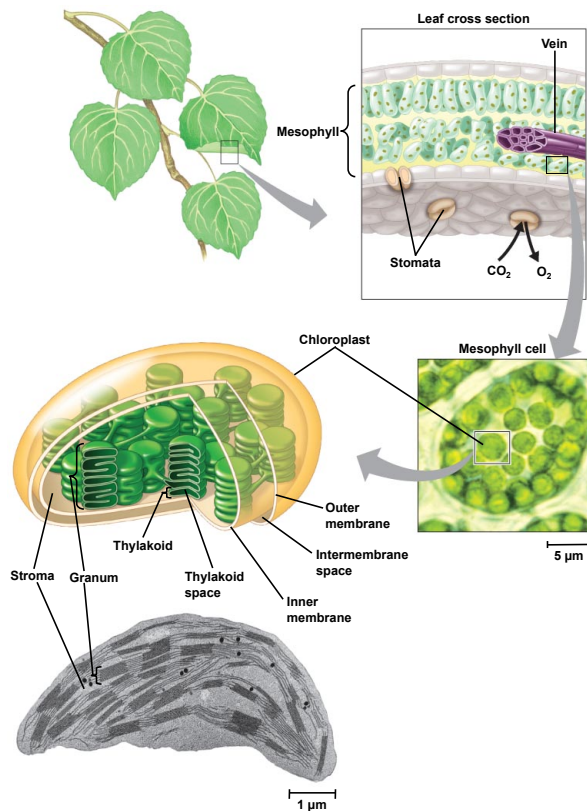
(d) Cyanobacteria 40  $\mu\text{m}$



(e) Purple sulfur bacteria 1.5  $\mu\text{m}$

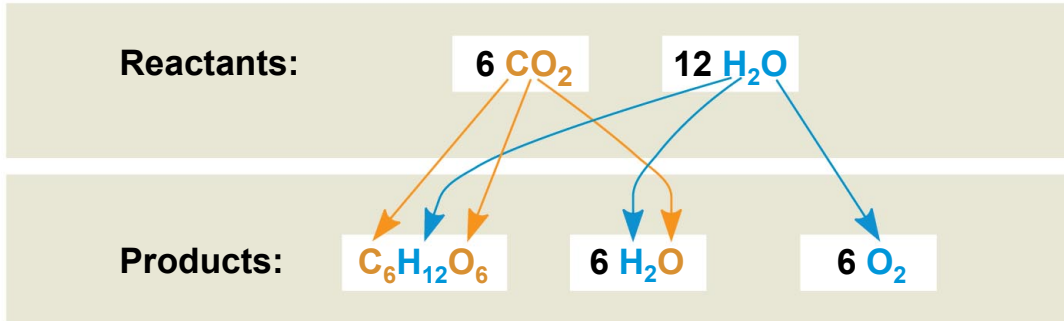
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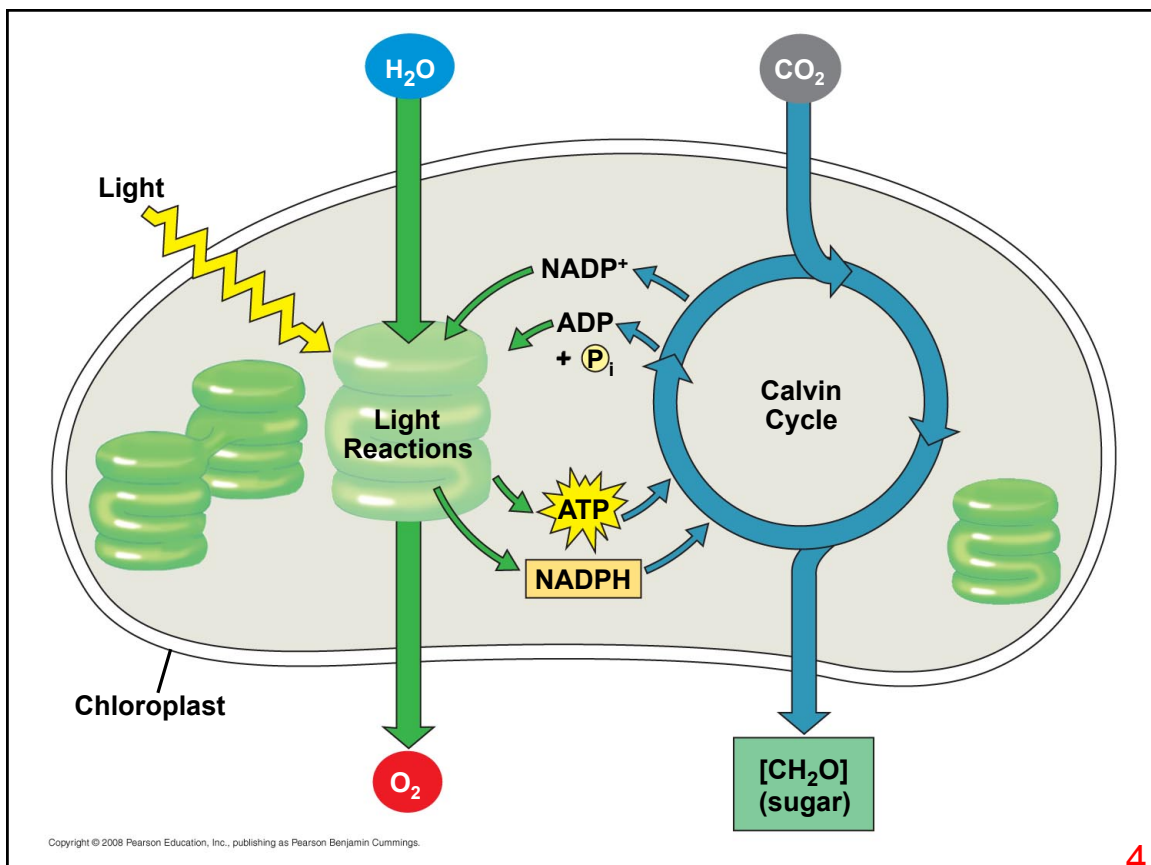
