

Photosynthesis Overview

- Photosynthesis is a chemical reaction that uses the energy of **sunlight** to convert **water** and **carbon dioxide** into high-energy **sugars** (glucose) and **oxygen**.



In words:



Photosynthesis Overview

What are the reactants of the photosynthesis reaction?



Students, write your response!

Photosynthesis Overview

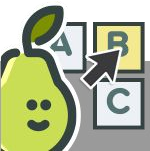
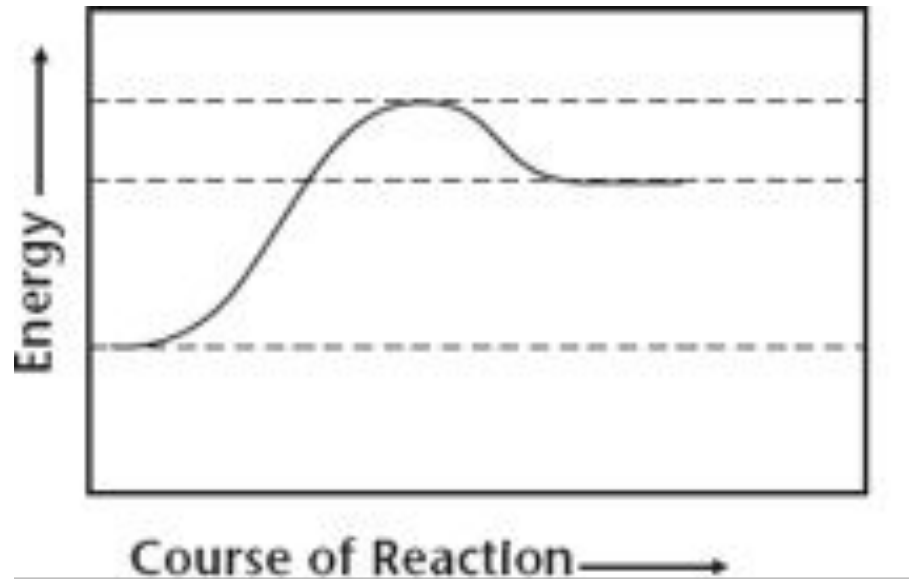
What are the products of the photosynthesis reaction?



Students, write your response!

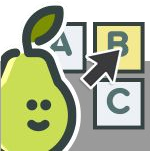
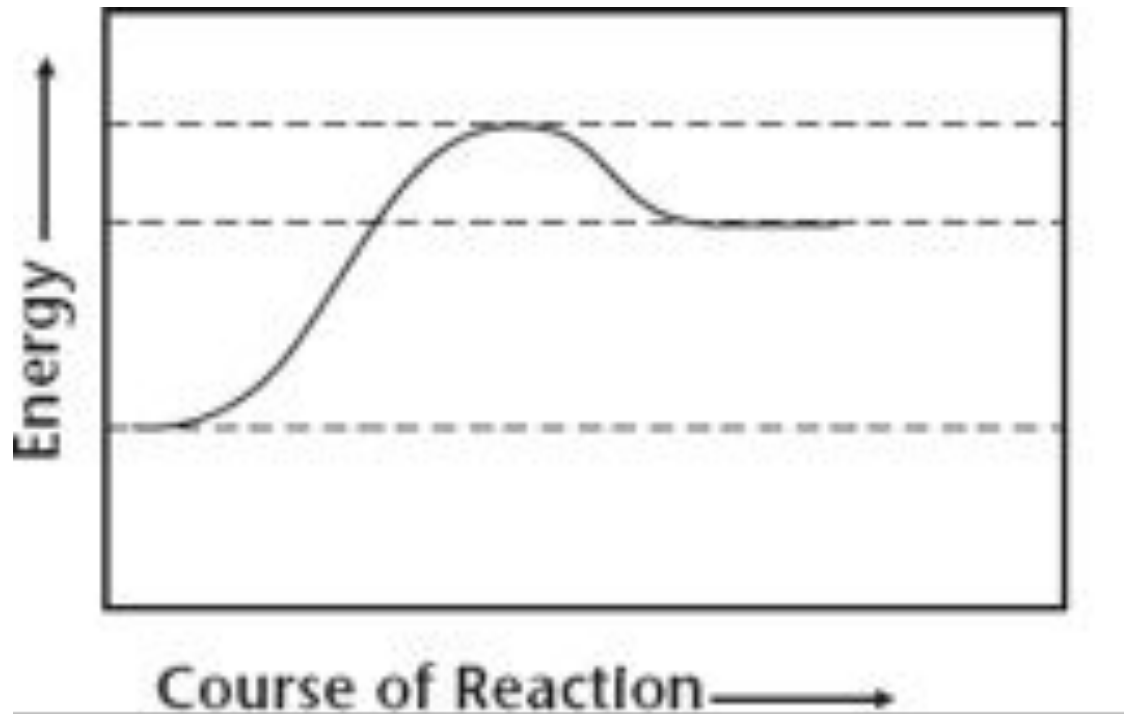
Photosynthesis Overview

