The Calvin Cycle : Light-independent Rxn's

The Calvin cycle is named after American scientist Melvin Calvin who worked out the details of the light-independent reactions.

The Calvin cycle uses ATP and NADPH from the light-dependent reactions to produce high energy sugars.

Remember: The Calvin cycle takes place in the stroma of the chloroplast and does not require light.

A

Six carbon dioxide molecules enter the cycle from the atmosphere. The carbon dioxide molecules combine with six 5-carbon molecules. The result is twelve 3-carbon molecules.

B

The twelve 3-carbon molecules are converted into higher energy forms using energy from ATP and high-energy electrons from NADPH.

C

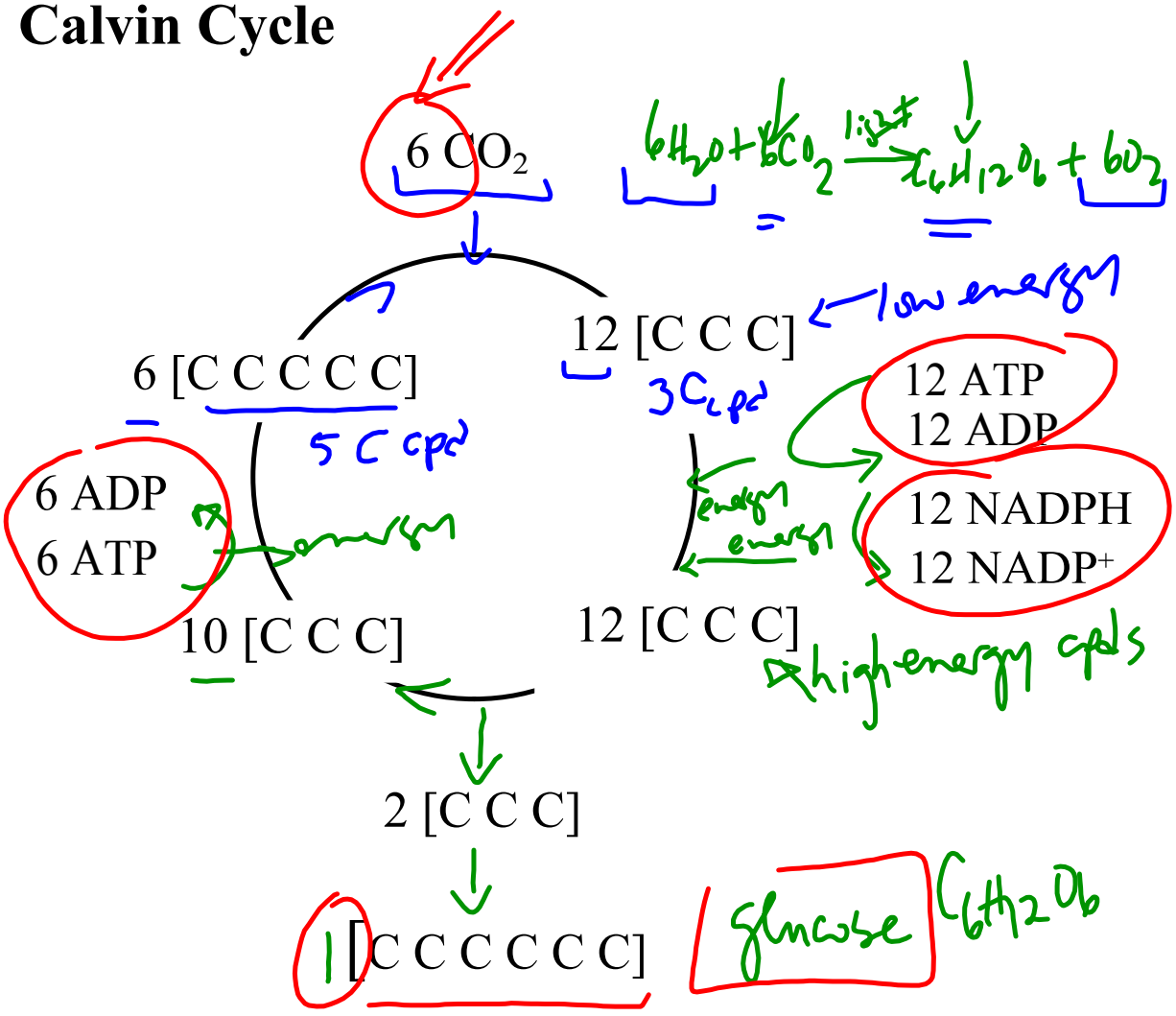
Two of the twelve 3-carbon molecules are removed from the cycle. The plant cell uses these molecules to produce sugars, lipids, amino acids and other compounds needed for cell growth and development.

D

The remaining ten 3-carbon molecules are converted back into six 5-carbon molecules. They combine with six new CO_2 molecules to begin the next cycle.

The Calvin cycle uses six molecules of carbon dioxide to produce a single 6-carbon sugar molecule.

Calvin Cycle



sugars and other compounds

What Factors Affect Photosynthesis?
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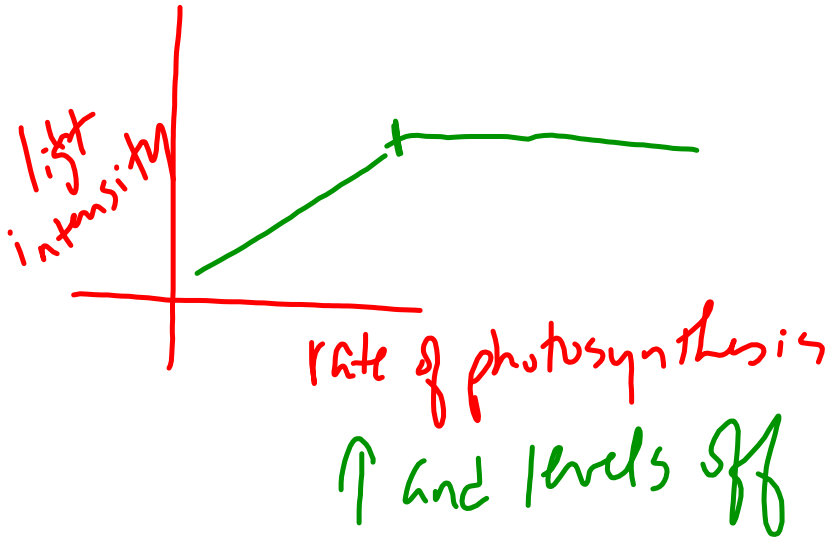
$6CO_2 + 6H_2O \xrightarrow{light} C_6H_{12}O_6 + 6O_2$

1. amount of water available
2. temperature [range for enzymes to function best: 0°C - 35°C]
3. intensity of light



C8/

Complete: Thinking Visually
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Attachments

Two_Types_of_Cells__Prokaryotic_and_Eukaryotic.asf

Bacteria.asf