

## Cellular Respiration Worksheet

16. What are the 3 phases of the cellular respiration process?

Glycolysis, Krebs Cycle, Electron Transport

16. Where in the cell does the glycolysis part of cellular respiration occur?  
in the cytoplasm

16. Where in the cell does the Krebs (Citric Acid) cycle part of cellular respiration occur?  
in the mitochondria

16. Where in the cell does the electron transport part of cellular respiration occur?  
in the mitochondria

16. How many ATP (net) are made in the glycolysis part of cellular respiration?  
2 (net)

16. How many ATP are made in the Krebs cycle part of cellular respiration?  
2

16. How many ATP are made in the electron transport part of cellular respiration?  
32 – 34

16. In which phase of cellular respiration is carbon dioxide made?  
Glycolysis and Krebs Cycle

16. In which phase of cellular respiration is water made?  
Electron Transport

16. In which phase of cellular respiration is oxygen a substrate?  
Electron Transport

16. In which phase of cellular respiration is glucose a substrate?  
Glycolysis

16. What would happen to the cellular respiration process if the enzyme for one step of the process were missing or defective?  
The entire process beyond that point could not happen. (Enzymes allow the chemical reaction to occur, without the enzyme, there is no reaction.)

16. And 14. What happens to the high-energy electrons (and hydrogen) held by NADH if there is no O<sub>2</sub> present? If no oxygen is present, water is never made and the electron transport chain shuts down. The electrons cannot be passed on to the coenzymes, and there is no energy for ATP synthase to make ATP.

17. What is the overall reaction for cellular respiration?  
 $C_6H_{12}O_6$  (Glucose) + 6O<sub>2</sub> → 6CO<sub>2</sub> + 6H<sub>2</sub>O + 36-38 ATP

16. How many ATP total are made from cellular respiration? 36-38 ATP

17. Only a small part of the energy released from the glucose molecule during glycolysis is stored in ATP. How is the rest of the energy released? (HINT: It is a product in the overall reaction for cellular respiration.)  
- Heat (in all chemical reactions some energy is lost as heat)

- Stored in the electrons passed on to NADH