

Comparing Cellular Respiration to Photosynthesis

	Cellular respiration	Photosynthesis
<i>Location</i>	In Cytosol and Mitochondria Glycolysis in Cytoplasm Kreb's Cycle / ETC in Mitochondria	All in Chloroplast <i>Light reactions:</i> thylakoid membrane <i>Dark reactions:</i> stroma
<i>End Result</i>	Per Glucose used: 36 ATP	Some ATP generated in light reactions Per Glucose used (Cellular resp + Calvin Cycle) 36ATP produced - <u>18 ATP invested</u> Net: 18 ATP +

	Oxidative phosphorylation	Photophosphorylation
<i>Source of Electrons</i>	From high energy molecules (NADH / FADH ₂) supplied by the oxidation of food molecules	<i>Cyclical:</i> From P700 reaction center <i>Non-cyclical:</i> From the hydrolysis of water at P680
	Chemical energy → ATP	Light energy → ATP
<i>Direction of pumping of H⁺ ions for electrochemical gradient</i>	From the matrix to the intermembrane space of the mitochondria	From the stroma to the thylakoid space of the chloroplast