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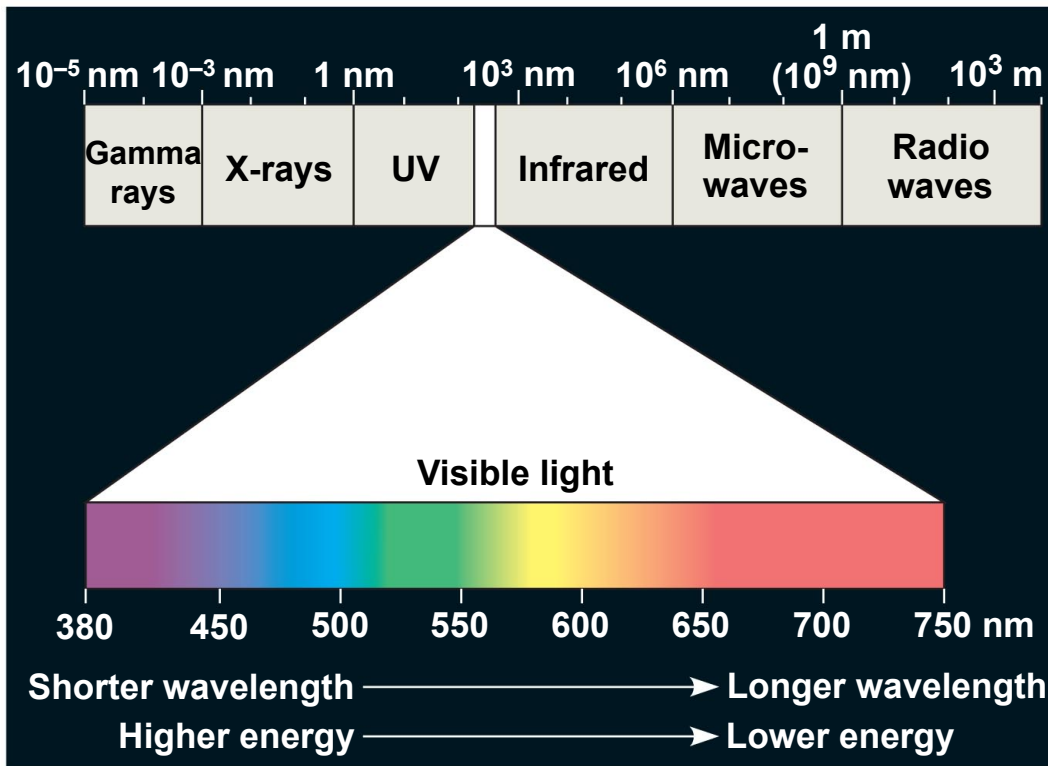
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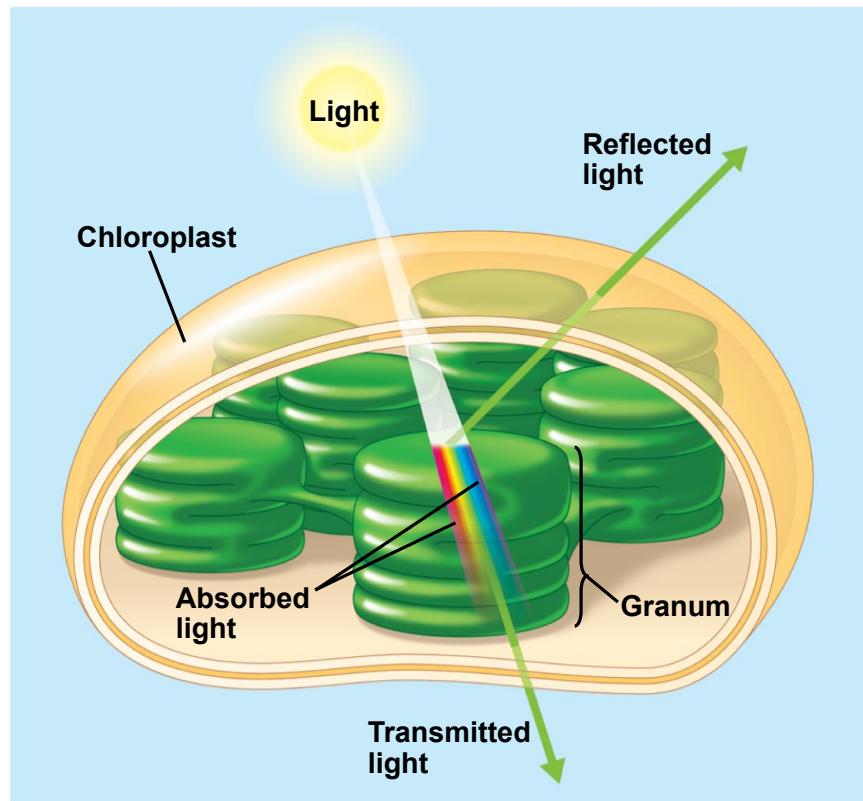
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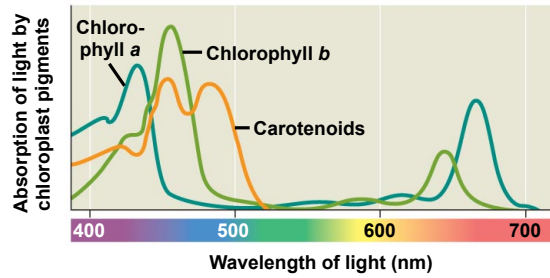


