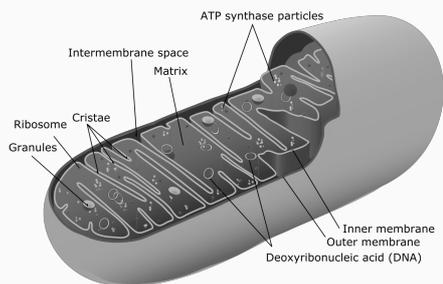
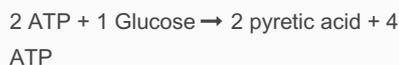


Mitochondria



Glycolysis

Glycolysis



Substrate level phosphorylation \rightarrow ATP

PFK=allosteric enzyme inhibited by ATP

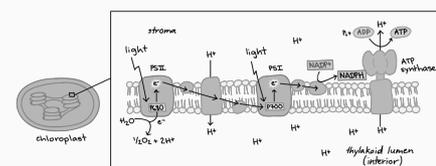
Chloroplasts

Parts: outer/inner membranes, intermembrane space, thylakoid membrane/space, stroma

Chlorophyll a/b=absorb red/blue/violet

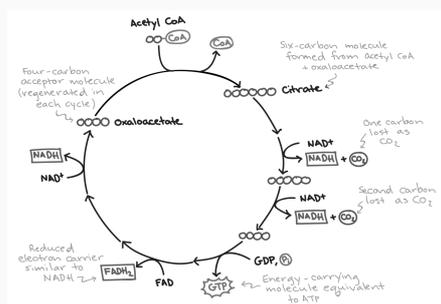
Carotenoids=absorb blue/green/violet

Noncyclic Photophosphorylation



Photosystem II (P680) \rightarrow Photolysis \rightarrow ETC \rightarrow Chemiosmosis \rightarrow NADP \rightarrow Photosystem I (P700)

Citric Acid/Krebs Cycle

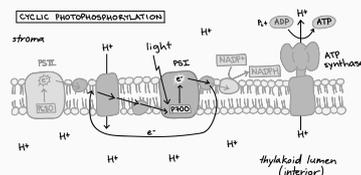


substrate-level phosphorylation \rightarrow ATP + pyruvate

pyruvate + coenzyme A \rightarrow acetyl CoA

products = 3 NADH, 1 ATP, 1 FADH, CO₂

Cyclic Photophosphorylation



Cycles electrons from P680 ETC \rightarrow P700 \rightarrow

primary electron acceptor \rightarrow cytochrome complex (ETC)

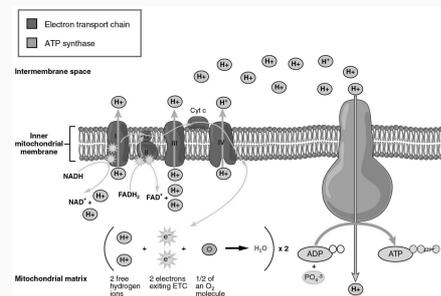
Photorespiration, C-4, & CAM

Photorespiration: rubisco binds with O₂ instead of CO₂; produces no ATP or sugar

C-4 plants: use alternate C-fixation (PEP carboxylase) that ends in a 4C compound (occurs in mesophyll & bundle sheath cells)

CAM plants: carbon fixation to organic acids at night \rightarrow light reactions release CO₂ in the day

ETC/Oxidative Phosphorylation/Chemiosmosis



chemiosmosis = energy-coupling

mechanism using potential energy in H⁺

gradient; phosphorylates ADP \rightarrow ATP

oxygen = final hydrogen acceptor

Fermentation

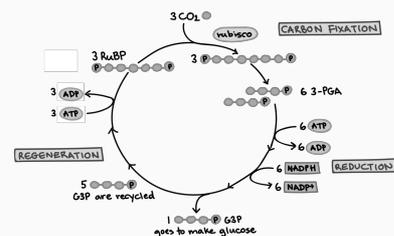
facultative anaerobes: tolerate, but do not use, O₂

obligate anaerobes: cannot live in an environment w/O₂

alcohol fermentation: converts pyruvate into ethyl alcohol + CO₂ & oxidizes NADH to NAD⁺

lactic acid fermentation: reduces pyruvate into lactic acid (lactate) & oxidizes NADH to NAD⁺

Calvin Cycle



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