Date _____ Class_____ Name _____

9 - Glycolysis Mapping Lab

Introduction:
The cell is the basic unit of life. One of its responsibilities is to produce energy. Chemical energy, stored in the chemical bonds of glucose, is transferred into smaller, easy to use ATP molecules. The process that allows this to happen is called aerobic respiration. The process occurs in three distance areas within the cell. The first part is called glycolysis, which occurs in the cytoplasm. The second part, called the Krebs cycle, occurs in the mitochondrial matrix; while the final part, called the ETS, occurs in the inner mitochondrial membrane.

Objectives:
- Students will be able to follow the process of aerobic respiration by cutting out the label parts and pasting them, in the proper order, on a skeleton of a cell.
- Students will be able to determine the total number of ATP molecules produced by respiration for one glucose molecule.

Materials:
- Scissors
- Transparent tape or glue
- Template of the cell
- Labels for each step of aerobic respiration
- Class notes or textbook

Procedures:
1. Using a pair of scissors, cut out all of the labels dealing with aerobic respiration.

2. Locate the cell template on the lab paper. Notice that it contains a nucleus and another rather large structure. What is the name of this other cellular organelle?

_____.

3. With either glue or tape, attach the label to this cellular organelle. What is its major function in the cell?

_____

_____

Date _____ Class_____ Name _____

4. Describe its physical structure.

_____

_____

_____.

5. Looking at the remainder of the labels, arrange them in the proper order representing the steps of aerobic respiration. Then write out the word or words in the proper space below.

a). Step 1. _____

b). Step 2. _____

c). Step 3. _____

d). Step 4. _____

6. What is ATP? _____

_____

7. How many useable ATP molecules did the process of glycolysis produce?
_____.

8. How many ATP molecules did the Krebs cycle produce per one molecule of glucose?
_____.

10. How many ATP molecules were produced from one molecule of glucose?
_____.

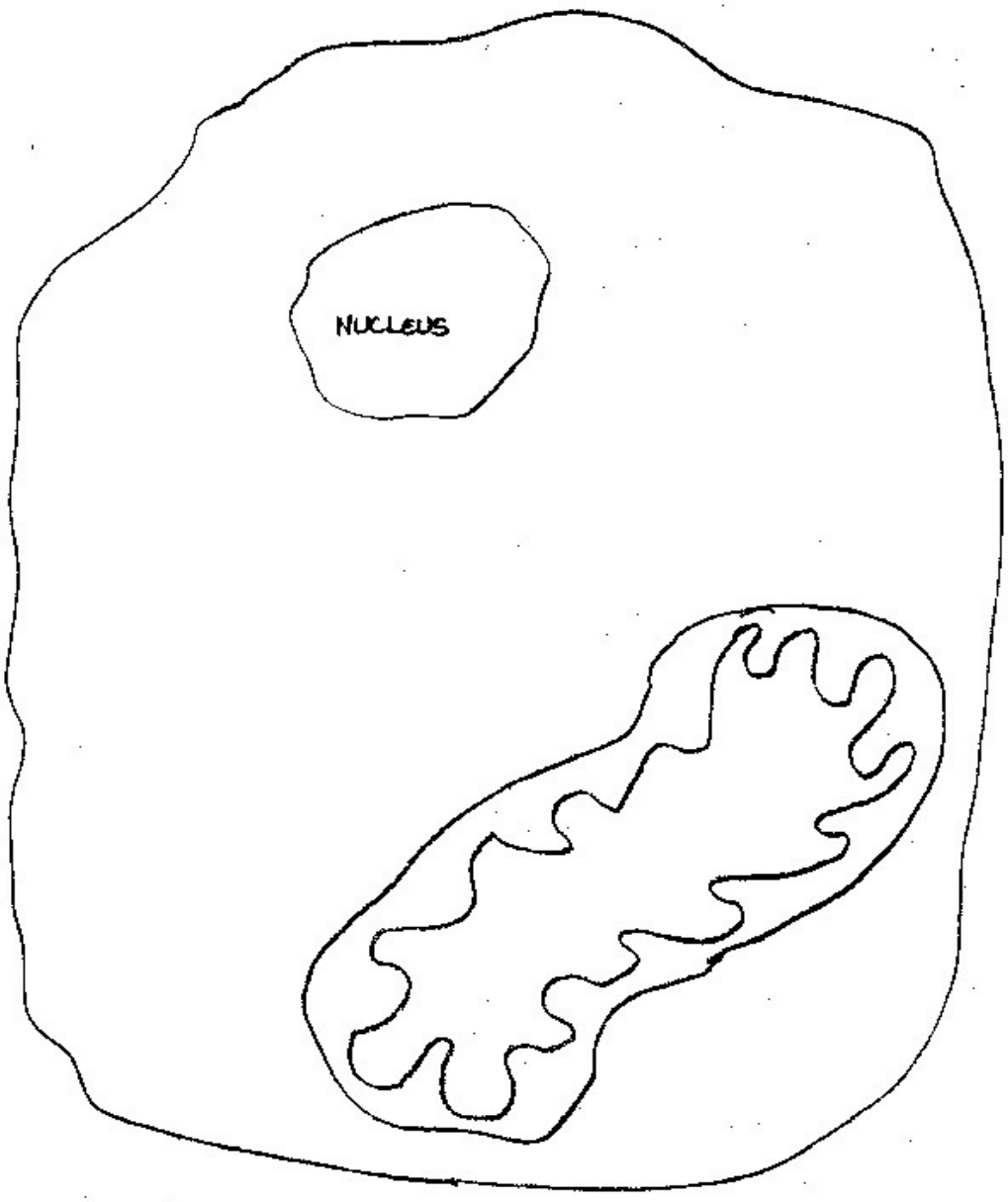
11. How many pyruvate molecules are produced from one glucose molecule?
_____.

12. What is the chemical formula of glucose? _____ Pyruvate?

_____.

Date _____ Class_____ Name _____

Cell Template



Date _____ Class_____ Name _____

Labels

Glycolysis Glucose $C_6H_{12}O_6$ (2) Pyruvates $C_3H_6O_3$ = 2 ATP's

(2) Acetyl Co-A's Krebs Cycle = 2 ATP's

ETS = 32 ATP's Total 36 ATP's

Mitochondrion