This graph represents the photosynthesis reaction. Is this reaction endothermic or exothermic?



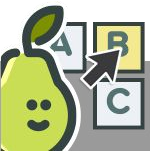
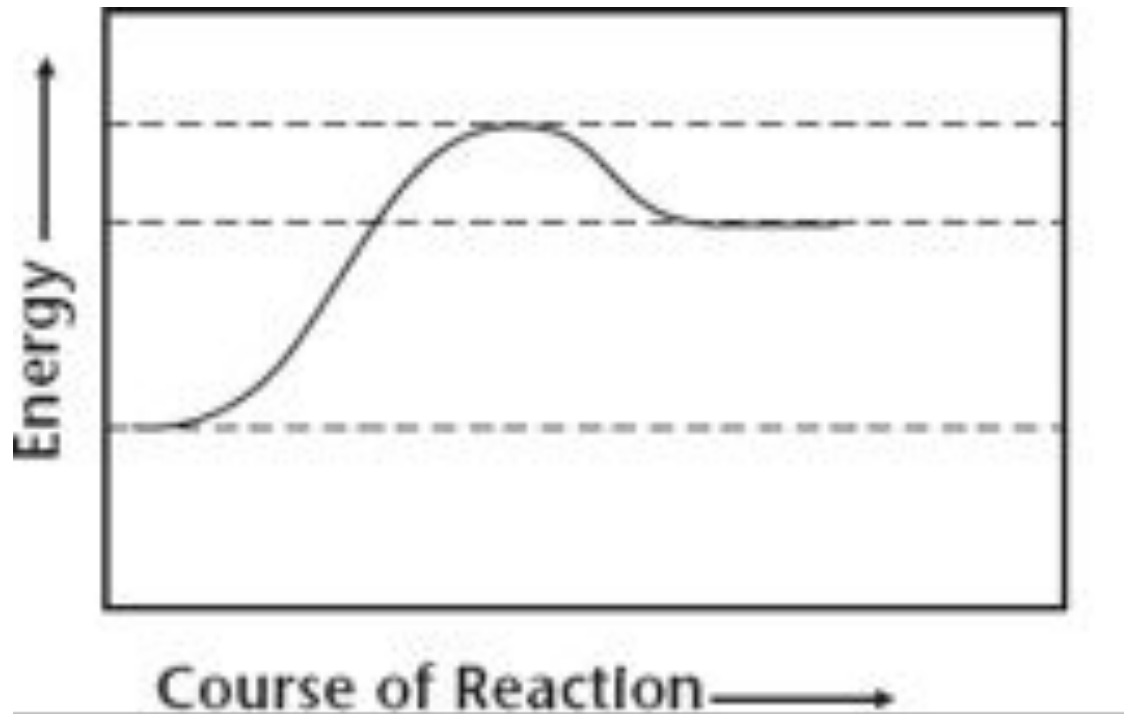
Photosynthesis Overview

Identify the reactants and products and their energy levels.



