4.2 Overview of Photosynthesis

KEY CONCEPT

The overall process of photosynthesis produces sugars that store chemical energy.

4.2 Overview of Photosynthesis

Photosynthetic organisms are producers.

- Producers make their own source of chemical energy.
- Plants use photosynthesis and are producers.
- Photosynthesis captures energy from sunlight to make sugars.

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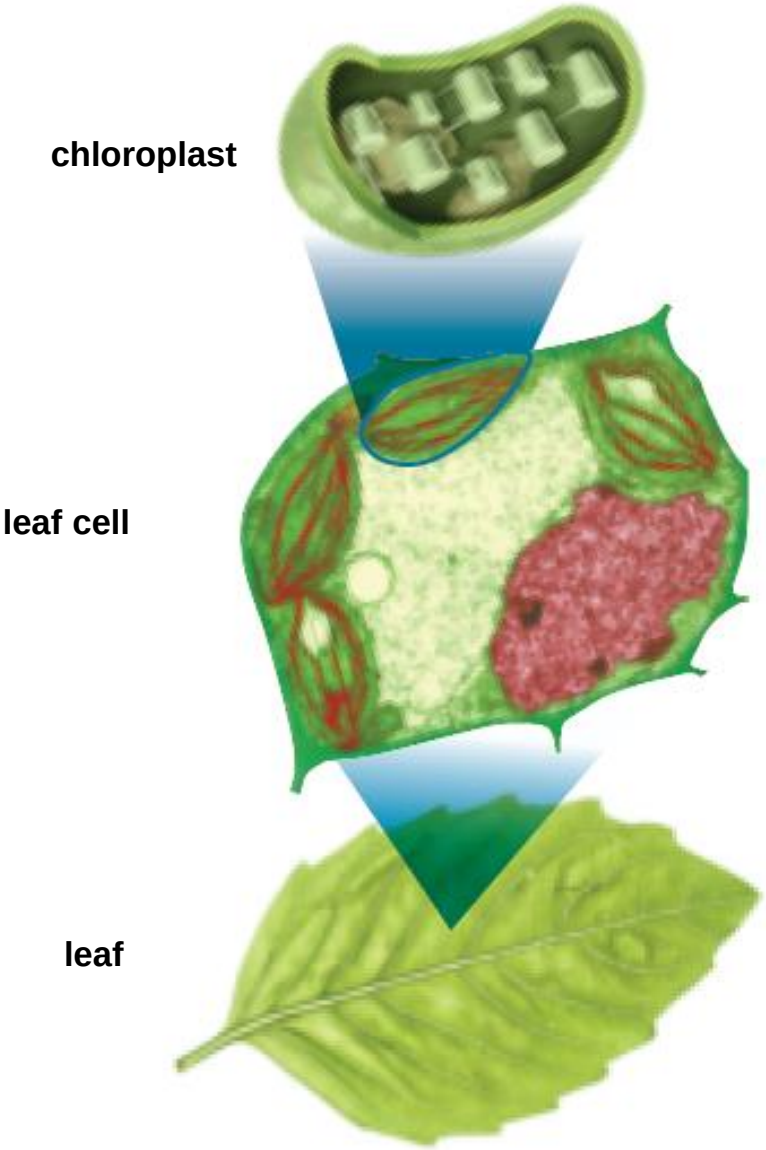
- Chlorophyll is a molecule that absorbs light energy.
- In plants, chlorophyll is found in organelles called chloroplasts.



