QUIZ 5 NOTES

REVIEW: CHALLENGES OF LIFE

Whether an organism is made of a single cell or is multicellular, every living thing has three basic challenges in life:

1. _ 2.

3.

All organisms make or consume some sort of food to provide the energy their cells need.

CELLULAR RESPIRTATION

Which cells perform Cellular Respiration? __

Organelles where Cellular Respiration happens:

Prokaryotes – ___ Eukaryotes – ___

Parts of the Chemical Formula: __ → __

Cell Respiration Formula

C6H12O6 + 6O2 > 6CO2 + 6H2O + ATP

Glucose Oxygen Carbon Water Energy Dioxide

ENERGY IN CELLS

Fill in the Blanks!

- Cells take in glucose, a __ molecule from food, but cells can't use the energy in that form.
- 2. Glucose is first broken down in the ___, and the products of that process are transported into the mitochondria.
- 3. **Mitochondria** use oxygen (O₂) to convert broken down glucose into carbon dioxide (CO₂) and
 - __ (H₂O). This process is called **cellular respiration**.
 - The energy from the chemical bonds in glucose can be stored in a simpler form in the chemical bonds of <u>an</u> energy molecule called
 - Cells can more readily use the energy in ATP to fuel the chemical reactions that take place within ___.

VOCABULARY

 $\begin{array}{ccc} 2H_2 + O_2 \rightarrow 2H_2O \\ & & \\ \hline reactants & products \\ \end{array}$

Chemical Reaction – the process when one or more substance is changed into one or more new substances due to the breaking and forming of chemical bonds.

Cellular Respiration – the process of breaking down sugars using oxygen to create carbon dioxide, water and ATP energy

Cytoplasm – a gel-like substance in cells that holds organelles and where cellular respiration happens in prokaryotes

Mitochondria – where cellular respiration occurs in eukaryotes

Photosynthesis – the process of combining carbon dioxide, water and light energy from the sun to make making oxygen and sugar (chemical energy)

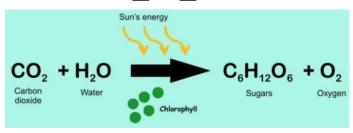
Chloroplast – the organelle where photosynthesis takes place; chloroplasts are found in the leaves of plants and protists, and in some bacteria

Chlorophyll - the pigment in chloroplasts that captures sunlight to begin photosynthesis

PHOTOSYNTHESIS

Which cells perform Photosynthesis? ___
Organelles where Photosynthesis happens

Parts of the Chemical Formula:



PREDICTION

How do you think Photosynthesis is "connected to" Cellular Respiration?

<type prediction here>

COMPARING CELLULAR RESPIRATION & PHOTOSYNTHESIS

NOTE: The RELATIONSHIP between these processes is that they are __ chemical reactions!

Complete the Venn Diagram!