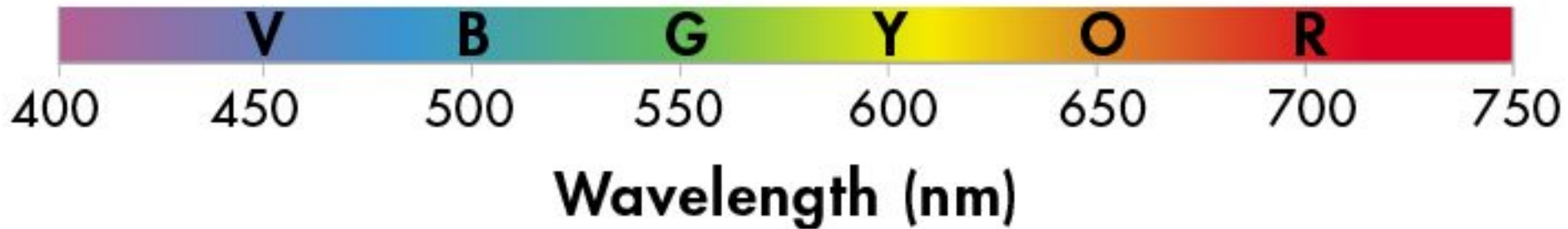
Photosynthesis Overview

What is the source of energy in this endothermic reaction?



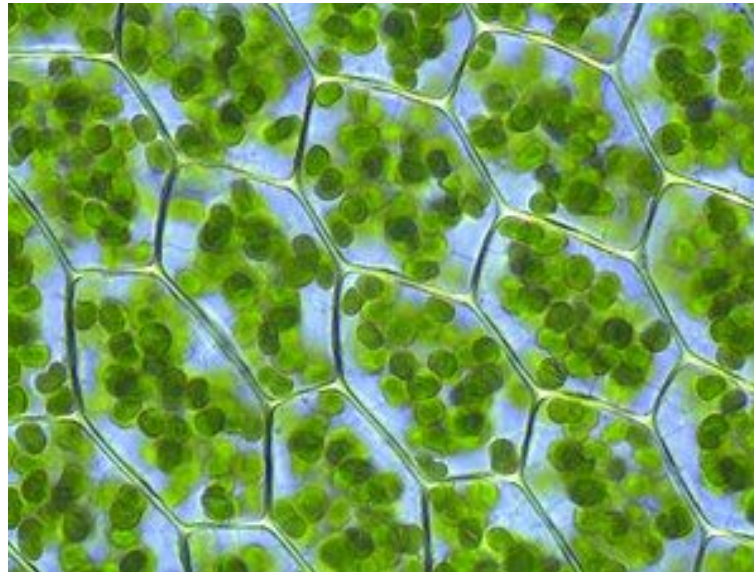
Light

- Energy from the sun travels to Earth in the form of **light**.
- Sunlight is a mixture of all the different colors of **visible light**.



