**Photosynthesis and Cellular Respiration**

**Photosynthesis** – the process by which plant cells convert sunlight, carbon dioxide, and water into sugars and oxygen. This occurs in the chloroplast.

6CO2 + 6H2O + sunlight (energy) → C6H12O6 + 6O2

carbon dioxide + water + sunlight (energy) → sugar + oxygen

**Cellular respiration** – how plant and animal cells get their energy. This reaction occurs in the mitochondria.

C6H12O6 + 6O2 → 6CO2 + 6H2O + energy

sugar + oxygen → carbon dioxide + water + energy

What do you notice about the two equations above? OPPOSITES!

Complete the table to compare photosynthesis and cellular respiration. Refer to the ***information and figure above*** to help you complete the table.

|  |  |  |
| --- | --- | --- |
|  | **Photosynthesis** | **Cellular Respiration** |
| Type of cell(s) it takes place in | Eukaryotic | Eukaryotic |
| Type of organelle it is associated with  | Chlorplast | Mitochondria |
| Reactants | CO2, H2O | C6H12O6, 6O2 |
| Products | C6H12O6, 6O2 | CO2, H2O |
| Is energy stored or released? | Stored! | Released! |

1. What are the similarities between cellular respiration and photosynthesis?

Both involve Sugar, Oxygen, Water, and Energy

1. Do you see any differences/relationships between photosynthesis and cellular respiration

One creates produces energy, one releases it.

**Note:** When there is no **oxygen** present, yeast and bacteria do a process called **fermentation** in which **sugar** is converted to **carbon dioxide**, **alcohol** and **energy**. This was the focus of our last lab!

****