

Homework 4.4: Overview of Cellular Respiration

KEY CONCEPT

The overall process of cellular respiration converts sugar into ATP using oxygen.

VOCABULARY

cellular respiration	anaerobic
aerobic	Krebs cycle
glycolysis	

MAIN IDEA: Cellular respiration makes ATP by breaking down sugars.

Circle the word or phrase that best completes the statement.

1. Cellular respiration is a process that releases *glucose / energy* from sugars and other carbon-based molecules to make ATP when *oxygen / carbon dioxide* is present.
2. Cellular respiration is called an aerobic process, because it needs *oxygen / carbon dioxide* to take place.
3. Cellular respiration takes place in the *chloroplasts / mitochondria*.
4. During glycolysis, one molecule of *glucose / protein* is split into two three-carbon molecules and two *ADP / ATP* are formed.

MAIN IDEA: Cellular respiration makes ATP by breaking down sugars.

5. Circle the two ways in which cellular respiration seems to be the opposite of photosynthesis.
 - a. The reactions occur at either end of the chloroplast.
 - b. The overall chemical equations are the reverse of each other.
 - c. Cellular respiration breaks down sugars to make ATP, and photosynthesis uses ATP to make sugars.
 - d. Cellular respiration produces oxygen, and photosynthesis produces carbon dioxide.
6. Circle the two parts of a mitochondrion where cellular respiration takes place.
 - a. matrix
 - b. stroma
 - c. inner mitochondrial membrane
 - d. outer mitochondrial membrane

Vocabulary Check

Fill in the blank with the word or phrase that best completes the sentence.

12. The prefix *glyco-* comes from a Greek word that means “sweet.” The suffix *-lysis* comes from a Greek word that means “to loosen.” Therefore, during glycolysis, a _____ is broken down (or “loosened”).
13. Glycolysis is an anaerobic process, because it takes place without _____.
14. During the Krebs cycle, chemical reactions _____ carbon-based molecules.