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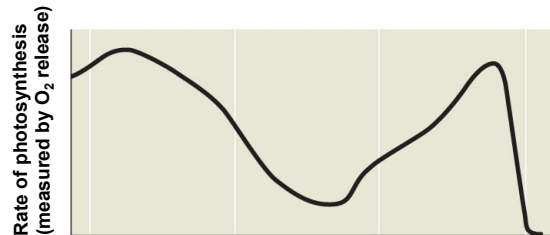
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## RESULTS

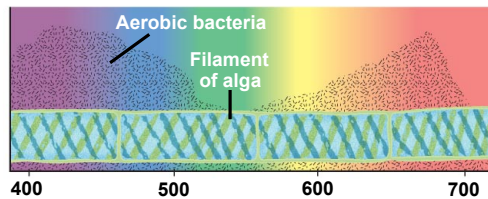
(a) Absorption spectra



(b) Action spectrum

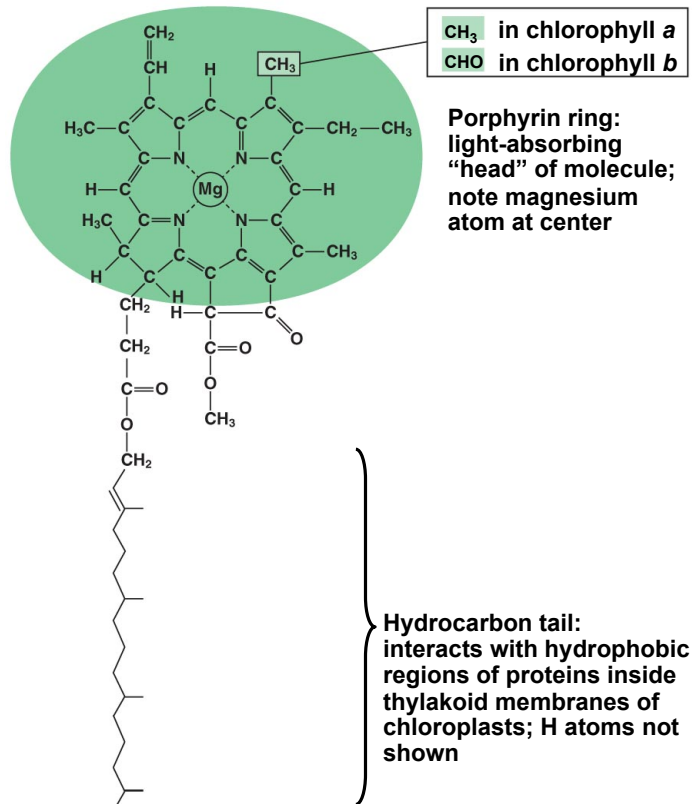


(c) Engelmann's experiment



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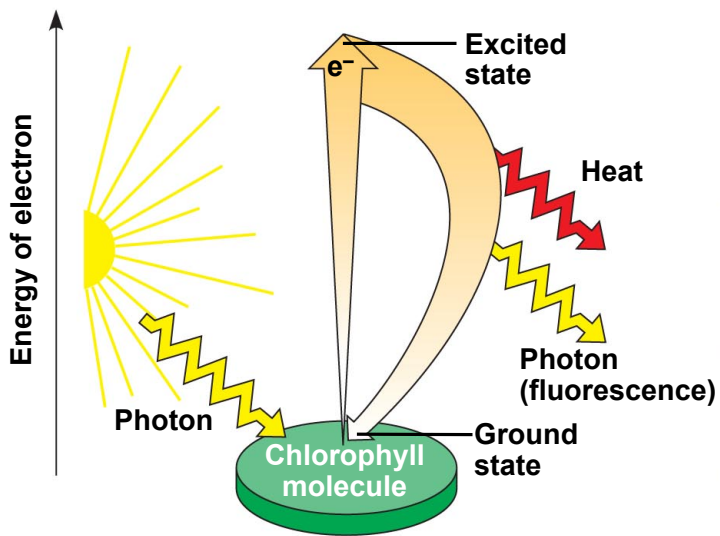
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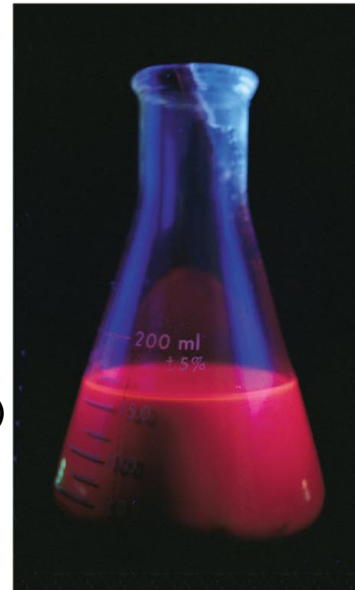
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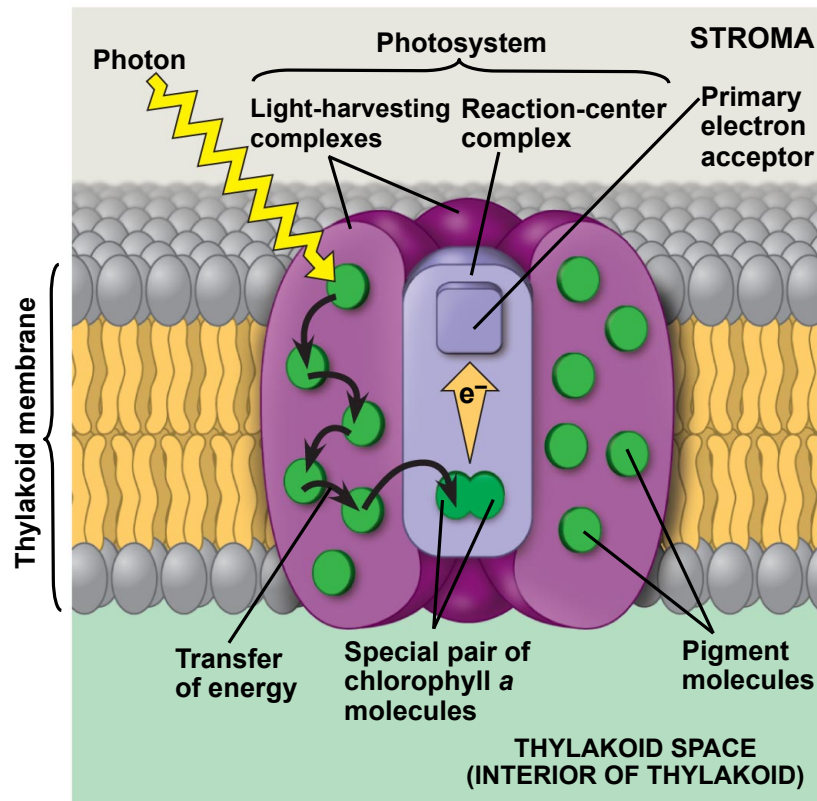


