

Name: _____ Date: _____ Period: _____

Cellular Respiration: Glycolysis Notes
(This represents Phase II of the Cell Factory Project)

Cellular Respiration: _____

2 Phases of Cellular Respiration



- 1.
- 2.

Requirements of Cellular Respiration

1. glucose + oxygen → carbon dioxide + water
2. This reaction gives off _____
 - a. A calorie is the amount of heat energy required to raise the temperature of 1 gram of water by 1 degree Celsius
 - b. Therefore, _____ contains a lot of _____

Glycolysis

A series of _____ catalyzes chemical reactions that change _____, one step at a time, into different molecules.

Glycolysis takes place in the _____.

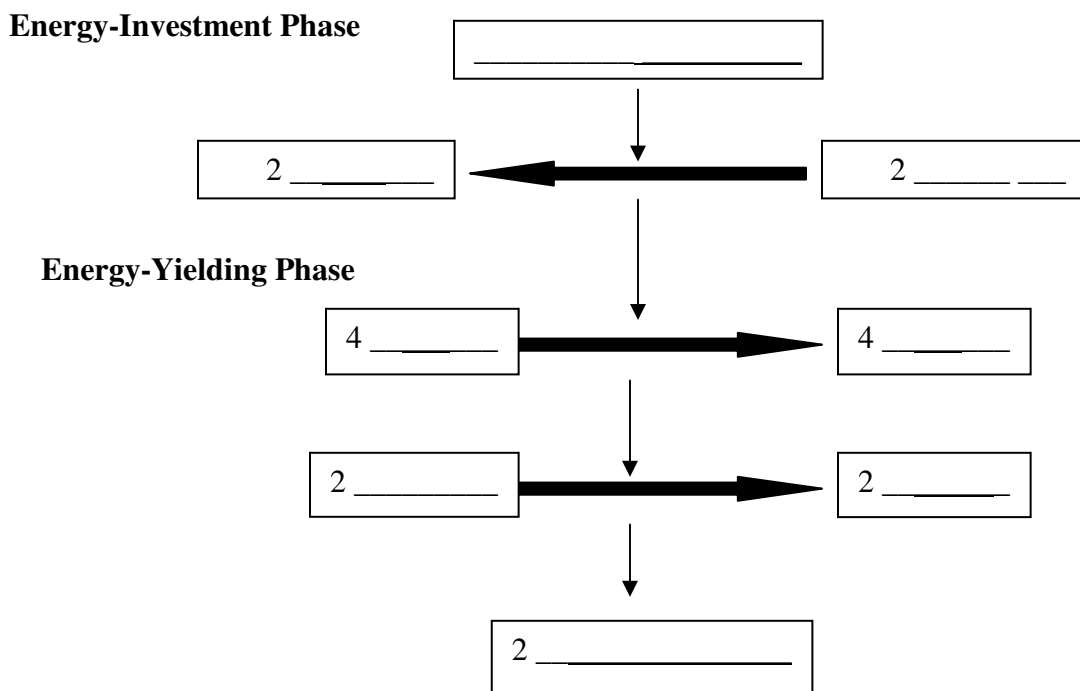
Steps of Glycolysis

1. Glucose, a 6-carbon molecule, undergoes a series of chemical reactions and is split into two _____ molecules
2. 2 molecules of _____ are used up in the process
3. Several more chemical steps occur that turn the 2 PGAL molecules into 2 molecules of _____, a 3-carbon compound
4. The energy from the 2 PGAL molecules is used to make _____ molecules of _____ and _____ molecules of _____
 - a. 4 molecules of _____ are synthesized from the 4 molecules of _____
 - b. NADH is an _____ similar to the NADPH that is formed in the _____ of photosynthesis

- c. since 2 molecules of ATP were used to start the process there is a net gain of _____ during _____
- d. the net ATP produced in glycolysis represents no more than _____ of the total chemical energy in _____

Answer the following Questions:

1. What is glycolysis? Explain.
2. Why does glycolysis produce only 2% of the total chemical energy in glucose? Explain.
3. How does the process of photosynthesis relate to the process of glycolysis? Explain.
4. Label the following diagram.



Net:	
Glucose	→ 2 Pyruvic Acid
2 ADP	→ 2 ATP
2 NAD ⁺	→ 2 NADH

Glycolysis consumes ATP energy during the energy-investment phase, but the energy-yielding phase, which generates ATP and NADH, more than compensates.