CONCEPT: ELECTRON TRANSPORT CHAIN

●**Electron Transport Chain** (_____): 4th step of aerobic respiration; consists of *mitochondrial inner-membrane proteins*.

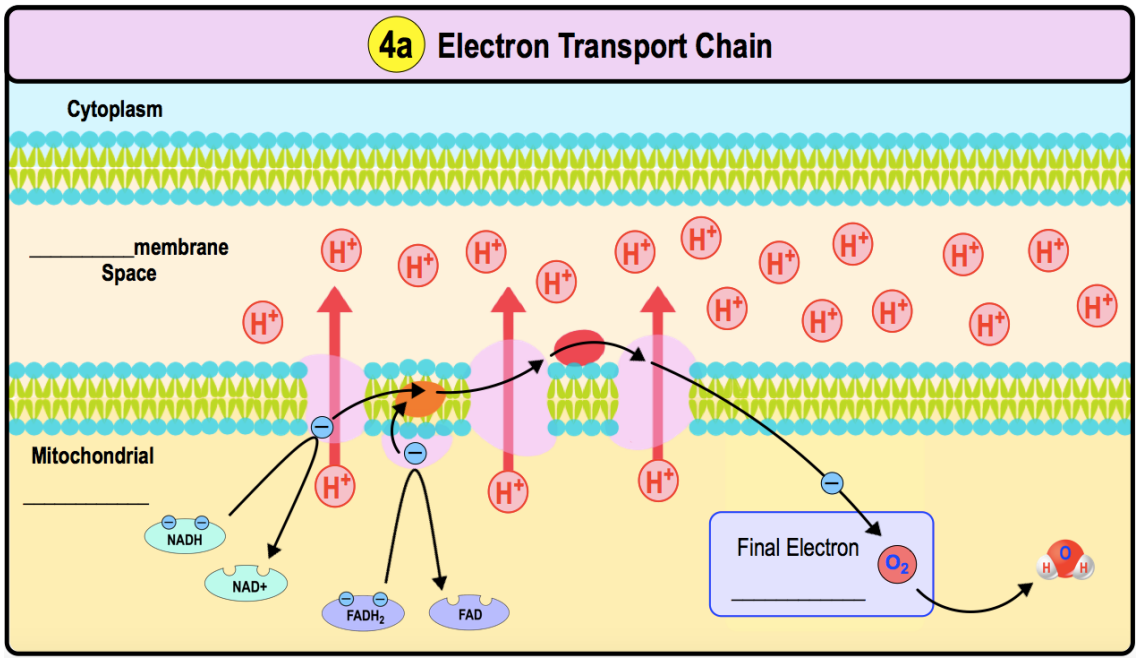
□ Harnesses energy of _____ from NADH & $FADH_2$ in a series of _____ reactions.

□ ETC uses energy from electrons to generate a _____ *gradient* by pumping H^+ into the *intermembrane space.*

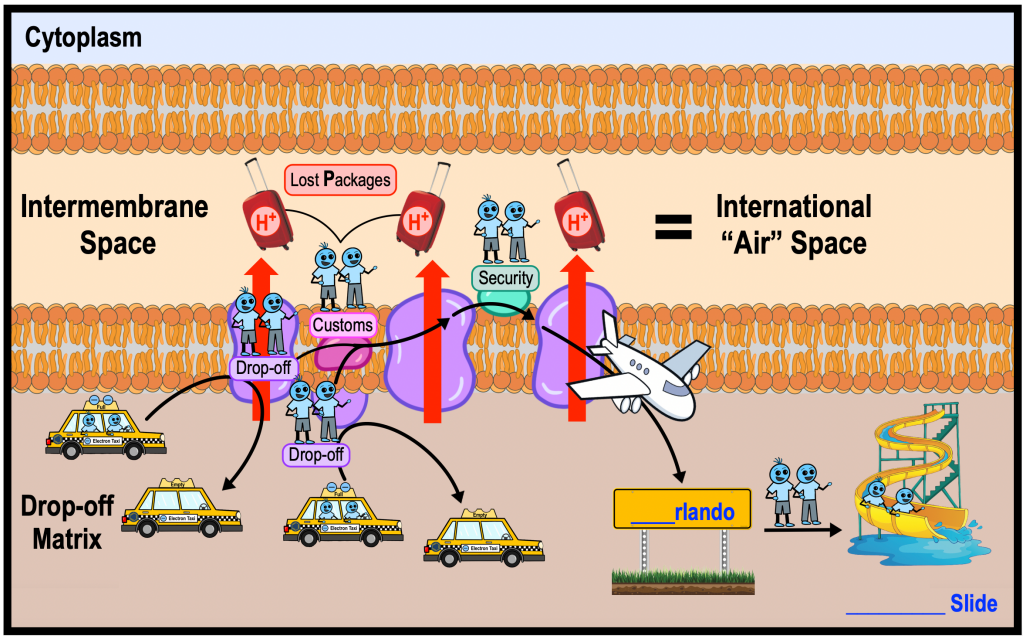
□ **Final Electron Acceptor**: the *final* molecule that *accepts* the ETC's electrons is _____ *gas* (O_2).

□ When Oxygen gas (O_2) serves as the *final electron acceptor*, it interacts with H^+ to form *water* (H_2O).

EXAMPLE: Electron Transport Chain.



Remembering the ETC



CONCEPT: ELECTRON TRANSPORT CHAIN

PRACTICE: In the electron transport chain, the final electron acceptor is:

a) H_2O. b) CO_2. c) H_2O. d) O_2. e) NAD^+.

PRACTICE: Which of the following events takes place in the electron transport chain?

a) The breakdown of glucose into six carbon dioxide molecules.

b) The breakdown of NADH and $FADH_2$ to carbon dioxide.

c) Harnessing energy from high-energy electrons derived from glycolysis, pyruvate oxidation, and the Krebs cycle.

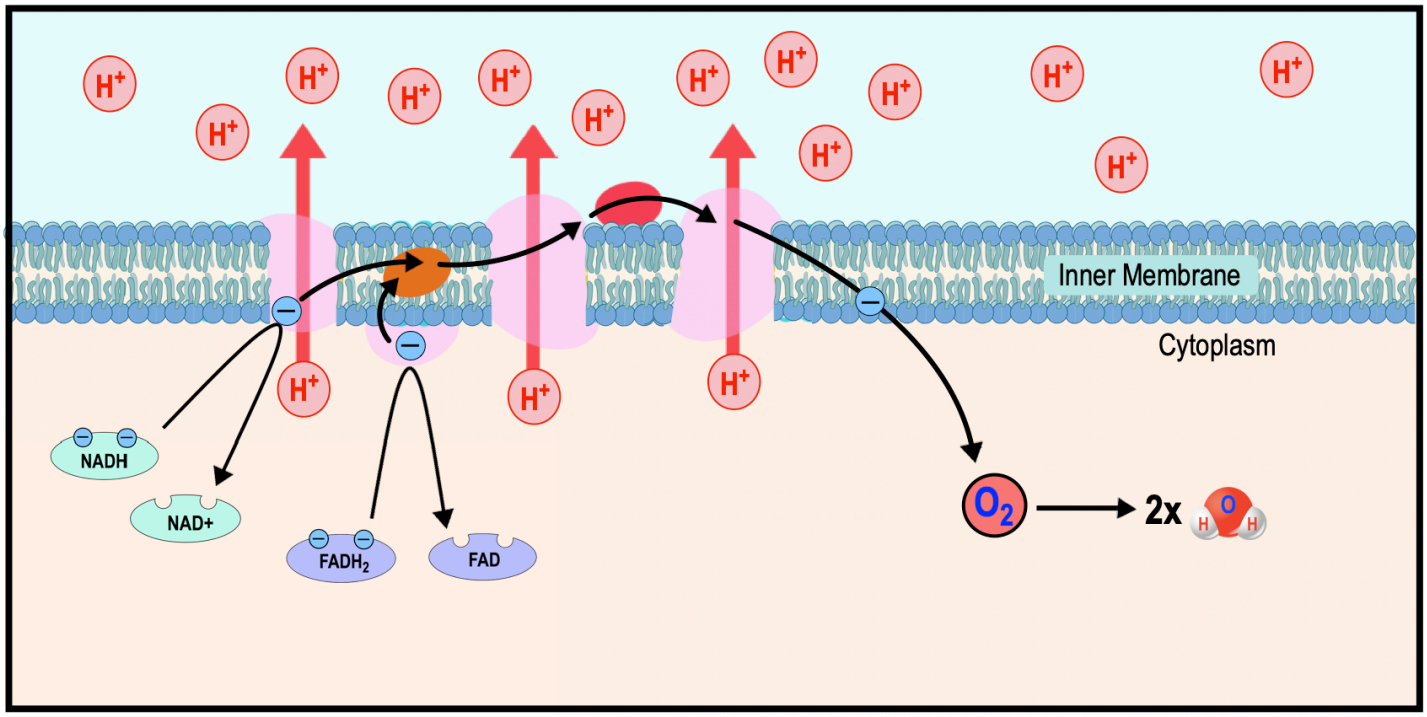
d) Substrate-level phosphorylation.

Electron Transport Chain in Prokaryotes

●Prokaryotic ETCs are similar to eukaryotic ETCs except they are found in the cell's _____ *membrane*.

Recall: Prokaryotic cells do NOT have mitochondria.

EXAMPLE: Electron Transport Chain in the gram-negative bacteria *E. coli.*



PRACTICE: TRUE or FALSE: Electron transport in eukaryotes occurs in the inner mitochondrial membrane.

a) True. b) False.