



Notes: Ch. 4 - ATP, Photosynthesis & Respiration



SECTION 4.1

(Energy for Life)

- All organisms need _____ in order to survive.
- 2 Major groups of organisms:
 1. _____-
 2. _____-
- **All life depends on autotrophs _____ or _____.
- 2 Major life processes:
 1. _____-
 2. _____-
- These processes keep alternating to keep _____ and _____ in the air.
- _____ - a series of reactions that alternate. The _____ of one reaction become the _____ of another reaction.

(ATP)

- ATP is the _____ molecule that is used for _____ & _____.
- ATP stands for _____
- ATP has 3 parts:
 - a. _____-
 - b. _____-
 - c. _____



- Energy is released when _____ is _____ to make _____
- Other energy molecule
 - a. _____-



(ATP/ADP Cycle)

A. Breakdown of ATP-3 steps:

- a. One _____ bond is broken (always between the last _____ phosphate _____)
- b. This forms _____.
- c. _____ occurs when the _____ phosphate group (and energy) _____ with another molecule. Draw steps:

B. Formation of ATP- reverse of breakdown:

- a. A _____ group breaks away from a molecule and is added back to _____. This requires _____. Draw steps:

SECTIONS 4.2-4.3

Photosynthesis

- Photosynthesis occurs in the _____ of plant cells.
- The 2 stages of photosynthesis are the _____ and the _____.
- **Photosynthesis Chemical Equation:**



Stage 1: Light Reactions:

- Also called _____ reactions
- _____ energy is turned into _____ energy
- Takes place in the _____ ()
 - A group of thylakoids is called _____.
 - Found in the _____
- What occurs in the Light Reaction:
 1. _____ () in the _____ absorbs sunlight (mostly red and blue light)
 - a. _____ light is _____
 2. Light energy is used to break down _____
 - a. The hydrogen (H) is used to make _____ and _____
 - b. The _____ (O_2) is released as _____

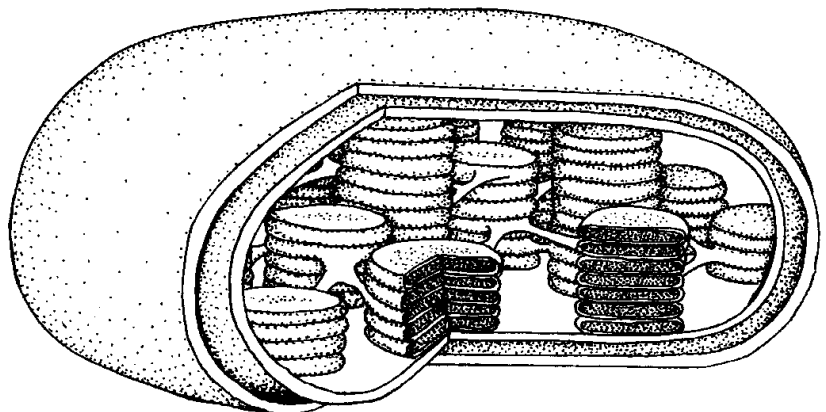


Stage 2: Dark Reactions :

- Also known as the _____ or _____
- Takes place in the _____ of chloroplasts
- _____ is the _____ in the chloroplast
- 1. _____ & _____ from the light reactions are used to build _____ molecules from _____.
- 2. _____ is formed and stored in the plant.

Label the diagram. Use page 104 in your book.

Chloroplast
Grana
Thylakoid
Chlorophyll
Stroma
Light reaction
Dark reaction



SECTION 4.4

Cell Respiration

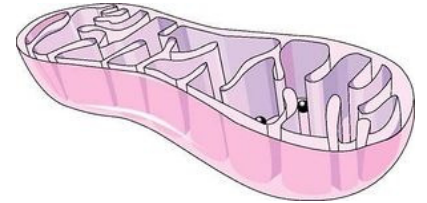
- Occurs in _____ (autotrophs and heterotrophs) because all organism need _____
- The reason _____ occurs is to produce _____. The waste products will be available for _____ to use in _____

Cell Respiration Equation:

• 2 Types of Respiration:

***Aerobic** = requires _____

***Anaerobic** = _____

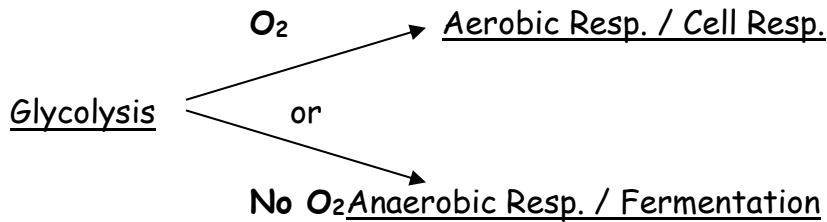


1. **Aerobic respiration:** occurs in the _____ of both _____ and _____



Before Cell Respiration		
1. GLYCOLYSIS	*Breaks down _____ molecules from food to make ATP and _____ molecules. *Occurs in the _____.	Occurs _____ the _____ in the cytoplasm
2 Stages of Cell Respiration		
2. <u>KREBS CYCLE</u>	Also known as _____ * Uses _____ * Makes _____, _____ & _____, and _____ (waste)	Takes place in the _____ of cells
3. <u>ELECTRON TRANSPORT CHAIN (E.T.C.)</u>	*Uses electrons from _____, _____ and _____ * Makes LOTS of _____ and _____ (waste)	Takes place in the _____ of cells

2. **Anaerobic respiration:** aka _____
- The first phase is _____. In this phase, glucose will be broken down into _____.
 - Occurs when _____ is NOT available to the cell



2 Types of Fermentation	Makes	Facts
1. Lactic Acid		Causes _____ after exercise!
2. Alcoholic		Bakers and brewers use a _____ (yeast) to make bread, beer, wine, etc.

Number of ATP produced	
Glycolysis	
Kreb Cycle	
Electron Transport Chain	
Fermentation	
Total ATP produced	
*****Where is the most ATP produced?	

	Photosynthesis	Cell Respiration
Organelle (where it takes place)		
Reactants		
Products		