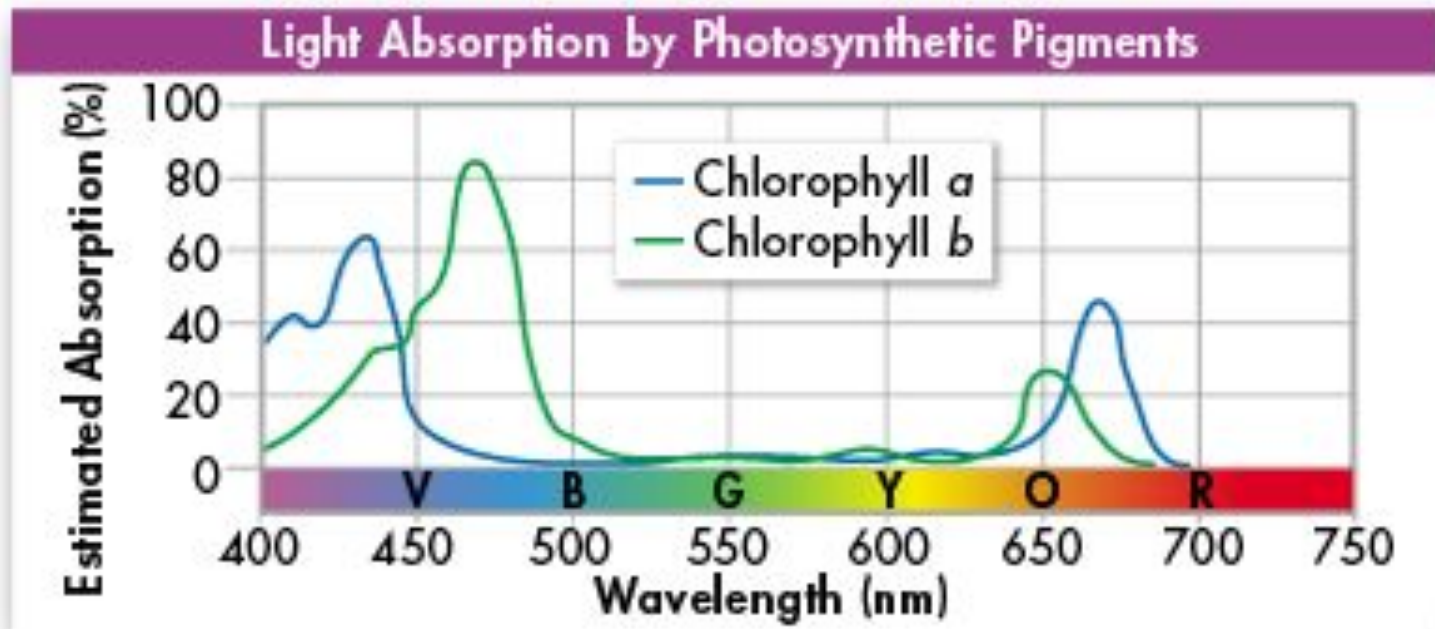
Pigments

- Photosynthetic organisms capture the sun's energy with light-absorbing molecules called **pigments** in the **chloroplasts** of their cells.
- The principal pigment is **chlorophyll**.



Pigments

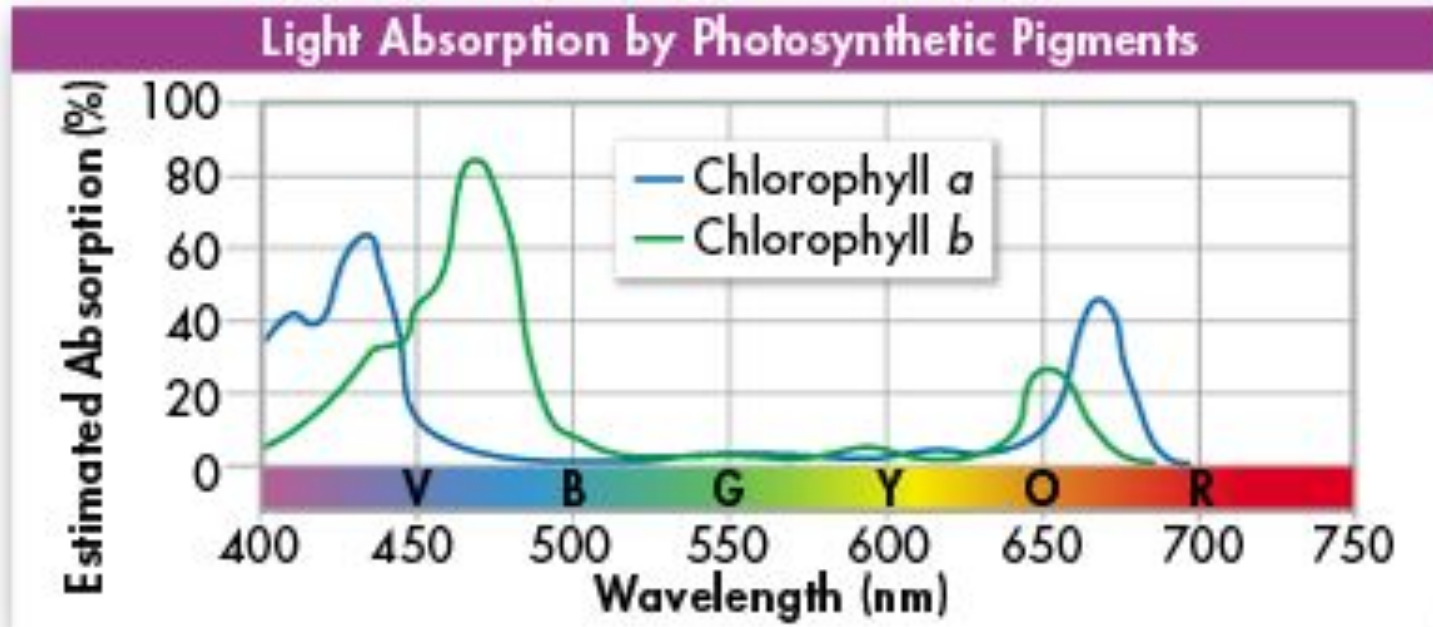
Why does chlorophyll make plants look green? (Hint: if a color is not absorbed, it is reflected)



