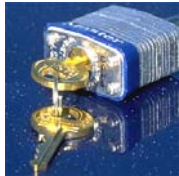
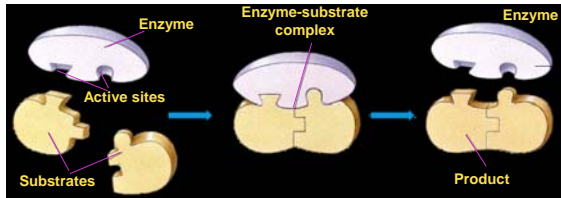


ENZYMES

Increase rate of metabolic reactions by lowering the activation energy required to start the reaction



Mechanism of Enzyme Action



Black, J.G (2002) *Microbiology: Principles and Explorations* 5th Ed. Fig. 5.5

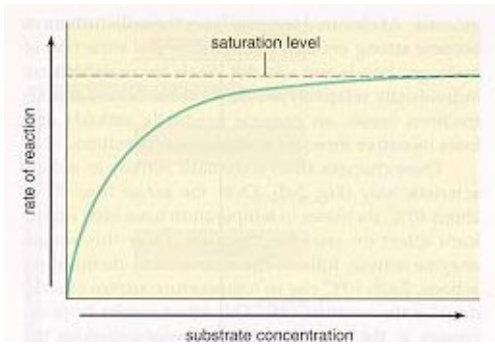
Factors Affecting Enzyme Function

- Substrate or Enzyme Concentration
- Temperature
- pH
- Allosteric Regulators
- Product Inhibition
- Phosphorylation state

