

# ENERGY TRANSFORMATION NOTES

## CELLULAR RESPIRATION

Cellular Respiration is the process that \_\_\_\_\_ energy by breaking down food when oxygen is present. This process occurs in the \_\_\_\_\_ of a cell.

Formula for Respiration:

If oxygen is NOT present during this process, \_\_\_\_\_ occurs.  
There are 2 types:

### ALCOHOLIC Fermentation

- Forms \_\_\_\_\_ and \_\_\_\_\_ as waste products
- What processes is it used for?  
\_\_\_\_\_

### LACTIC ACID Fermentation

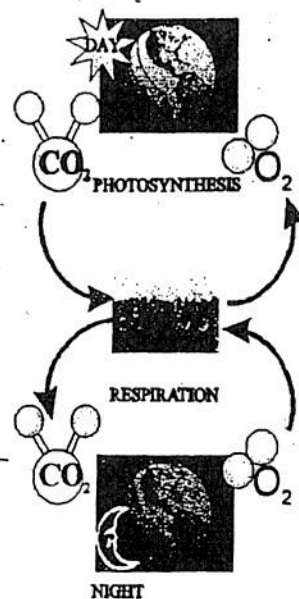
- Produces lactic acid in \_\_\_\_\_ when exercising without enough oxygen
- "FEEL THE BURN"

## HOW DO PHOTOSYNTHESIS & RESPIRATION RELATE?

- Almost \_\_\_\_\_ processes.
- Photosynthesis \_\_\_\_\_
- Respiration \_\_\_\_\_

Photosynthesis uses \_\_\_\_\_ & releases \_\_\_\_\_

Respiration releases \_\_\_\_\_ & uses \_\_\_\_\_



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# PHOTOSYNTHESIS

## ATP

Adenine Triphosphate

- adenine + ribose + 3 phosphates
- 1) • \_\_\_\_\_-storing molecule, only stores for a few minutes
- Source of all energy
- 2) • When one phosphate group breaks off, energy is \_\_\_\_\_



vs.

## ADP

Adenine Diphosphate

- adenine + ribose + 2 phosphates
- 3) • Molecule resulting from ATP \_\_\_\_\_ one phosphate (P)
- Another P may be added later



## Formula for Photosynthesis:

4)

Photosynthesis is the process in which energy from the 5) \_\_\_\_\_ is used to convert 6) \_\_\_\_\_ and 7) \_\_\_\_\_ into 8) \_\_\_\_\_ and 9) \_\_\_\_\_ (sugar).  
 Photosynthesis occurs inside the 10) \_\_\_\_\_ of plant cells.

There are 2 parts to the process:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_

Light Dependent Reactions: occurs in the 13) \_\_\_\_\_

- Inputs: Light and water
- Electrons pass along the 14) \_\_\_\_\_
- Products: NADPH, ATP, and oxygen (comes from water)
- The NADPH and ATP are then used for

Calvin Cycle (Dark Reactions): occurs in the 15) \_\_\_\_\_

- Inputs: NADPH, ATP, and CO<sub>2</sub>
- A series of reactions lead to production of 16) \_\_\_\_\_

Chlorophyll: 17) \_\_\_\_\_ pigment in cells that absorbs blue & Red light energy

- moves energy to electrons that drive these reactions

Photosynthesis Song

A little bit of  
 carbon dioxide

A little bit of  
 water on the side

A little bit of  
 sunlight all day long

Makes  
 sugar (kiss)

And  
 oxygen (breath)

To keep us strong!