

mr johanson biology  
roman steckclair 11/19/25

1. what is the primary need of all cells?  
the primary need of all cells is energy.

2. what are the two major groups of organisms based on how they obtain their energy?  
#1 autotroph #2 heterotrophs.

3. List the two components of an ATP molecule. What is ATP's function?  
adenine and ribose. the function is its the main energy currency of the cell.

4. describe how ATP stores energy.  
it stores energy in the bonds between its phosphate groups.

5. what is the difference between ADP and ATP? Which hold more energy?  
ATP has 3 phosphate groups and holds more energy. ADP has 2 phosphate groups and holds less energy.

6. why must cells have a continuous supply of energy?  
because they're constantly performing essential life processes that never stop.

1 what is the difference between cellular, respiration and breathing?  
breathing is a physical process of inhaling oxygen. Cellular respiration The chemical process inside cells that converts glucose and oxygen into ATP.

2. name the two types of cellular respiration and list organisms that carry on each type. #1 aerobic respiration most plants, animals, fungi. #2 anaerobic respiration yeast, muscle cells, most bacteria.

3. give a chemical equation for Aerobic cellular respiration.  
 $C_6H_{12}O_6 + 6O_2 \gg 6CO_2 + \text{energy(ATP)}$

4. Where does each of the following occur: glycolysis, Krebs cycle, electron transport chain?  
glycolysis: cytoplasm. Krebs cycle: mitochondrial matrix. electron transport chain: inner mitochondria membrane.

5. what is required to start glycolysis and what is produced?  
glucose, 2 ATP ,NAD.

6. what is required to start the krebs cycle and what is produced?  
acetyl COA, oxaloacetate, NAD and FAD, ADP. High energy electron carriers. another electron carrier. Energy molecule. waste product.

7. what is required to start the electron transport chain and what is produced?  
proteins and enzymes in the inner mitochondria membrane. produces-ATP, water, NAD and FAD.

mr johanson biology  
roman steckclair 11/19/25

8. List two forms of fermentation. Give the beginnings of this is in the end products of each. #1  
lactic acid fermentation beginning: pyruvate( from glycolysis) end: lactic acid + a little ATP. #2  
alcoholic fermentation beginning: pyruvate(from glycolysis) end: ethanol + CO<sub>2</sub>+ a little ATP.

9. compare and contrast aerobic cellular respiration with the following. A photosynthesis., b  
Alcoholic fermentation, and c lactic acid fermentation.

aerobic respiration vs photosynthesis: breaks down glucose. makes glucose. alcoholic

fermentation vs aerobic respiration: does not need oxygen. needs oxygen. lactic acid

fermentation vs aerobic fermentation: doesn't need oxygen. needs oxygen.