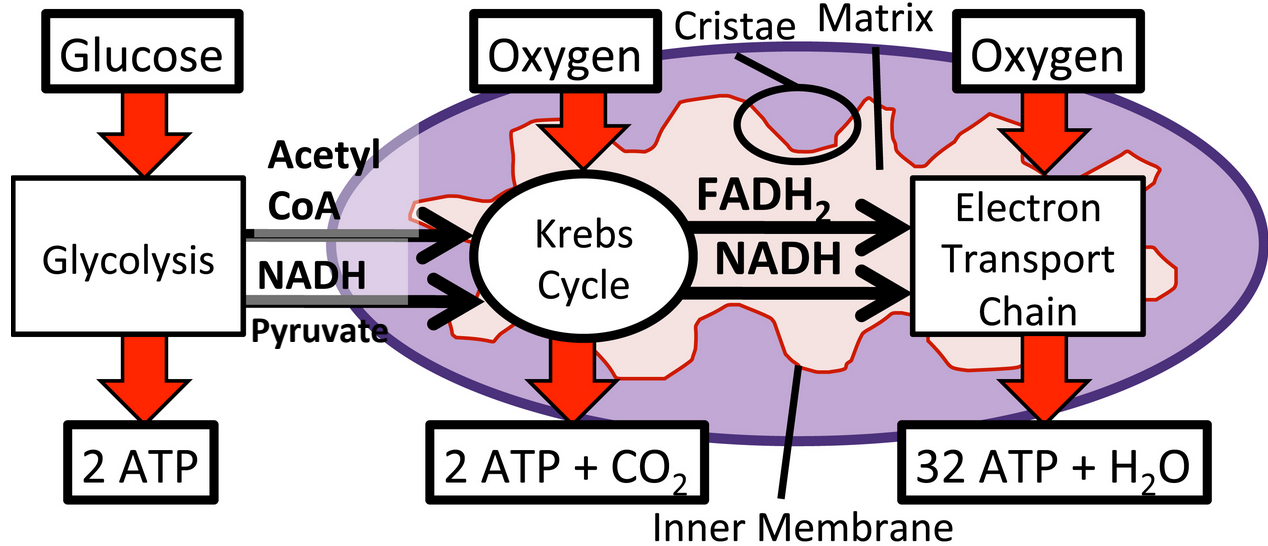


ATP Producers: Cellular Respiration & Photosynthesis

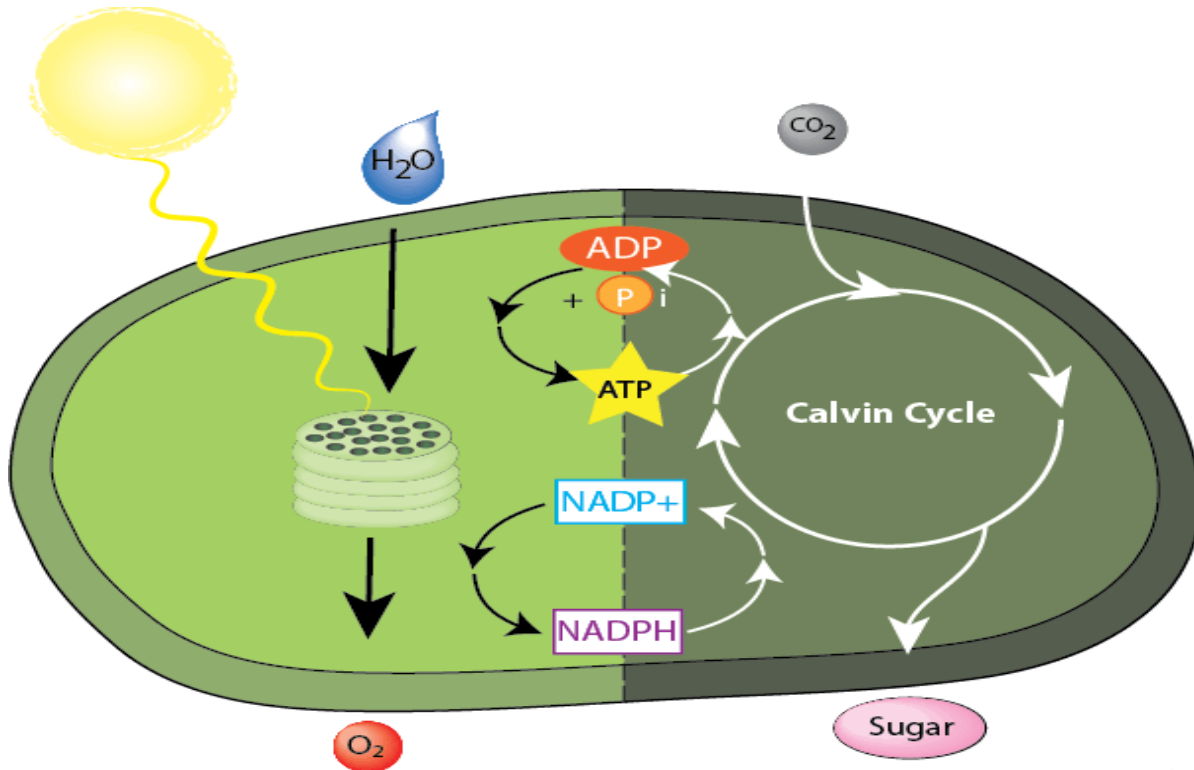
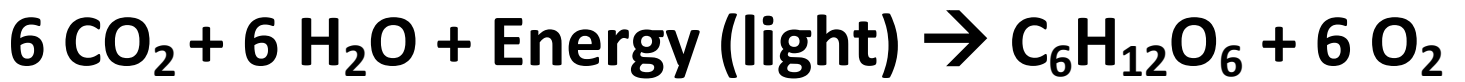
Cellular Respiration



Stage, Site, Mechanism	Inputs	Outputs
Stage: Glycolysis	1) 2 ATP	2 ADP
Site: Cytoplasm	2) 4 ADP	4 ATP
Mechanism: Substrate-level Phosphorylation	3) 2 NAD ⁺	2 NADH
	4) 1 Glucose	2 pyruvate
Stage: Oxidation of Pyruvate to Acetyl-CoA	1) 2 pyruvate	1) CO ₂
Site: Mitochondrial Matrix	2) 2 NAD ⁺	2) 2 NADH
Mechanism: Oxidation	3) CoA	3) 2 Acetyl CoA
Stage: Citric Acid Cycle	1) 2 Acetyl CoA	1) 4 CO ₂
Site: Mitochondrial Matrix	2) 2 ADP	2) 2 ATP
Mechanism: Substrate-level Phosphorylation	3) 6 NAD ⁺	3) 6 NADH
	4) 2 FAD	4) 2 FADH ₂
Stage: Oxidative Phosphorylation/ATP Synthesis	1) 10 NADH	1) 10 NAD ⁺
Site: Mitochondrial Matrix	2) 2 FADH ₂	2) 2 FAD
Mechanism: Electron Transport, Chemiosmosis	3) 32 ADP	3) 32 ATP
	4) 6 O ₂	4) 6 H ₂ O

ATP Producers: Cellular Respiration & Photosynthesis

Photosynthesis



Stage, Site, Mechanism	Inputs	Outputs
Stage: Light-Dependent Reactions Site: Membrane of Thylakoids in Chloroplasts Mechanism: Light-induced Oxidation-Reduction, Electron Transport, Chemiosmosis	1) 2 H ₂ O 2) 3 ADP 3) 3 P _i 4) 2 NADP ⁺	1) O ₂ 2) 2 NADPH 3) ATP
Stage: Calvin Cycle Site: Stroma of the Chloroplast Mechanism: Oxidation-Reduction, Carbon Fixation	1) 3 CO ₂ 2) 6 NADPH 3) 5 H ₂ O 4) 9 ATP	1) 1 G3P 2) 2 H ⁺ 3) 6 NADP ⁺ 4) 9 ADP 5) 8 P _i