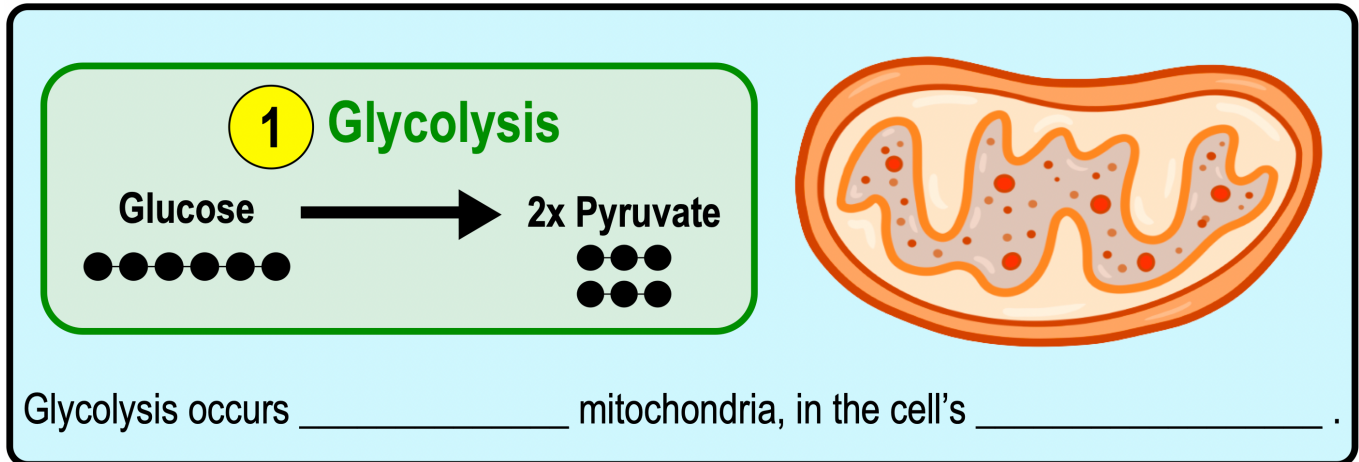


## CONCEPT: GLYCOLYSIS

- **Glycolysis:** 1<sup>st</sup> step of cellular respiration that *breaks down* \_\_\_\_\_ into 2 \_\_\_\_\_ molecules.
  - “Glyco” = \_\_\_\_\_.
  - “Lysis” = to \_\_\_\_\_.
  - Glucose has \_\_\_\_\_ **carbon atoms**, all which end up being converted to  $\text{CO}_2$  in the 2<sup>nd</sup> & 3<sup>rd</sup> steps of respiration.
  - ONLY step that occurs *outside* mitochondria (in the cell’s \_\_\_\_\_) & does \_\_\_\_\_ require Oxygen.



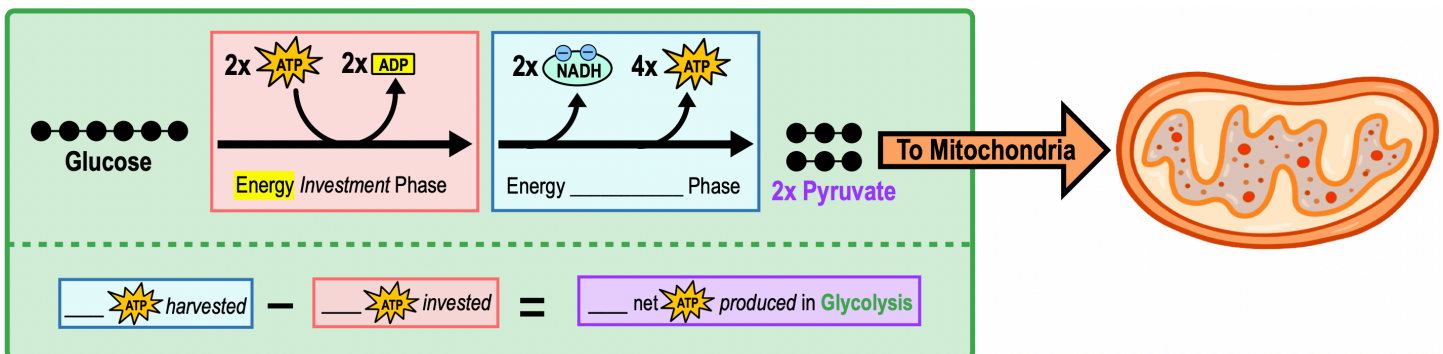
**PRACTICE:** Where does the first stage of aerobic cellular respiration take place within a cell?

