**Aerobic Respiration: Electron Transport Chain + Chemiosmosis**

**4 Steps of Aerobic Respiration:**

1. Glycolysis: \_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Krebs: \_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_

3. Electron Transport chain: electrons from \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ are used to create a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ across the inner membrane of the mitochondria

4. Chemiosmosis: The flow of \_\_\_\_\_\_\_\_\_\_\_\_\_ across the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the mitochondria powers the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ enzyme, which produces \_\_\_\_\_\_\_\_ additional ATP molecules from ADP + Pi.

**In The Mitochondria**

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is where H+ ions are pumped by the \_\_\_\_\_.

The \_\_\_\_\_\_\_\_\_\_\_\_\_, where the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs has a \_\_\_\_\_\_\_\_\_\_ H+ concentration than the \_\_\_\_\_\_\_\_.



**RECAP: ETC**

\* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ripped from food molecules (like glucose) during glycolysis and the Krebs Cycle are carried to

 the electron transport chain by \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_.

\* The ETC is a series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ embedded in the mitochondrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through the ETC powers the pumping of \_\_\_\_\_ ions from the mitochondrial

 \_\_\_\_\_\_\_\_ into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. At the end of the ETC, the electrons are

 transferred to \_\_\_\_\_\_\_\_\_\_, forming \_\_\_\_\_\_\_\_\_\_\_\_ (with H+).

**RECAP: Chemiosmosis & ATP Synthase**

* The flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (H+) down their concentration gradient through the enzyme \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (aka chemiosmosis) powers the synthesis of ATP from ADP + Pi (located in the matrix).
* The ETC + chemiosmosis produces \_\_\_\_\_\_\_\_\_\_\_\_\_ from the energy that was in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**The Overall Aerobic Respiration Equation**