Students, write your response!

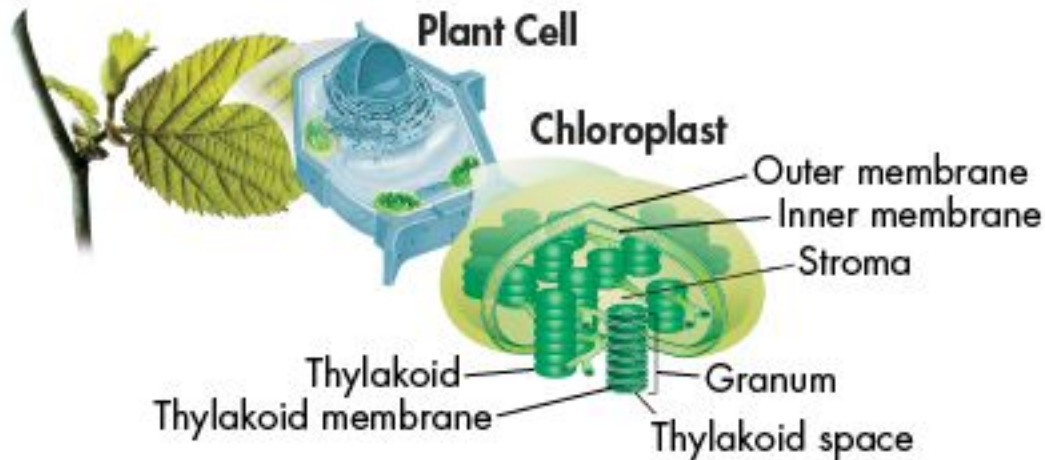
Pigments

- Chlorophyll absorbs blue-violet and red light but reflects green light.



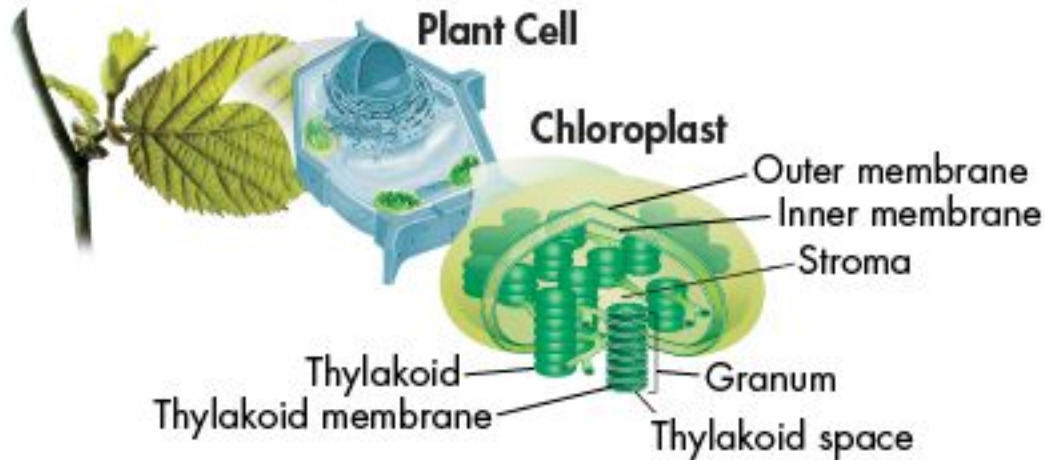
Chloroplasts

- Photosynthesis takes place inside organelles called **chloroplasts**.
- Chloroplasts contain saclike photosynthetic membranes called **thylakoids**.



