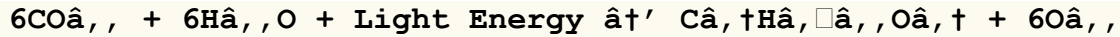


SOLAR ENERGY HARVESTING: PHOTOSYNTHESIS

[Visual Diagram: Light Energy + Chloroplast Interaction]



1. LIGHT-DEPENDENT REACTIONS

- **Location:** Thylakoid Membrane
- **Input:** H_2O , Photons, ADP, NADP^+
- **Output:** O_2 , ATP, NADPH
- **Mechanism:** Photolysis of water

2. LIGHT-INDEPENDENT (CALVIN CYCLE)

- **Location:** Stroma
- **Input:** CO_2 , ATP, NADPH
- **Output:** G3P (Glucose precursor)
- **Mechanism:** Carbon Fixation

ENERGY CONVERSION

- Electromagnetic to Chemical potential
- Excitation of Chlorophyll electrons
- Proton gradient (Chemiosmosis)

KEY COMPONENTS

- Chlorophyll a & b (Pigments)
- Photosystem I & II
- ATP Synthase enzyme
- Stomata (Gas exchange)