Biosyntheisis

Biosynthesis

> *building up small orgainc molecules into complex molecules*

Organic molecules Sugars come from ?

> inorganic molecules, carbon dioxide and water

Introduction

Photosynthesis is where energy from light is used to make **glucose**

From **H2O** and **CO2**

Occurs in a series of reactions

Energy is stored in glucose till plant releases it by respiration

Animals obtain glucose by eating plants

Respiration

Release of energy stored in glucose = Respiration

Cant use glucose for energy

Energy released from glucose used to make ATP

Biosynhetic Pathway

Metabolic Pathway	sequence of linked chemical reactions
Intermediate	product of reactions in metabolic pathway

Photosynthesis Metabolic Pathway

2 Stages

Light Dependent Reaction-makes ATP

Calvin Cycle - consumes ATP to make glucose

Optimising Photosynthesis

Light

High internsity at a certain wavelength

Temperature

temperature effects enzymes and stomata

Carbon Dioxide

to much or to little affects photosyntheisis

Autotrophs

organisms that produce their own carbon materials

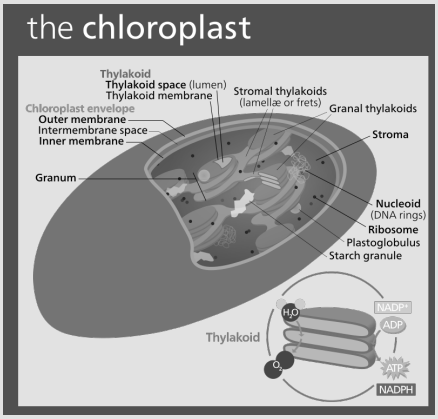
Uses of Energy

Muscle Contraction

Body Temperature

DNA replication

Chloroplast



Location of Photosynthesis

Photosynthetic Pigments absorb light

ATP

ATP is the immediate energy source in a cell

Cells can't get energy from glucose

ATP diffuses into part of the cell that needs energy

Adenine + ribose sugar+ 3 phosphate groups = ATP

ATP broken into ADP and Pi for energy

Phosphate bond broken = Energy Released

Hydrolysis Reaction

ATP Energy Source Benefits

No energy wasted as heat

Easily broken down

Easily transported round the cell

Stays in the cell

Condensation Reaction

ATP comes from a condensation reaction between ADP and inorganic phosphate.

CO Enzyme NADP

Co-Enzyme aids enzymes

Coenzyme in Photosynthesis NADP

Transfers Hydrogen from one molecule to another

Reduction and Oxidation (OILRIG)

Gives Hydrogen to/Take Hydrogen from