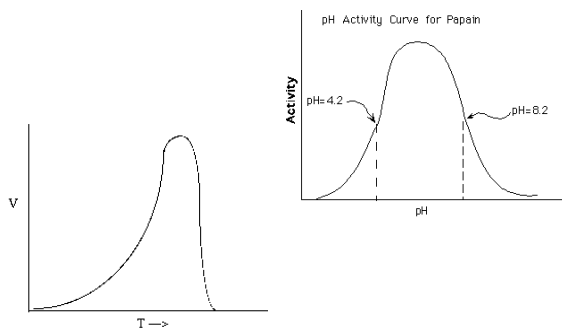
Concentration



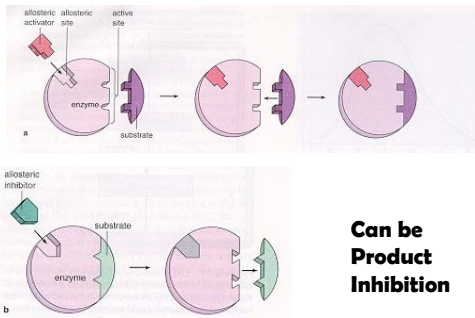
Factors Affecting Enzyme Function



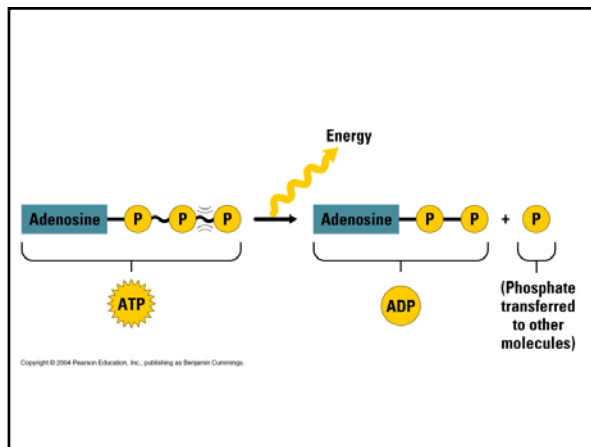
Temperature & pH



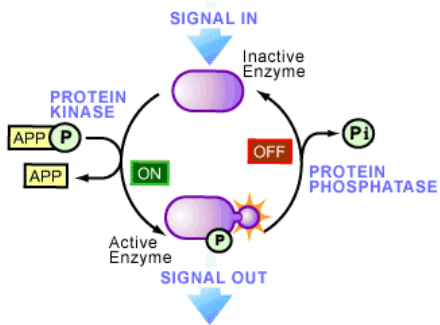
Allosteric Regulation

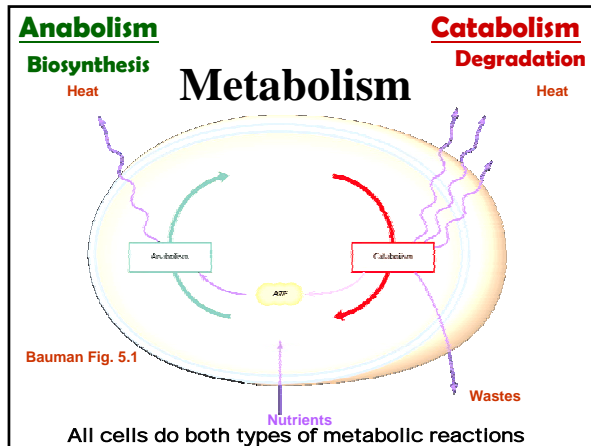


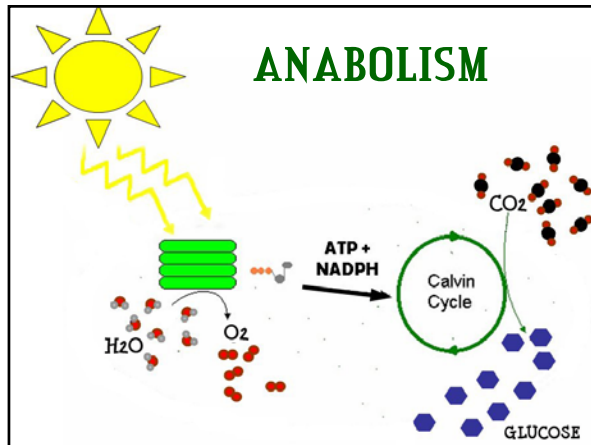
Can be Product Inhibition

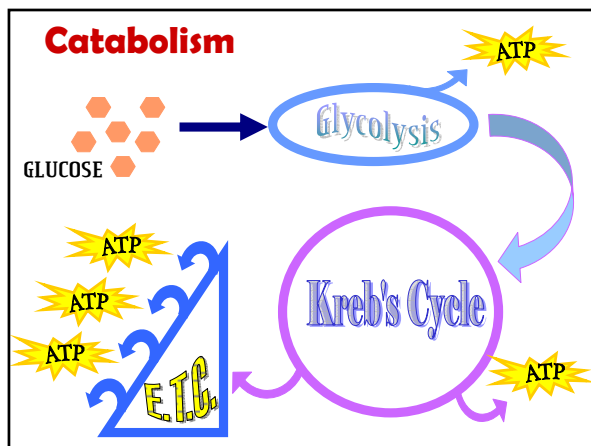


Phosphorylation









Comparison of Oxidation & Reduction

Oxidation	Reduction
Loss of electrons (A)	Gain of electrons (B)
Loss (liberation) of energy	Gain (storage) of energy

after Black, J.G (2002) *Microbiology: Principles and Explorations* 5th Ed. Table 5.1

Carrier Molecules

Black, J.G (2002) *Microbiology: Principles and Explorations* 5th Ed. Fig. 5.7

Photosynthesis

energy-capturing reaction

chemical energy (NADPH & ATP)

+ CO₂

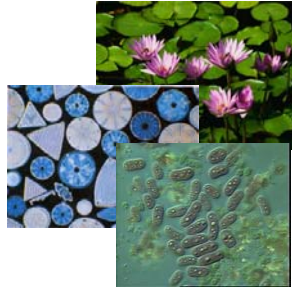
Glucose

(carbon-fixing reaction)

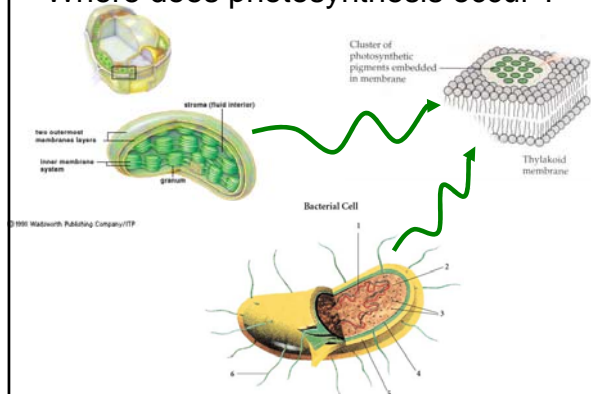
Who photosynthesizes?