(a) Excitation of isolated chlorophyll molecule

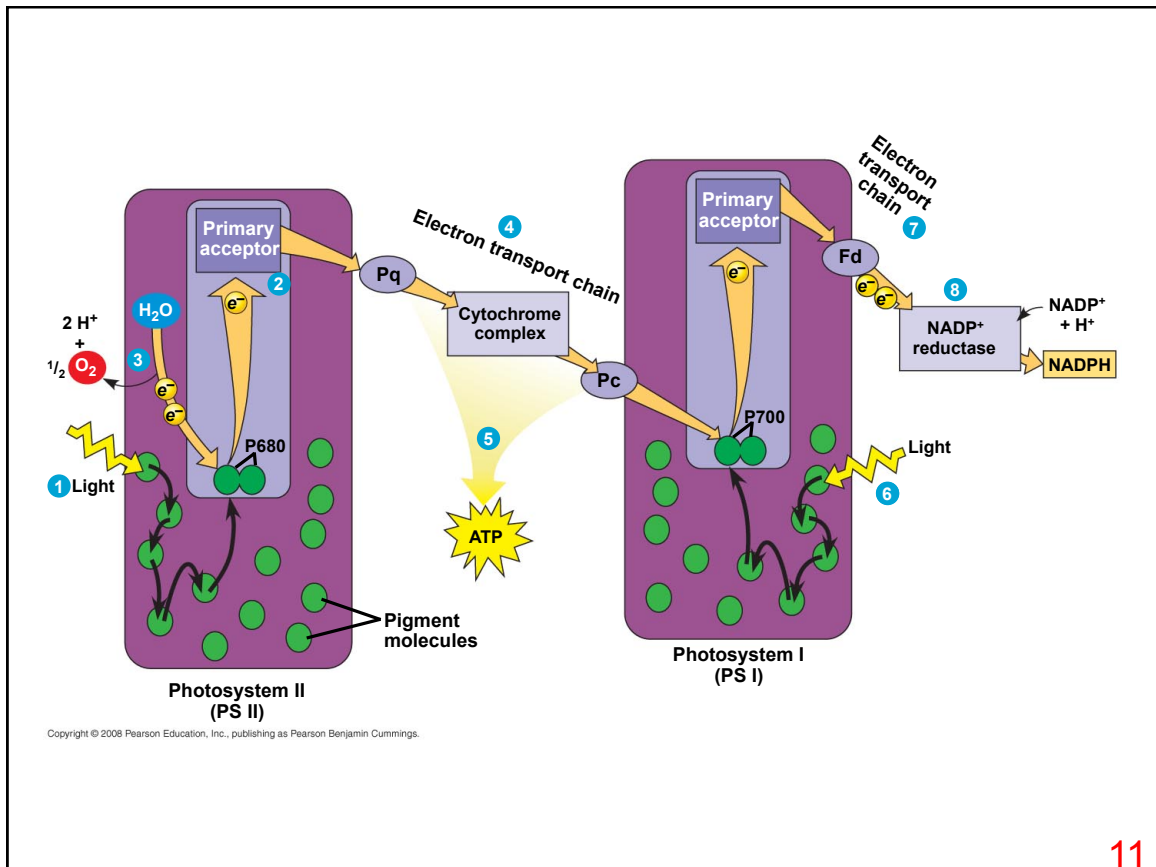
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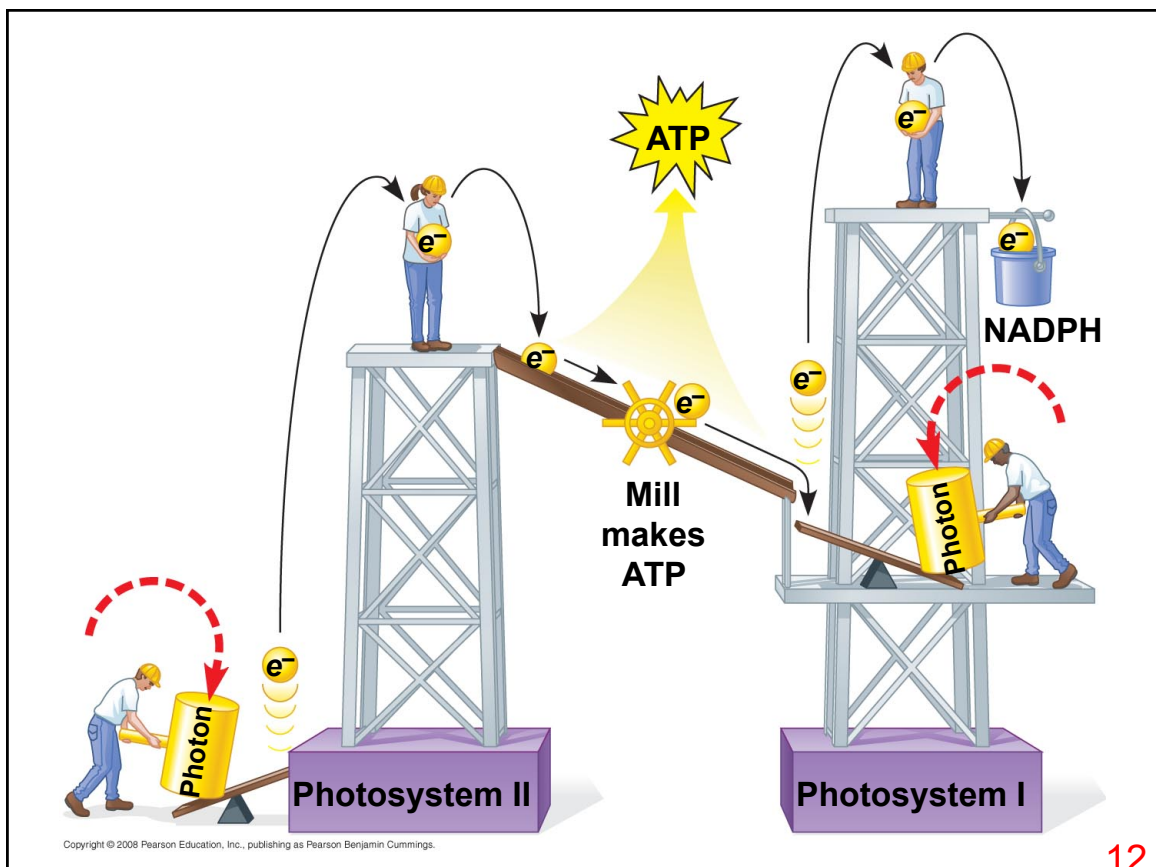
(b) Fluorescence



