RESPIRATION REACTIONS

AEROBIC RESPIRATION

- Requiring oxygen
- Produces 38 molecules of ATP from 1 glucose molecule

ANAEROBIC RESPIRATION

- Not requiring oxygen
- Produces only 2 ATP molecules from 1 glucose molecule



AEROBIC RESPIRATION

The <u>overall reaction</u> is:

Glucose + Oxygen — Carbon + Water + Energy Dioxide

 $C_6H_{12}O_6 + O_2 \longrightarrow CO_2 + H_2O + Energy$

- Respiration is an exergonic reaction. It gives out
- There are 4 steps in the reaction:
 - 1. <u>Glycolysis</u>

This occurs in the cytoplasm, where glucose breaks down to pyruvate (also called pyruvic acid), which then enters the mitochondrion. This occurs in both aerobic and ______ respiration.

2. First Part of Krebs Citric Acid Cycle

This occurs in the mitochondrion, where pyruvate is broken down to carbon dioxide in a process that does not use oxygen. A co-enzyme called NAD+ becomes NADH.

3. Second Part of Krebs Citric Acid Cycle

This occurs on the inner membranes of the mitochondrion. NADH is converted to NAD+ in a process that uses oxygen.

4. ATP Synthesis

This occurs in the mitochondrion. Hydrogen ions are pumped across the inner membrane of the mitochondrion. Then both the hydrogen ions and an enzyme called ATP Synthetase convert ADP plus a phosphate group to ATP.

ANAEROBIC RESPIRATION

•	Anaerobic Respirich ATP and doe	ration is the breakdown of glucose (<u>Glycolysis</u>) to form energy- es require oxygen.
•	It is	efficient than aerobic respiration.

• It occurs in 2 different ways in different organisms.

ANAEROBIC RESPIRATION

FERMENTATION IN YEAST WITHOUT OXYGEN

Glycolysis occurs to break down glucose to form ethanol and carbon _

FORMATION OF LACTIC ACID IN MOST ANIMAL MUSCLES

Glycolysis occurs to break glucose down to form lactic acid, which produces tiredness in muscles of athletes in longer events.