

Key 8R

## Compare Photosynthesis and Cellular Respiration

Consider	Photosynthesis	Cellular Respiration
The organisms that carry on the process	Plants	All Living Cells
The reactants	$\text{CO}_2 + \text{H}_2\text{O}$	$\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6$
The products	$\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$	$\text{CO}_2 + \text{H}_2\text{O}$
When during a 24 hour cycle the process occurs?	w/ Sunlight	Always
The energy conversion that occurs	(sun) light $\rightarrow$ (glucose) molecular	(Glucose) molecular $\rightarrow$ (ATP) molecular
The types of cells that perform each process.	Plants	All Living Cells
The organelles involved.	Chloroplasts	Mitochondria (+ cytoplasm)
The chemical equations.	see below	see below
Changes inorganic materials to organic materials. (Yes / No)	$\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6$ Yes	No
Changes organic materials to inorganic materials. (Yes / No)	No	$\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ Yes
Food is broken down.	No	Yes
Food is synthesized.	Yes	No
Enzymes are involved.	Yes	Yes
What needs to be present for it to occur?	$\text{CO}_2$ $\text{H}_2\text{O}$ Light	$\text{C}_6\text{H}_{12}\text{O}_6$ $\text{O}_2$
Energy is stored or released. (Stored / Released)	Stored	Released
In what form does energy enter the process?	Light	Molecular (Bonds of glucose)
In what form does energy leave the process?	Molecular (Glucose)	molecular (ATP)
Occurs in autotrophs.	Yes	Yes
Occurs in heterotrophs.	No	Yes

Photosynthesis:



Cell Respiration:

