

Internet Activity: Cell Respiration and Fermentation

- Go to: http://www.phschool.com/science/biology_place/biocoach/cellresp/intro.html

- Complete the following statements:

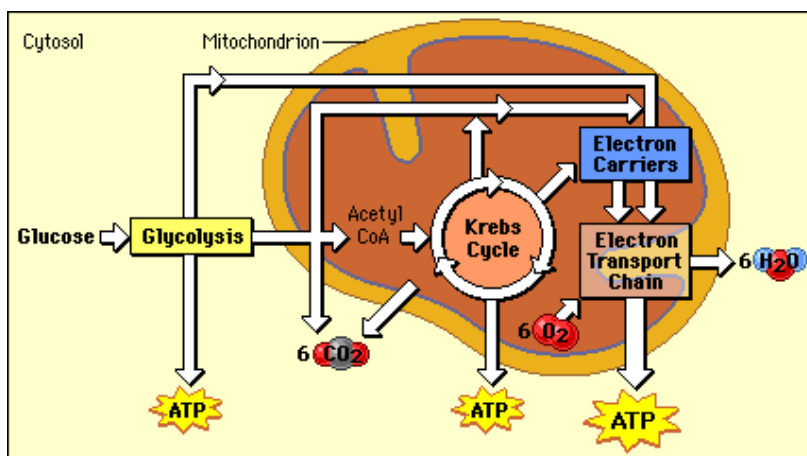
1. Cellular respiration is the process by which the chemical energy of _____ is released and partially captured in the form of _____.
2. _____, _____, and _____ can all be used as fuels in cellular respiration, but _____ is most commonly used as an example to examine the reactions of and pathways involved.

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3. We can divide cellular respiration into three metabolic processes: _____, the _____, and _____.

Each of these occurs in a specific region of the cell.

4. _____ occurs in the cytosol (cytoplasm).
5. The Krebs cycle takes place in the matrix of the _____.
6. _____ via the electron transport chain is carried out on the inner mitochondrial membrane.



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7. In glycolysis, the 6-carbon sugar, _____, is broken down into two molecules of a 3-carbon molecule called _____.

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8. The Krebs cycle occurs in the mitochondrial matrix and generates a pool of _____ (ATP, NADH, and FADH₂) from the oxidation of pyruvate, the end product of glycolysis.

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9. The electron transport chain allows the release of the large amount of _____ stored in reduced NAD⁺ (NADH) and reduced FAD (FADH₂).

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10. In many cells, if oxygen is not present, pyruvate is metabolized in a process called _____.

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11. The chemical energy stored in glucose generates far more ATP in _____ than in respiration without _____ (glycolysis and fermentation).

What I learned?

Respond in 2-3 sentences to the following questions:

1. Define cellular respiration and name the three organic compounds that can be used as fuel in cellular respiration.
2. What are the three metabolic processes of cellular respiration? Which one of these processes release the most chemical energy?
3. What are the raw materials needed for aerobic cellular respiration and what are the end products?