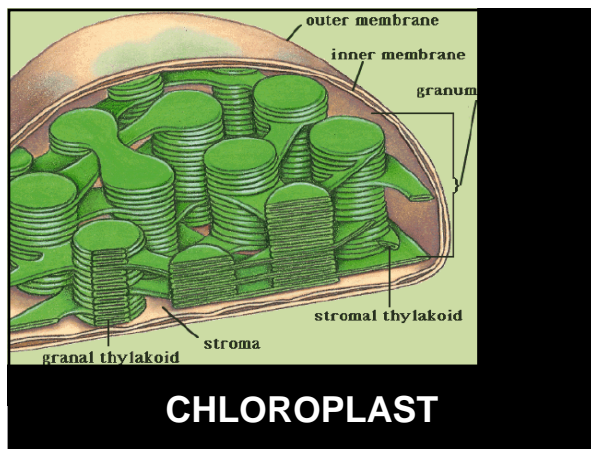
- Plants
- Algae
- Diatoms
- Dinoflagellates

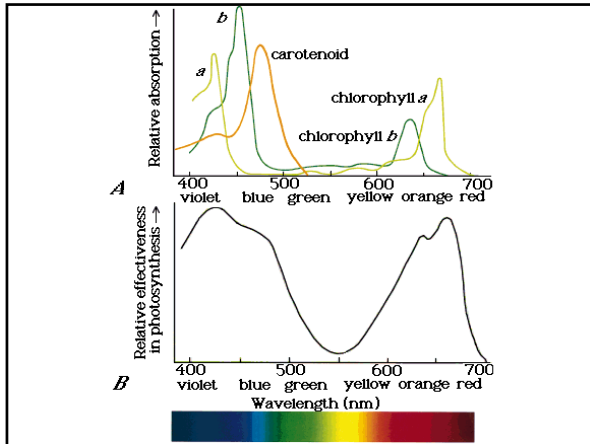
- Sulfur bacteria
- Cyanobacteria

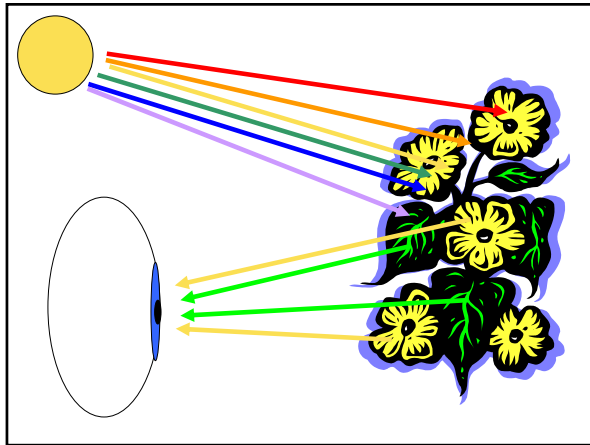


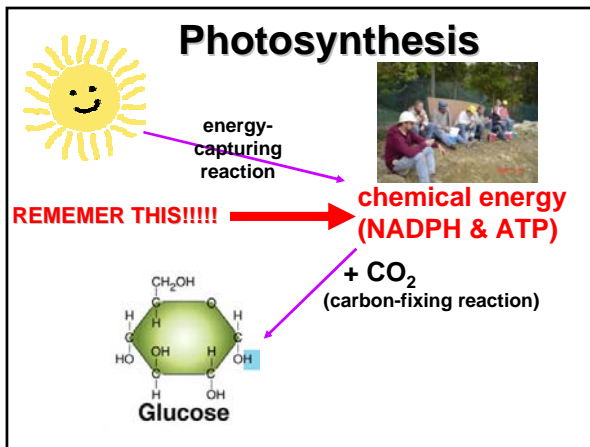
Where does photosynthesis occur?

