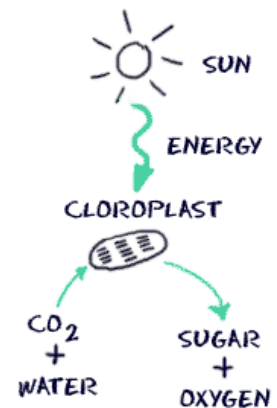


**Chloroplasts** are the food producers of the cell. The organelles are only found in plant cells and some protists such as algae. Animal cells do not have chloroplasts. Chloroplasts work to convert light energy of the Sun into sugars that can be used by cells. It is like a solar panel that changes sunlight energy into electric energy. The entire process is called photosynthesis and it all depends on the little green chlorophyll molecules in each chloroplast. In the process of photosynthesis, plants create sugars and release oxygen (O<sub>2</sub>). The oxygen released by the chloroplasts is the same oxygen you breathe every day. **Chloroplasts are found in plant cells, but not in animal cells.**

The purpose of the chloroplast is to make sugars that feed the cell's machinery. **Photosynthesis** is the process of a plant taking energy from the Sun and creating sugars. When the energy from the Sun hits a chloroplast and the chlorophyll molecules, light energy is converted into the chemical energy. Plants use water, carbon dioxide, and sunlight to make sugar and oxygen.

During photosynthesis radiant energy or solar energy or light energy is transferred into chemical energy in the form of sugar (glucose). You already know that during photosynthesis plants make their own food. The food that the plant makes is in the form of sugar that is used to provide energy for the plant. The extra sugar that the plant does not use is stored as **starch** for later use.



**Mitochondria** are known as the **powerhouses** of the cell. They are **organelles** that act like a digestive system which takes in nutrients, breaks them down, and **creates energy** rich molecules for the cell. In **cellular respiration** sugar with the help of oxygen is broken down into ATP (energy molecule). Many of the reactions involved in cellular respiration happen in the mitochondria. Mitochondria are the working organelles that keep the cell full of energy.

In a plant cell, **chloroplast** makes sugar during the process of **photosynthesis** converting light energy into chemical energy stored in glucose. In mitochondria, through the process of **cellular respiration** breaks down sugar into energy that plant cells can use to live and grow. Consumers (organisms that eat other organisms to get energy) have to get sugar and other nutrients by eating other organisms.

Mitochondria are important parts of our cells because they take food and make energy that the rest of the cell can use. Different types of cells have different numbers of mitochondria. Some simple cells contain only one or two mitochondria. However, complex animal cells that need a lot of energy, like muscle cells, can have thousands of mitochondria. During cellular respiration, sugar is burned in the presence of oxygen to produce energy in the mitochondria of the cell.

Name: \_\_\_\_\_

## Questions about Chloroplast and Mitochondria

1. What is the function of the chloroplast? \_\_\_\_\_.
2. Chloroplasts are like \_\_\_\_\_.
3. Chloroplast are found in (plant cell or animal cell or both) \_\_\_\_\_.
4. What is photosynthesis? \_\_\_\_\_.
5. What do plants need during photosynthesis (3 things)?  
\_\_\_\_\_.
6. What do plants make during photosynthesis (2 things)?  
\_\_\_\_\_.
7. What energy transformation occur during photosynthesis? (from what energy to what energy)  
\_\_\_\_\_.
8. Sugar has what type of energy stored in it? \_\_\_\_\_.
9. Just like any organism, plants need energy to live and grow. Plants make their own food in the form of sugar and this sugar is used to provide energy to the plants. The extra sugar that the plant does not use is stored as \_\_\_\_\_ for later use.
10. Write an equation of photosynthesis?  
\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ → \_\_\_\_\_ + \_\_\_\_\_
11. What is the function of mitochondria? \_\_\_\_\_
12. Mitochondria acts like a \_\_\_\_\_.
13. What is cellular respiration? \_\_\_\_\_.
14. Cellular respiration takes place in \_\_\_\_\_.
15. Muscle cells have how many mitochondria in their cell? \_\_\_\_\_.
16. How does the cell produce energy in mitochondria?  
\_\_\_\_\_
17. How does consumer get their energy? \_\_\_\_\_
18. How is photosynthesis related to cellular respiration?  
\_\_\_\_\_
19. True/False. Mitochondria is found in plant cell only. \_\_\_\_\_
20. True/False. Chloroplast is found in animal cell only. \_\_\_\_\_