Biology Chapter 8-1 and 8-2 Pages 200-207

- Objectives: Students will
- A) Compare autotrophs and heterotrophs
- B) List the three parts of ATP
- C) Compare and identify the role of ATP and ADP
- D) Summarize photosynthesis
- E) Write the PSN equation





Biological systems need energy!

For What?

- To do "work"
- Chemical activities
- Growth
- Movement
- Reproduction
- Repair
- How stored?
- CHEMICAL BONDS



Chemical Energy.....

- **Stored** in Food (Plant or Animal)
- Made by Autotrophs in <u>Photosynthesis</u> as Glucose (sugar)
- Released by Heterotrophs in <u>Respiration</u>, burns the glucose (sugar)



What are autotrophs?

- Producers
 - Use sunlight to make food
 - Usually green
 - Food
 - Provide 100%energy
 - Examples







What is a Heterotroph?

• Consumers





Loses energy as you move up the food chain Examples







Obj. C) Compare and identify the role of ATP and ADP ATP

- <u>High energy molecule =</u> <u>stores it</u>
- ATP comes from ADP when a phosphate adds to ADP
- Formed from release of chemical energy in respiration (sugar)



Obj. C) Compare and identify the role of ATP and ADP



2 Phosphates

3 Phosphates

Obj. C) Compare and identify the role of ATP and ADP



Obj. D) Summarize photosynthesis

Light energy Ch. 8-2



- Primary Energy Source for what process?
- Photosynthesis
- Used by Plants
- Chlorophyll pigment in chloroplasts absorbs light

Obj. D) Summarize photosynthesis

Plant Photosynthesis.....



- Makes Food
- <u>Uses</u>
- Sunlight
- Carbon dioxide
- Water
- Chlorophyll

a (c) 1999 World Book, Inc., 525 W. Monroe, Chicago, IL 60661. All rights

Obj. E) Write the PSN equation

Light Energy

Chloroplast

What colors are best absorbed by chlorophyll?

 $CO_2 + H_2O$



Blue and Red What color is not absorbed?

Green

Sugars $+ O_2$

Obj. E) Write the PSN equation The Equation

Word Version







6 Carbondioxides + 6 waters + energy = food + 6 oxygens (sugar)

Chemical Formula Version

$6CO_2 + 6H_20 + sun = C_6H_{12}0_6 + 6O_2$

<u>Answer the following Questions while</u> watching the following 5 minute video.

- 1. What is necessary for photosynthesis that tall plants can access more easily?
- 2. What is the pigment found in chloroplasts called?
- 3. What is produced by the chlorophyll that is tested for with iodine?
- 4. What are ATP molecules?