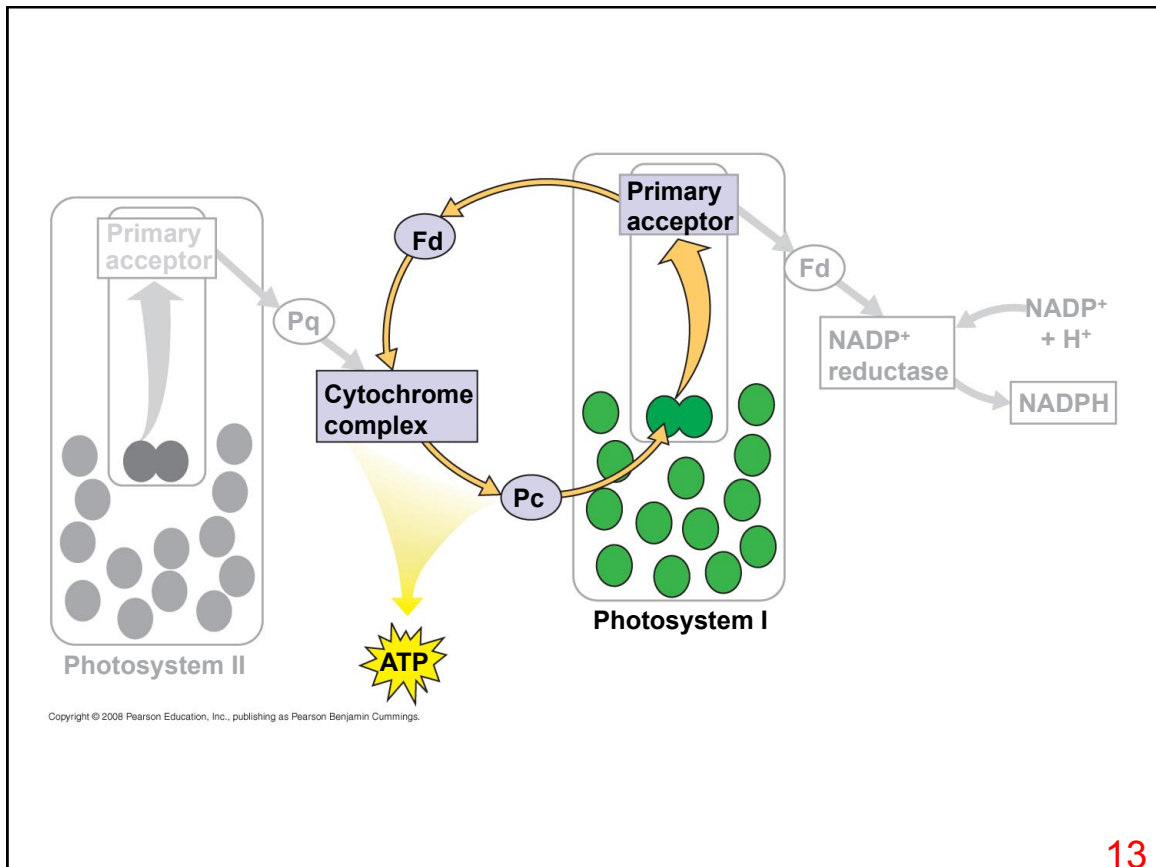
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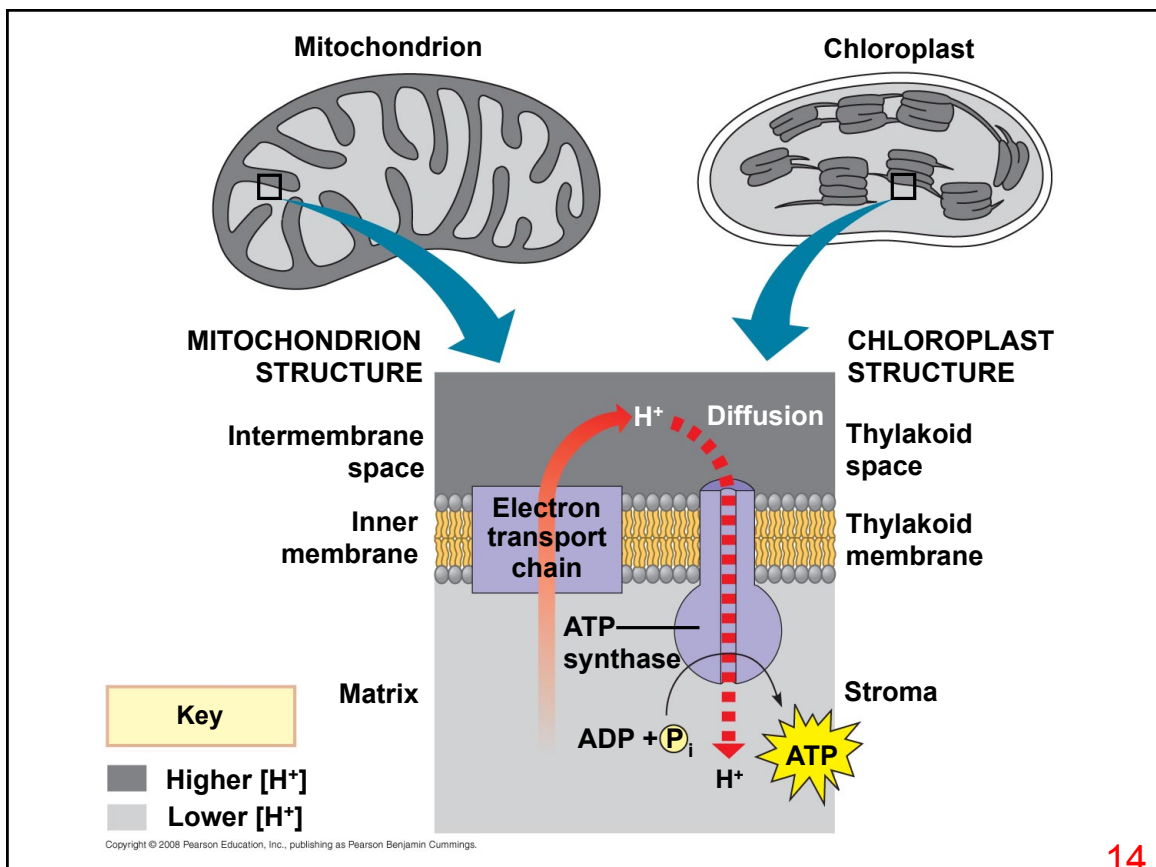
