

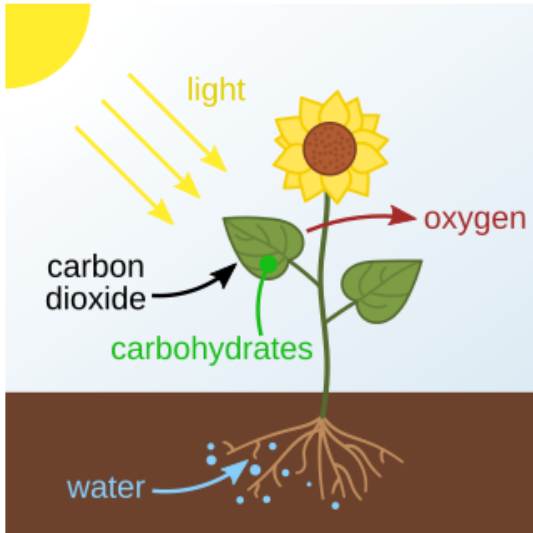
# Basic Knowledge Biology

Name:

Date:



## Photosynthesis



Source: [Wikipedia](#)

Think about how you feel after eating a delicious meal. Just like food gives you energy, plants get their energy from the sun through a process called **photosynthesis**. Photosynthesis is the way plants make their own food using sunlight, carbon dioxide (which we exhale), and water.

In simpler terms, **photosynthesis** is the process by which green plants and some other organisms use sunlight to synthesize foods with the help of chlorophyll, which gives plants their green color. This process primarily occurs in the leaves of plants.

Here's how it works: Plants take in carbon dioxide from the air through tiny openings in their leaves called **stomata**. They also absorb water from the soil through their roots. The chlorophyll in plant cells captures sunlight and uses this energy to convert carbon dioxide and water into glucose, a type of sugar that plants use for food. During this process, oxygen is released as a byproduct, which is essential for our survival.

To give you a more concrete understanding, let's look at two examples:

1. **Elodea**: This common aquarium plant is often used in school experiments because it's easy to observe the bubbles of oxygen it releases during photosynthesis.
2. **Spinach**: When you eat spinach, you're consuming the glucose that the plant produced through photosynthesis, which gives you energy.

The most important concepts related to photosynthesis include:

- **Chlorophyll**: The green pigment in plants that captures light energy.
- **Carbon Dioxide (CO<sub>2</sub>)**: The gas taken in by plants from the air.
- **Water (H<sub>2</sub>O)**: Absorbed by the plant roots from the soil.
- **Glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>)**: The sugar produced during photosynthesis, which serves as food for the plant.
- **Oxygen (O<sub>2</sub>)**: Released into the atmosphere as a byproduct of photosynthesis.

In summary, photosynthesis is a fascinating and vital process that converts sunlight into chemical energy, providing food for plants and oxygen for us to breathe. Understanding this process helps us appreciate the incredible role that plants play in sustaining life on Earth.

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**Tick the right box:**

**Which part of the plant cell captures light energy during photosynthesis?**

- Nucleus    Cell Wall    Mitochondria    Chlorophyll

**What are the end products of the light-dependent reactions?**

- Carbon Dioxide and Water    ATP and NADPH    Starch and Oxygen  
 Glucose and Oxygen

**In which part of the chloroplast does the Calvin cycle take place?**

- Nucleus    Stroma    Mitochondria    Thylakoid Membranes

**What is one of the primary roles of glucose produced during photosynthesis?**

- To release oxygen into the atmosphere    To capture sunlight  
 To provide energy for the plant    To absorb water

**Which of the following is a byproduct of photosynthesis that benefits humans?**

- Nitrogen    Methane    Oxygen    Carbon Dioxide

**How does placing a plant near a sunny window affect its photosynthesis process?**

- It stops the light-dependent reactions.  
 It reduces the amount of oxygen released by the plant.  
 It increases the absorption of sunlight, enhancing glucose production.  
 It decreases the need for water and carbon dioxide.

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**Name the two main stages of photosynthesis and where they occur.**

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**Describe the role of chlorophyll in the process of photosynthesis.**

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**Explain how photosynthesis contributes to the oxygen supply in the atmosphere.**

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