

STUDY NOTES / BIOLOGY 101

Photosynthesis

Illustrative classroom example | Topic: How plants store light energy

THE BIG IDEA

Photosynthesis converts light energy into chemical energy stored in glucose. In plants, the process takes place in chloroplasts.

PROCESS AT A GLANCE

- Light-dependent reactions capture light in the thylakoid membranes and split water molecules.
- The reactions release oxygen and produce ATP and NADPH, which carry usable energy.
- The Calvin cycle uses ATP and NADPH to help build sugar from carbon dioxide.

QUICK RECALL

ONE-SENTENCE SUMMARY

Light + water + carbon dioxide -> glucose + oxygen

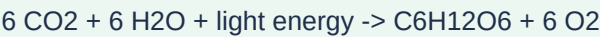
Key terms

Use the definitions to check understanding; wording is simplified for this sample.

TERM	MEANING	REMEMBER
Chloroplast	Organelle where photosynthesis occurs in plants.	Contains chlorophyll.
Chlorophyll	Pigment that absorbs light energy.	Reflects much of the green light we see.
Thylakoid	Membrane sac inside a chloroplast.	Site of light-dependent reactions.
Stroma	Fluid-filled space around the thylakoids.	Location of the Calvin cycle.
Stomata	Small pores that exchange gases in leaves.	Carbon dioxide enters; oxygen can exit.
Glucose	Sugar molecule that stores chemical energy.	A product of photosynthesis.

KEEP THE EQUATION IN CONTEXT

SIMPLIFIED EQUATION



This equation summarizes the overall inputs and outputs. The real process occurs in multiple linked reactions.

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Review & retrieval practice

Try answering from memory, then check the short prompts below.

PRACTICE QUESTIONS

1. Where do the light-dependent reactions take place?

In the thylakoid membranes of chloroplasts.

2. Why is chlorophyll useful to a plant?

It absorbs light energy that can drive photosynthesis.

3. What does the Calvin cycle use?

ATP, NADPH, and carbon dioxide to help build sugar.

4. Which gas is released as a by-product?

Oxygen, released when water is split in the light-dependent reactions.

STUDY TIP

Cover the answers and explain how light energy becomes stored chemical energy. Then redraw the process from memory.