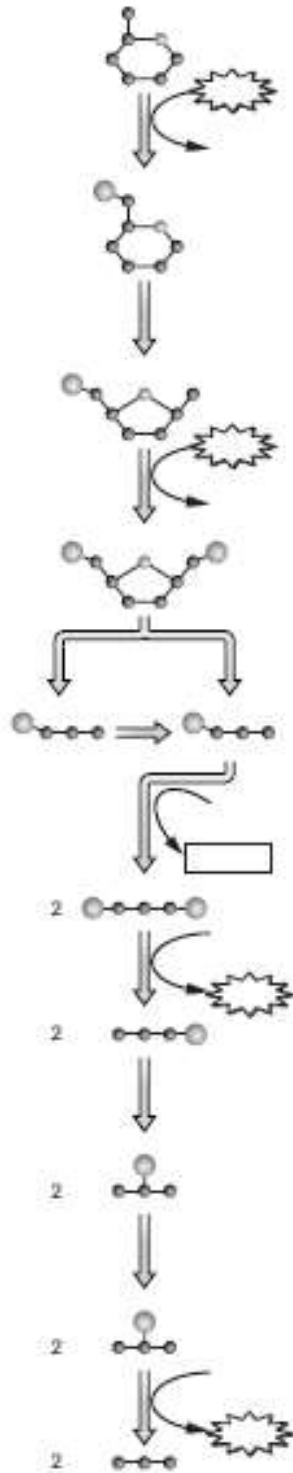


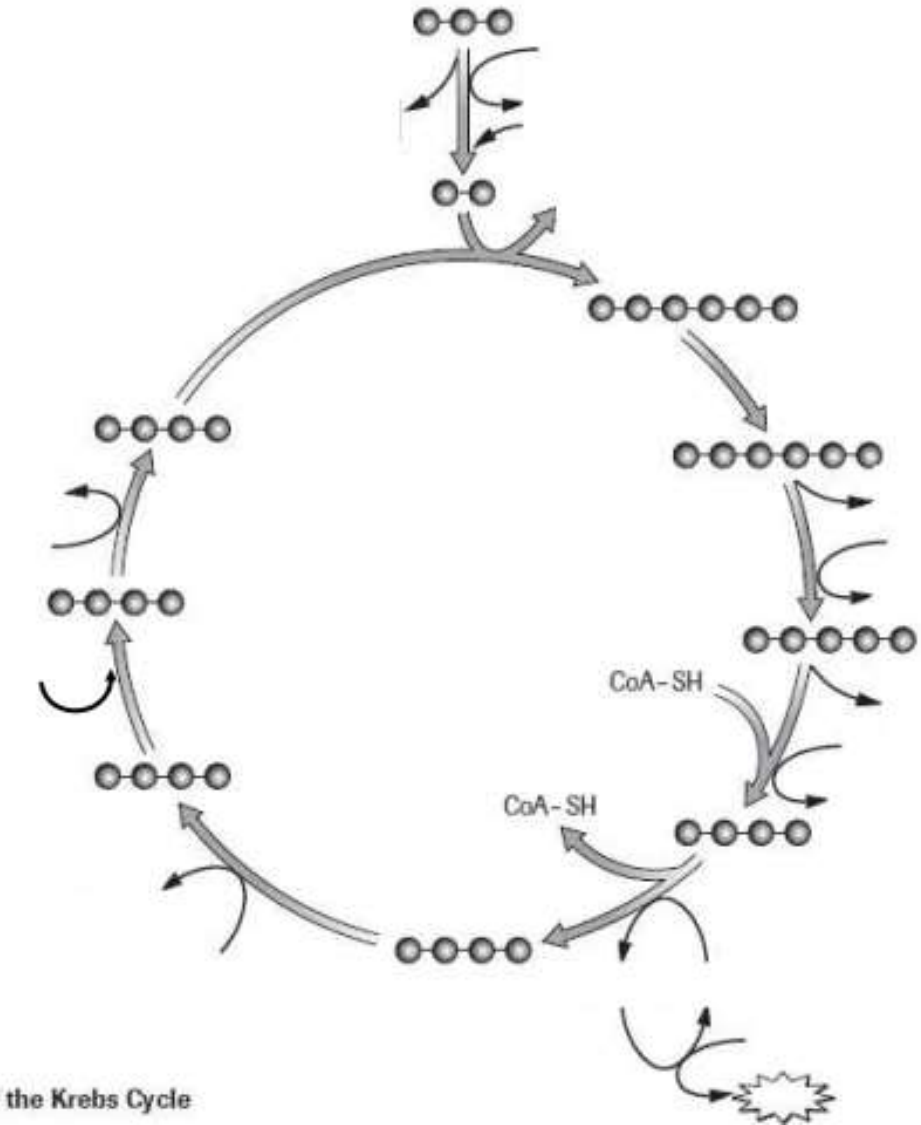
Glycolysis

The first step in the breakdown of glucose. This happens in the **cytoplasm**. The big idea is to split the glucose molecule into two pyruvate molecules which will enter the Krebs Cycle in the matrix of the mitochondria.



Pyruvate Oxidation & Krebs Cycle

The purpose of these steps is to make the high energy electron carrier molecules known as NADH and FADH₂ which will be used by the electron transport chain to make a lot more ATP that is made through **substrate level phosphorylation** (the direct synthesis of ATP). This is happening in the matrix of the mitochondria.



The Electron Transport Chain (ETC)

This is the final step of aerobic (with oxygen) cellular respiration. This does not happen in anaerobic respiration. Anaerobic respiration happens when we weightlift. Our muscles burn through sugar faster than oxygen can get there. One of the products of anaerobic respiration is lactic acid. This lactic acid is what causes our muscles to be sore. In yeast, the byproduct of anaerobic respiration is ethanol. This ethanol is what causes us to have poor judgment when we consume products produced by yeast going through anaerobic respiration. In the ETC, **oxidative phosphorylation** occurs. Oxidative phosphorylation is the **indirect synthesis of ATP** due to the harnessing of proton gradient energy which was generated by capturing the energy of the electrons in NADH and FADH₂. How many ATP are produced for each NADH? How many for each FADH₂?

