

Light Dependent Reaction

Here solar energy is used to manufacture ATP

IMPORTANT

Photo **Means Light**
(Light Dependent Reaction)

Synthesis **Means Make**
(Light independent reaction/- Calvin Cycle)

Chloroplasts

Where Photosynthesis Happens

Chloroplasts are **organelles**

They Have a Double **Membrane**

Thylakoid Membrane location of Light dependent reaction

Glossary

Photophosphorylation

adding phosphate using light

Photolysis

Splitting a molecule using light

Photoionisation

Light energy excites electrons in atom

2 Processes of Light dependent reaction

Electron Transport

brings about the reduction of NADP.2H

Phosphorylation adding phosphate to a molecule using light

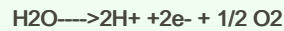
Produces ATP from ADP and Pi

Metabolic Pathway

A sequence of linked chemical reactions

Product of each reaction is referred to as a intermediate

Formula



Light strikes chlorophyll molecule

Photochemical reaction happens

Energy from light splits H₂O into constituent parts

Electron move down ETC

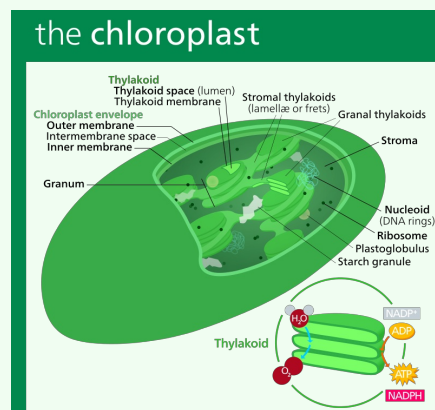
co Enzymes NADP collects electrons and goes to NADP.2H

2 Stages of Photosynthesis

Light Dependent Reaction

Light Independent Reaction / Calvin Cycle

Chloroplast



Super Basic Light Dependent Reaction

Light energy excites electrons in Chlorophyll

Photolysis of Water Produces Protons, Electrons, and O₂

Energy from electrons used to turn ADP into ATP

This also generates NADP.2H

Chemiosmosis

The process of Electrons flowing down the ETC

This creates a **proton gradient** across the membrane

This drives **ATP synthesis**

Light Dependent Reaction Basic

Reaction needs Light energy to start with

Takes place in the **Thylakoid Membrane**

Light energy absorb by the chlorophyll

This Excites Electrons in chlorophyll

Chlorophyll has been Photoionised (**giving more energy to electrons**)

Energy from electrons used to turn ADP into ATP

NADP take electrons and turn into **NADP.2H**

ATP carries energy

NADP.2H carries **hydrogen**

During light dependent reaction O₂ is Released by oxidation

Electron Transport Chains

Systems in the Thylakoid Membrane are linked by ETC

These transfer Electrons

Flow of Electrons creates a Photon Gradient across membrane

This drives ATP Synthesis

Referred to a **CHEMIOSMOSIS**

Energy in Light-d reaction used for 3 things

Making ATP from ADP and Pi

Making NADP.2H from NADP

Splitting Water into Protons (H⁺) and electrons and oxygen