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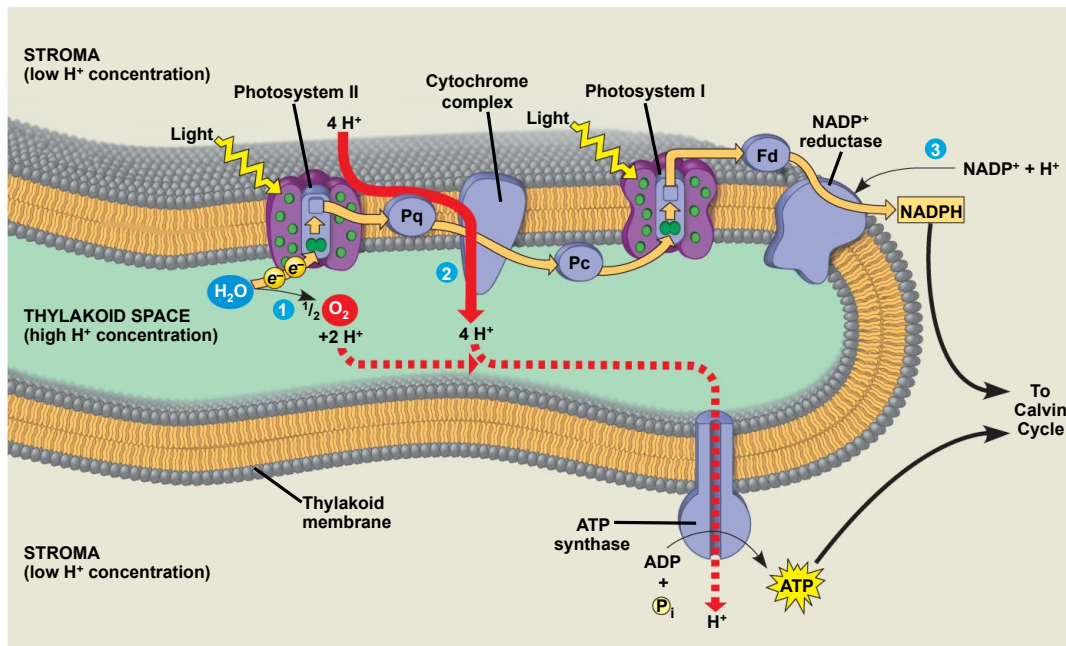
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