- a) Mitochondrial matrix.
- b) Inner mitochondrial membrane.
- c) Intermembrane space.
- d) Cytoplasm.

## Phases of Glycolysis

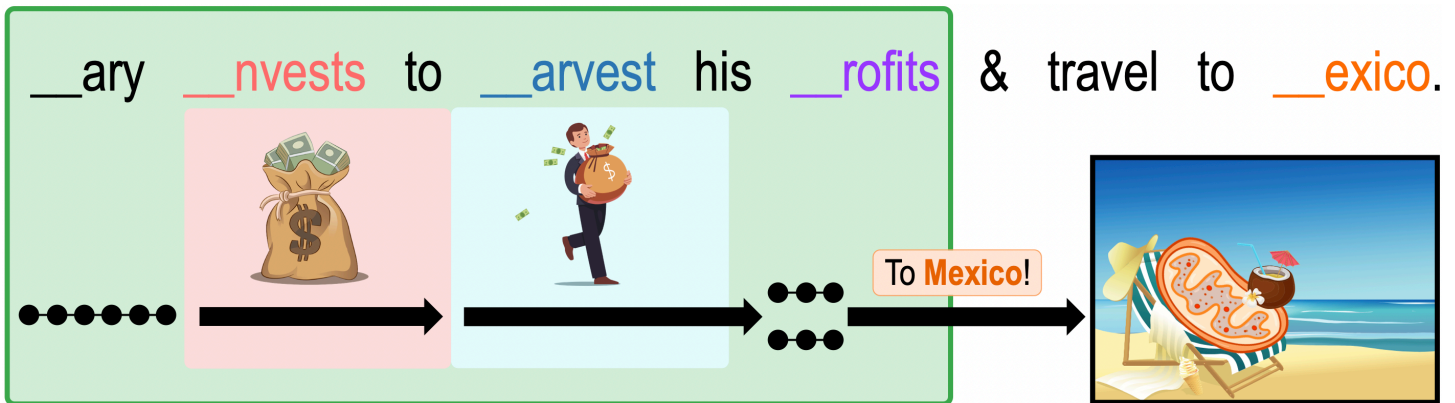
- Glycolysis consists of a series \_\_\_\_\_ reactions, which can be grouped into \_\_\_\_\_ phases:
  - 1) **Energy Investment Phase:** requires an \_\_\_\_\_ of energy by using \_\_\_\_\_ ATP molecules.
  - 2) **Energy Harvest Phase:** \_\_\_\_\_ energy by forming \_\_\_\_\_ NADH & \_\_\_\_\_ ATP molecules.
    - Net products from 1 single glucose molecule = \_\_\_\_\_ pyruvate, \_\_\_\_\_ NADH, & \_\_\_\_\_ ATP molecules.
    - 2 pyruvates transported to the \_\_\_\_\_ matrix for the next step of cellular respiration.

**EXAMPLE:** Phases of Glycolysis.



## CONCEPT: GLYCOLYSIS

### Remembering Phases of Glycolysis



**EXAMPLE:** There is an energy investment step needed to get glycolysis started, requiring the use of \_\_\_\_\_ ATPs.

- a) Two.                      b) Four.                      c) Three.                      d) One.                      E) Five.

**PRACTICE:** Starting with one molecule of glucose, glycolysis results in the net production of which of the following sets of energy-containing products?

- a) 2 NAD<sup>+</sup>, 2 pyruvate, and 2 ATP.                      c) 4 NADH, 2 pyruvate, and 4 ATP.  
b) 2 NADH, 2 pyruvate, and 2 ATP.                      d) 6 CO<sub>2</sub>, 2 pyruvate, and 2 ATP.

**PRACTICE:** Which of the following is a result of glycolysis?

- a) A net gain of four ATP per one glucose molecule.  
b) Conversion of FAD to FADH<sub>2</sub>.  
c) Conversion of one glucose molecule to two pyruvate molecules.  
d) Conversion of NADH to NAD<sup>+</sup>.