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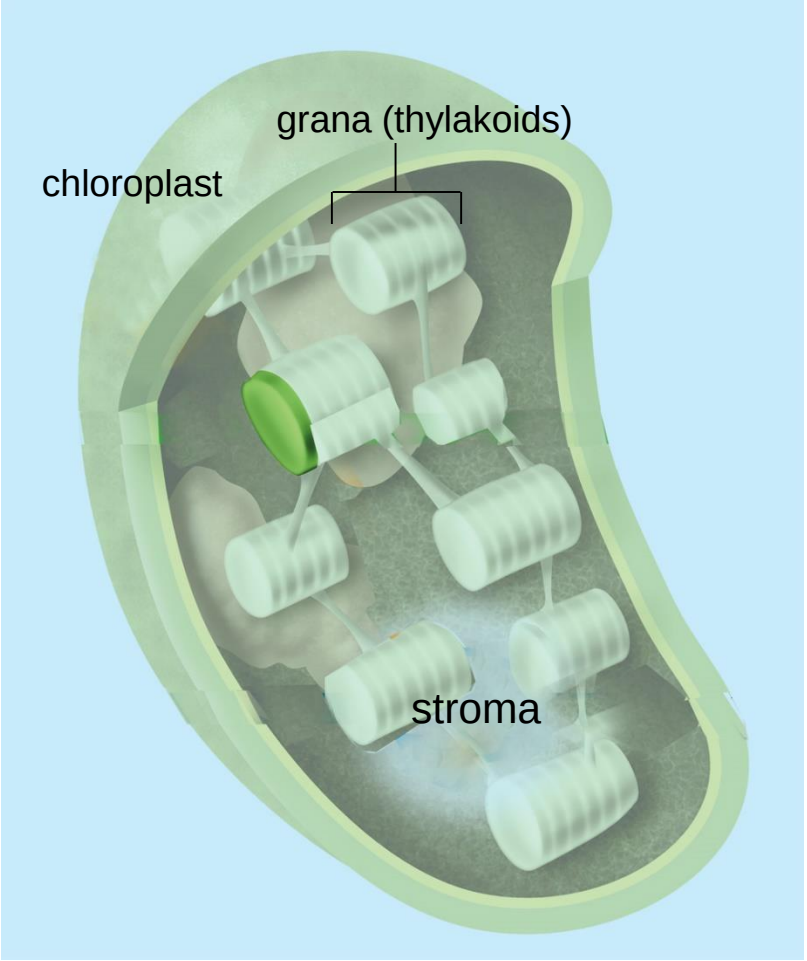
Photosynthesis in plants occurs in chloroplasts.

- Photosynthesis takes place in two parts of chloroplasts.
  - grana (thylakoids)
  - stroma



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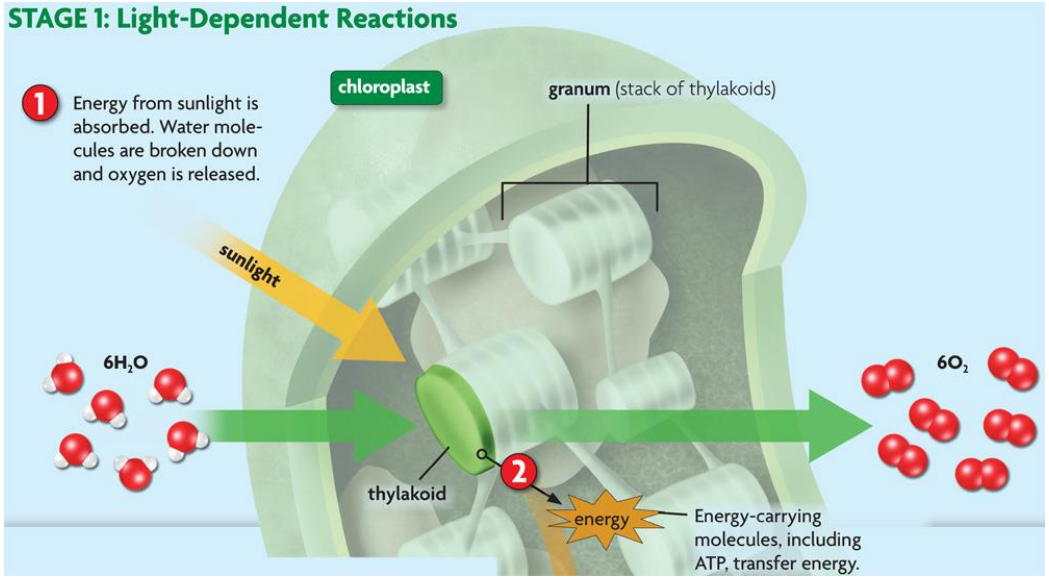
- The light-dependent reactions capture energy from sunlight.
  - take place in thylakoids
  - water and sunlight are needed
  - chlorophyll absorbs energy
  - energy is transferred along thylakoid membrane then to light-independent reactions
  - oxygen is released