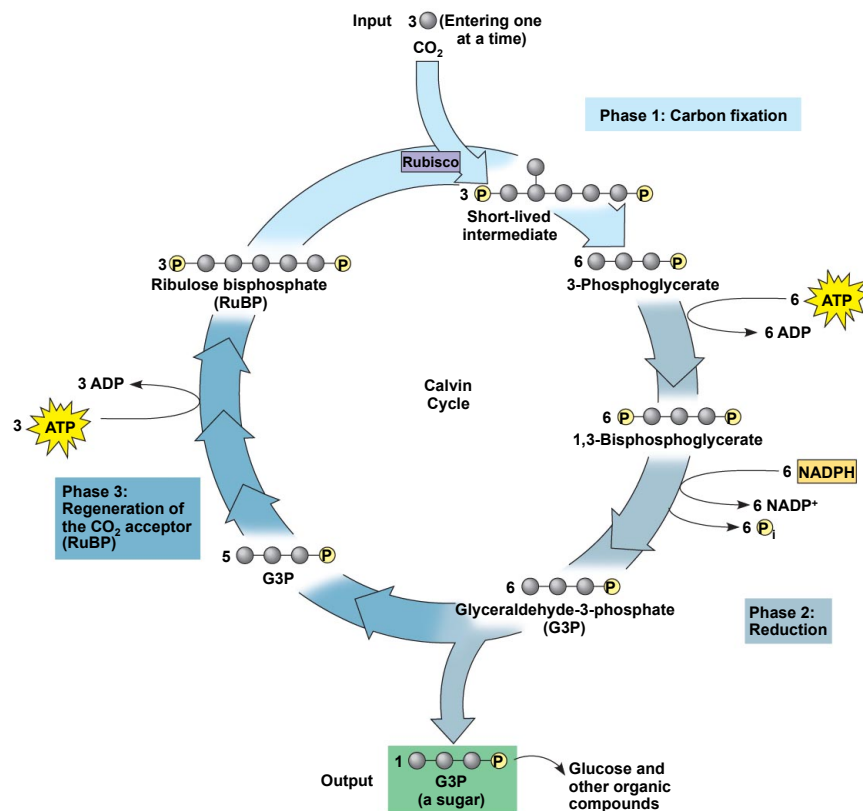
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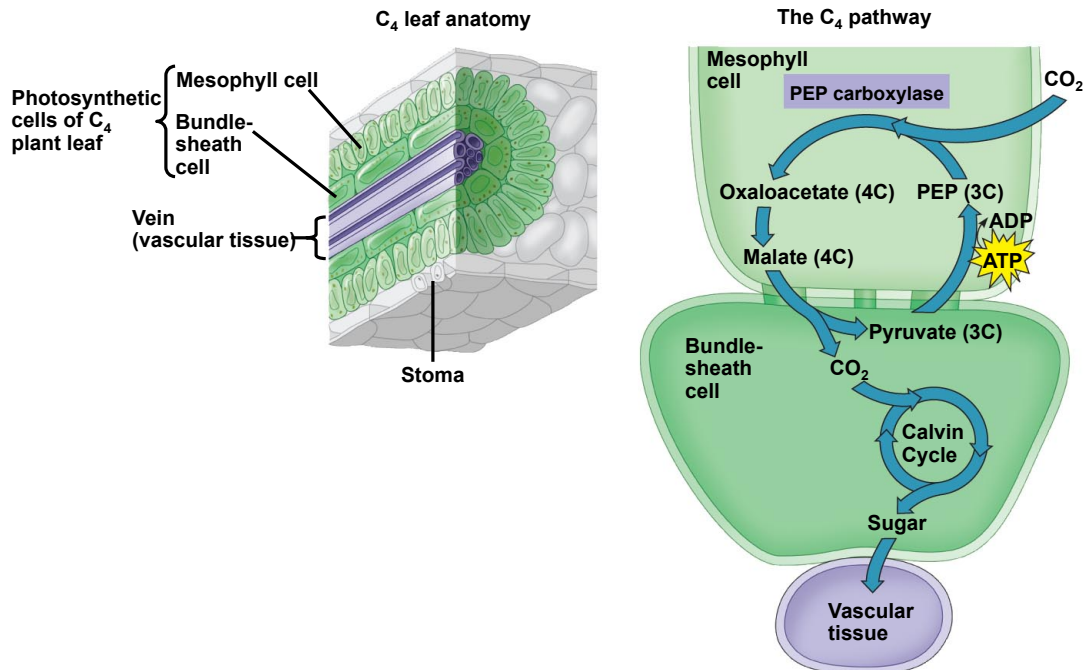


