

Respiration BMZ116B Study Guide

- To perform their many tasks, living cells require _____ from outside sources.
- Energy enters most ecosystems as _____ and leaves as _____.
- Photosynthesis generates _____ and _____ that the mitochondria of eukaryotes use as _____ for cellular respiration.
- Cells harvest the chemical energy stored in organic molecules and use it to regenerate _____, the molecule that drives most cellular work.
- Respiration has three key pathways: _____, the _____, and _____.

A. The Principles of Energy Harvest

1. Cellular respiration and fermentation are catabolic, energy-yielding pathways.

- The arrangement of atoms of organic molecules represents _____ energy.
- Enzymes _____ the systematic degradation of organic molecules that are rich in energy to simpler waste products with _____ energy.
- Some of the released energy is used to do _____; the rest is dissipated as _____.
- Catabolic metabolic pathways _____ the energy stored in complex organic molecules.
- One type of catabolic process, _____, leads to the partial degradation of sugars in the absence of oxygen.
- A more efficient and widespread catabolic process, _____, consumes _____ as a reactant to complete the breakdown of a variety of organic molecules.
 - In eukaryotic cells, _____ are the site of most of the processes of cellular respiration.
- Cellular respiration is similar in broad principle to the combustion of gasoline in an automobile engine after _____ is mixed with hydrocarbon fuel.
 - _____ is the fuel for respiration. The ex_____