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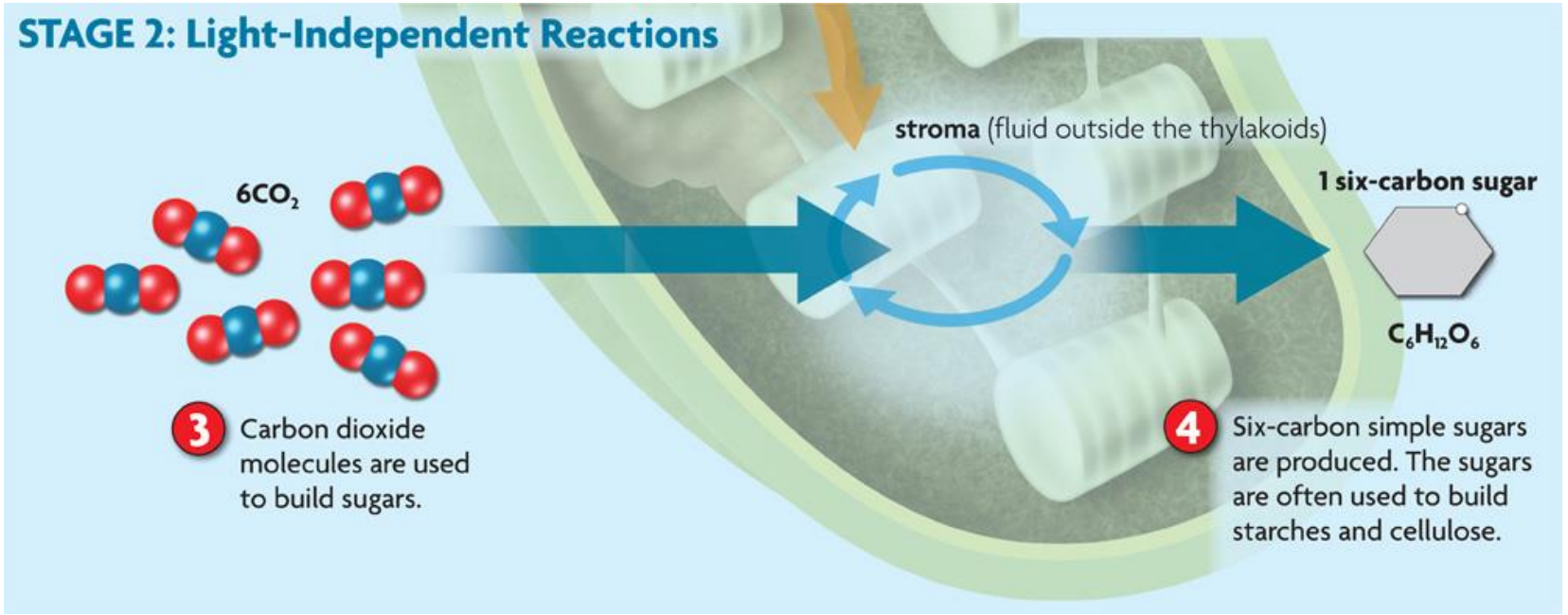
- The light-independent reactions make sugars.
  - take place in stroma
  - needs carbon dioxide from atmosphere
  - use energy to build a sugar in a cycle of chemical reactions



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- The equation for the overall process is:

  $6CO_2 + 6H_2O \rightarrow\rightarrow\rightarrow\rightarrow\rightarrow\rightarrow C_6H_{12}O_6 + 6O_2$