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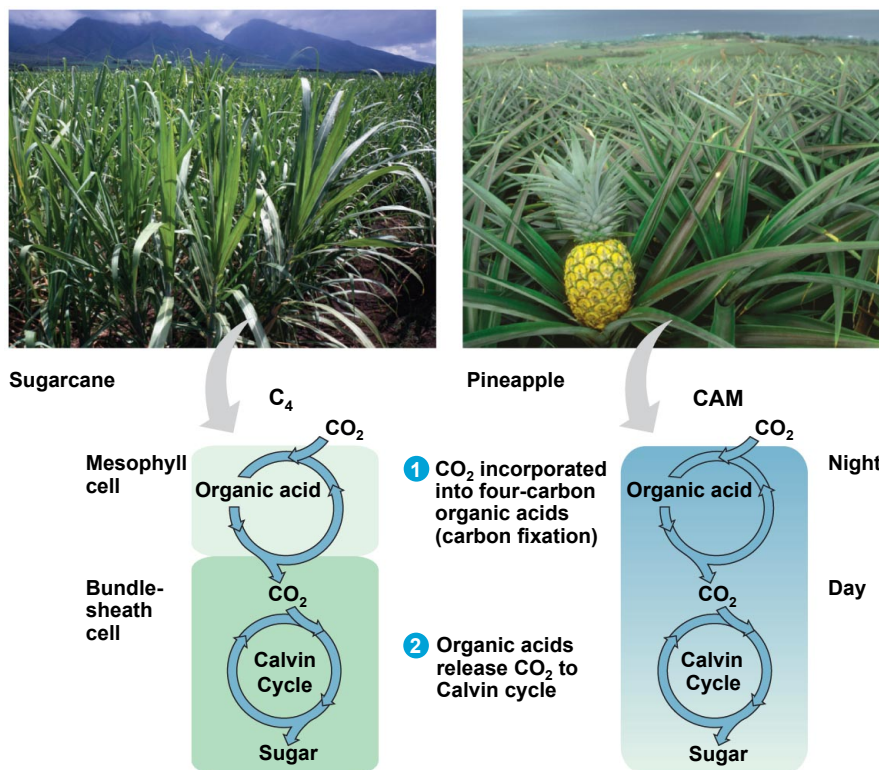


16





17



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18