Chloroplasts

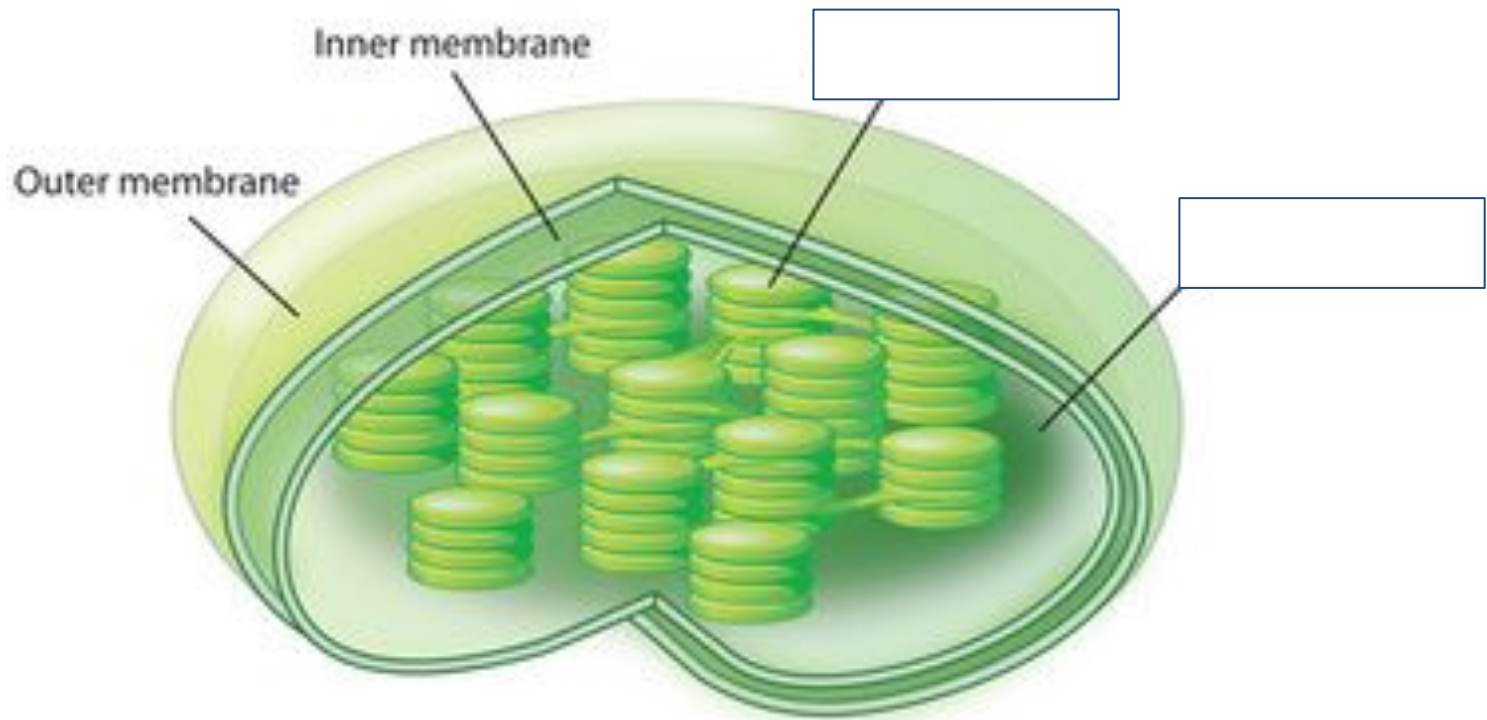
- Pigments are located in the **thylakoid membranes**.
- The fluid portion outside of the thylakoids is known as the **stroma**.



