

Using the following list of words, fill in the blanks with the correct term. Some terms may be used more than once.

Glycolysis, Krebs cycle, electron transport chain, pyruvate, ATP, NADH/H<sup>+</sup>, cytoplasm, oxygen, carbon dioxide (CO<sub>2</sub>), matrix of mitochondria, FADH<sub>2</sub>, proton (H<sup>+</sup>), gradient, mitochondria, inner membrane, electron carriers, proton (H<sup>+</sup>) pumps, protons (H<sup>+</sup>), intermembrane space, matrix, electron transport chain, glucose, ATP synthase, phosphate, ADP, greater, diffuse, electrons, chemiosmosis, water.

Aerobic cellular respiration is composed of three steps. The steps, in order, are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. During \_\_\_\_\_, some of the potential energy of a primary foodstuff, e.g., the sugar \_\_\_\_\_, is released during a series of chemical reactions that occur in the \_\_\_\_\_ of the cell. Glucose, a six-carbon sugar molecule, is converted to two molecules of \_\_\_\_\_, a three-carbon molecule. In addition, a small amount of the total energy in glucose is stored in a few molecules of \_\_\_\_\_, the energy carrier of the cell, and some high-energy, electron carriers \_\_\_\_\_. Glycolysis does not require \_\_\_\_\_ and does not generate the gas \_\_\_\_\_.

\_\_\_\_\_, the end product of glycolysis is converted to acetyl CoA, with the release of one molecule of carbon dioxide, for further processing by the \_\_\_\_\_ that occurs in the \_\_\_\_\_. In the Krebs cycle some high energy, electron carriers \_\_\_\_\_ and \_\_\_\_\_, and \_\_\_\_\_, energy carrier, are generated. Two \_\_\_\_\_ molecules are released for each cycle of the Krebs cycle.

Glycolysis and the Krebs cycle generate only a small amount of \_\_\_\_\_ - only 4 molecules per molecule of glucose. A large amount of the chemical energy from glucose is stored in the form of the electron carriers NADH/H<sup>+</sup> generated during \_\_\_\_\_ and \_\_\_\_\_ and FADH<sub>2</sub> generated only during the \_\_\_\_\_.