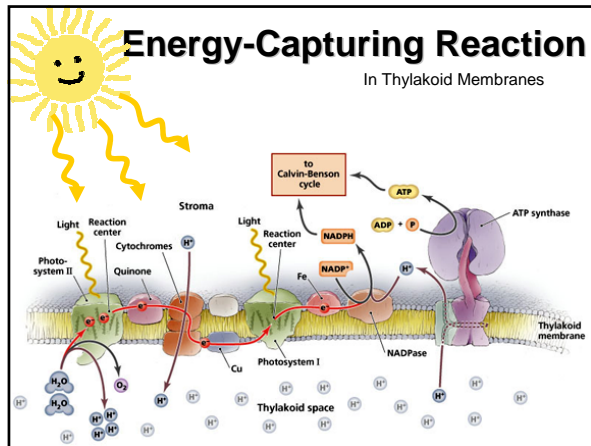


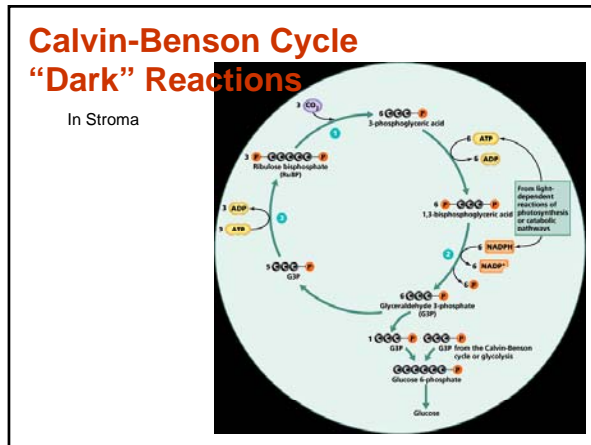


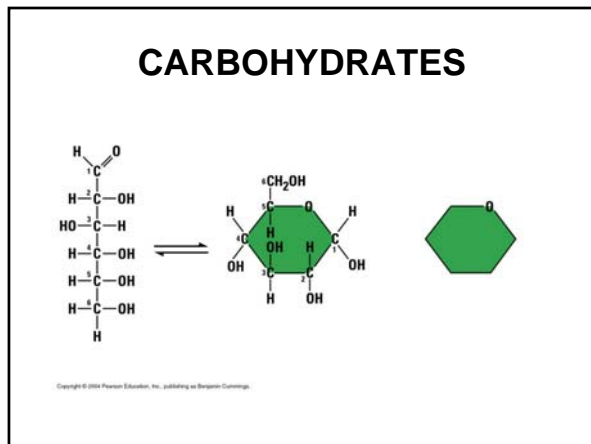


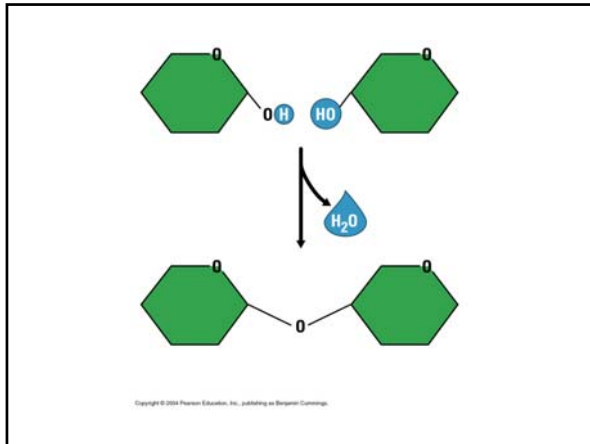


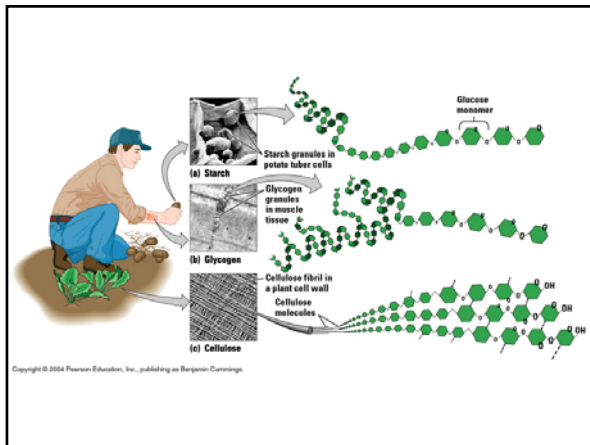
















Lyngbya, Anabaena, Nostoc.
