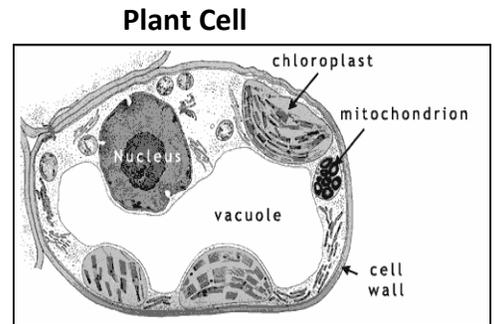


Chloroplasts

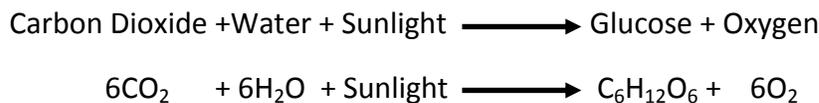
Photosynthesis is a process in which sunlight energy is used to make glucose. The site of photosynthesis is in the chloroplast – an organelle found in the leaves of green plants. The main functions of chloroplasts are to produce food (glucose) during photosynthesis and to store food energy. Chloroplasts contain the pigment chlorophyll. Chlorophyll absorbs most of the colors in the color spectrum, and reflects only green and yellow wavelengths of light. This is why we see leaves as green or yellow – because these colors are reflected into our eyes.



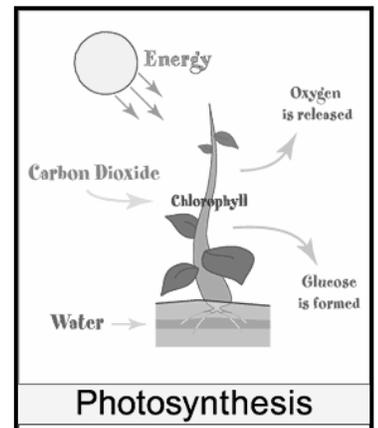
1. What is photosynthesis? _____
2. Where does photosynthesis occur? _____
3. What are chloroplasts and where are they found? _____
4. What are the two main functions of chloroplasts? _____
5. Why do most leaves appear green? _____
6. What is the primary pigment found in the chloroplast? _____

Photosynthesis

Glucose is another name for sugar. The molecular formula for glucose is $C_6H_{12}O_6$. Plants make sugar by using the energy from sunlight to transform carbon dioxide (CO_2) from the air with water (H_2O) from the ground into glucose. This process, called photosynthesis, occurs in the chloroplast of the plant cell. During this process, oxygen (O_2) is created as a waste product and is released into the air for us to breathe. The formula for photosynthesis is:



This formula says that carbon dioxide and water molecules are combined with the energy from sunlight to produce sugar and oxygen. The reactants in photosynthesis (what is used) are CO_2 , H_2O , and sunlight. The plant gets water from the ground through its roots. The plant collects carbon dioxide from the air. Much of the carbon dioxide comes from living organisms that exhale it, but some also comes from factory smokestacks and car fumes.



7. What is the formula for photosynthesis? _____
8. What three things are used to make glucose in photosynthesis? _____
9. Where does the water come from? _____
10. Where does the water enter the plant? _____

11. What are some sources of CO₂? _____

12. What type of energy does the plant use to convert CO₂ and H₂O into sugar? _____

The products (what is made) are glucose and oxygen. The glucose produced is used by the plant for energy and growth. We also use this glucose by eating plants. The oxygen produced is released into the air for us to breathe. Photosynthesis is essential for all life on earth, because it provides food and oxygen.

13. What is produced in photosynthesis? _____

14. What is the glucose used for? _____

15. What is the oxygen used for? _____

Cellular Respiration

Respiration is the cellular process in which glucose breaks down into water and carbon dioxide and energy is released.



Respiration can occur without light because energy is stored in carbohydrate molecules. Respiration occurs in both plant and animal cells in structures called mitochondria.

Mitochondria Structural Features

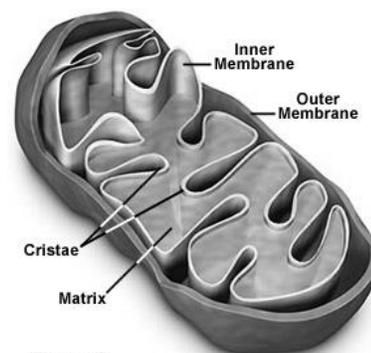


Figure 1

16. What is cellular respiration? _____

17. Where does cellular respiration occur? _____

18. What is the formula for cellular respiration? _____

19. What are the products of cellular respiration? _____