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 NAD.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

H2O---->2H+ +2e- + 1/2 O2

Light strikes chlorophyll molecule

Photochemical reaction happens

Energy from light splits H2O into constituent parts

Electron move down ETC

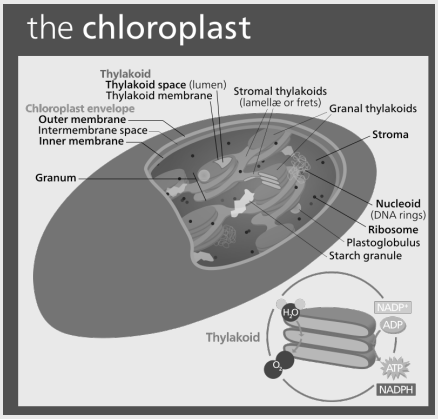
co Enzymes NADP collects electrons and goes to NAPD.2H

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 enegy 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 oxidisiation

Electron Transport Chains

Systems in the Thylakoid Memebrane 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