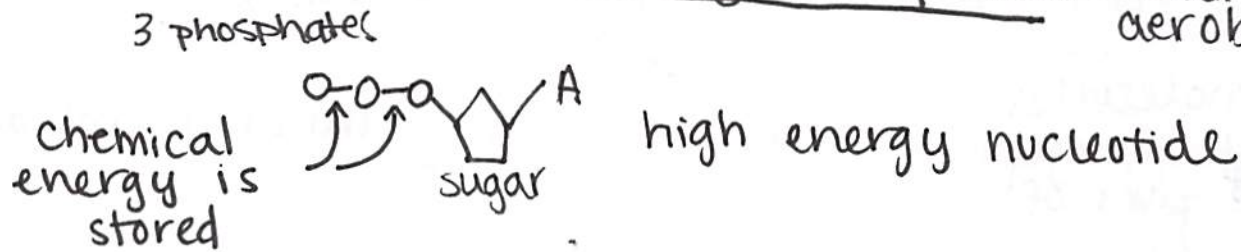


All living things get energy through cellular respiration

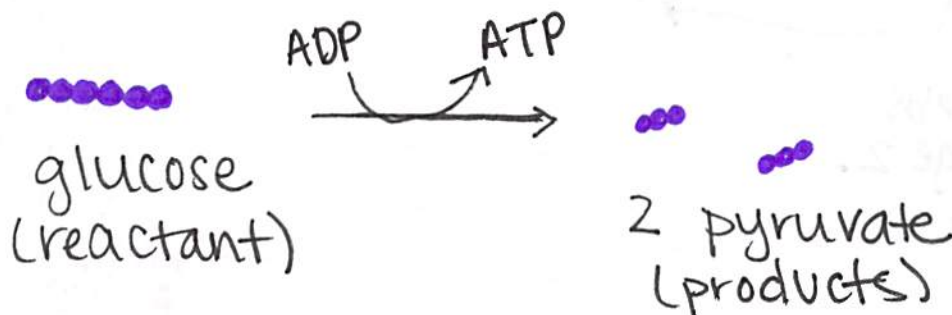
cellular respiration: releases chemical energy from sugars & other C-based molecules to make ATP when oxygen is present = ~~anaerobic~~ aerobic process



ATP cannot be directly made from food  
- food has to be broken down into smaller molecules like glucose ( $C_6H_{12}O_6$ )

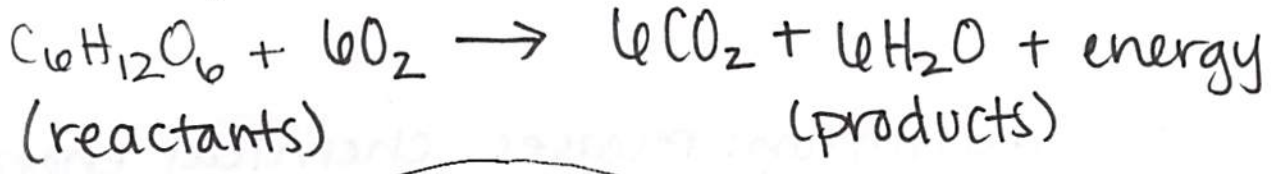
### Glycolysis

- takes place in cytoplasm
- split glucose into two 3-C molecules called pyruvate
- release 2 ATP
- doesn't need oxygen = anaerobic process



products of glycolysis are needed for cellular respiration to take place.

# Cellular Respiration - Mitochondria 3rd



## Stage 1: Krebs Cycle matrix

produces molecules that carry energy to the 2nd part of cell. resp.

① pyruvate from glycolysis enters cell. resp. in mitochondria

2 ~~pyruvate~~ Pyruvate

② energy carrying molecules transfer energy to stage 2

energy from Krebs cycle

6 CO<sub>2</sub>

## Stage 2: Electron Transport across the inner membrane

③ energy-carrying molecules from glycolysis & the Krebs cycle enter stage 2.

energy from glycolysis

④ ATP is produced  
Heat & water are released as waste products

ATP

+ 6 O<sub>2</sub>

+ 6 H<sub>2</sub>O