Energy Collection

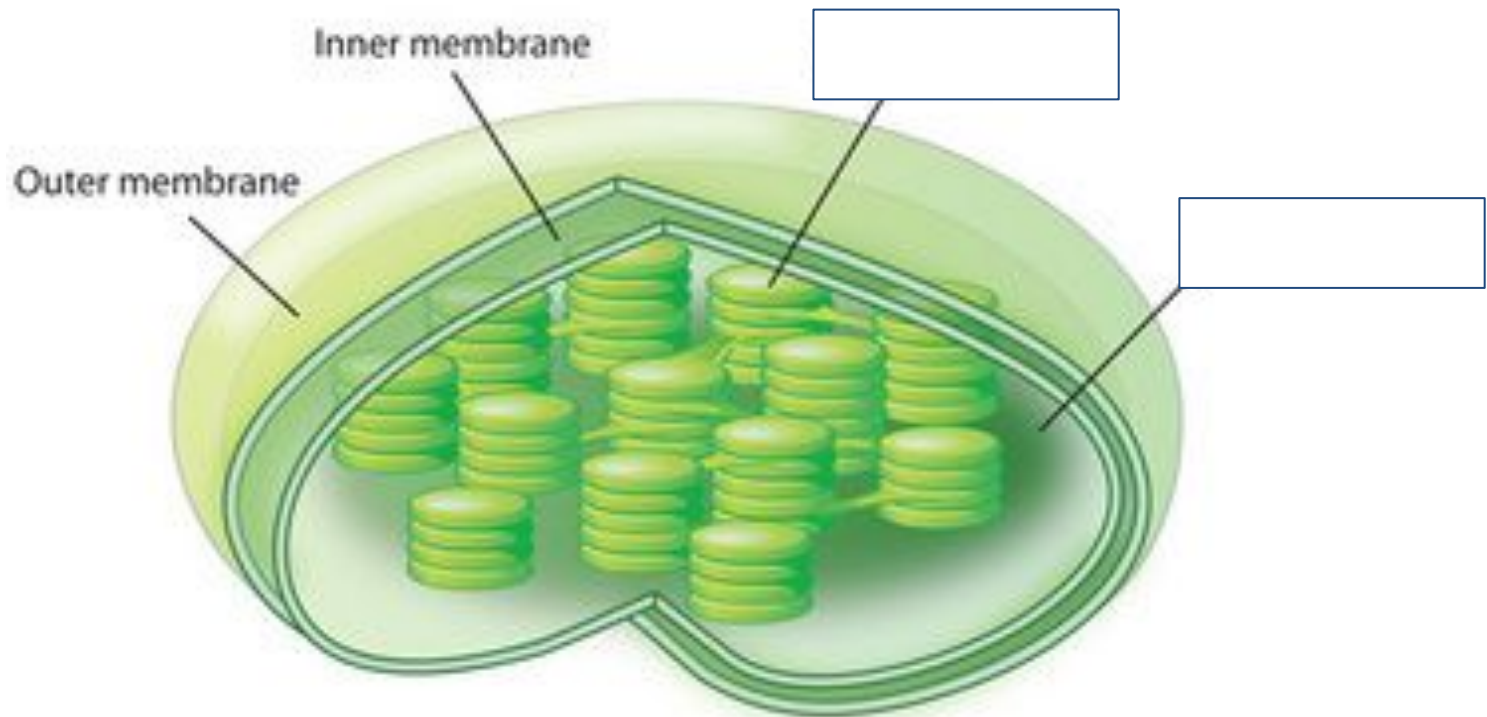
- The visible light absorbed by chlorophyll raises the energy level of **reactants**, which allows the photosynthetic reaction to occur.
- Without sunlight, **photosynthesis** will not occur.

Chloroplasts contain an abundance of
saclike photosynthetic membranes called



Students, draw anywhere on this slide!

The _____ is the fluid portion of the chloroplast located outside the thylakoids.



Students, draw anywhere on this slide!