

Name:

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Period:

Biology Notes Supplement: **Cellular Respiration**

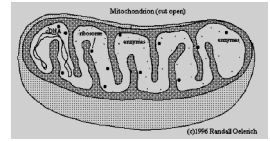
What does the word respiration mean to you?

All living organisms use cellular respiration. This is the process of making usable cell energy from the food we eat. Animals, plants, fungi and bacteria all use cellular respiration.

The Formula:



Notes



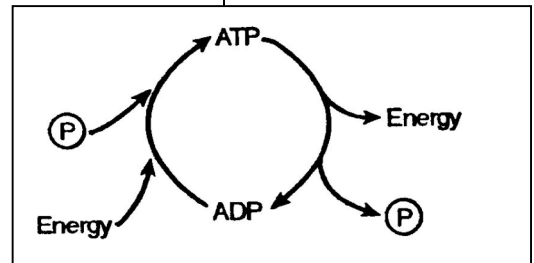
Now, write out this formula using words!

→

_____, or proteins that do work, use the products on the left of the arrow to make the ones on the right.

What is ATP?

The gasoline of the cell
The "P" is where the energy comes from
The cell must make ATP using large organic molecules like _____



STAGE 1: Glycolysis/ Glucose Oxidation

The task of breaking down big sugars into usable energy
Takes place in the _____ (fluid inside the cell)
Breaks down one big sugar into two smaller sugars (_____)
Makes some ATP

STAGE TWO: Krebs cycle

Takes place in the _____
Uses the small sugars from _____ (pyruvic acid) to make ATP
Delivers H+ for use in the _____
Released **carbon dioxide gas (CO2)** as a waste product

STAGE THREE: Electron Transport Chain

Uses oxygen (transported from lungs by red blood cells)
Makes LOTS of ATP
Concentration of H+ drives an ATP production machine in the mitochondria

Aerobic vs Anaerobic Respiration

Aerobic: with oxygen

→For us, this is the normal way our cells respire
→When we use LOTS of energy (like running) oxygen can't get to our cells fast enough, so cells switch to _____.

Anaerobic: without oxygen

→Bacteria and yeast use this method of making ATP from _____
→Our cells do this if there isn't enough _____.
→This type of respiration is also called 'fermentation'
→In people, fermentation makes _____, which makes our muscles sore
→In yeast cells, fermentation makes alcohol and _____ gas. This is why champagne is bubbly and why yeast bread rises.

At which stage does the body decide to use fermentation when oxygen is missing? Draw an arrow from anaerobic respiration to the correct stage!

