CONCEPT: TYPES OF PHOSPHORYLATION

●During *aerobic cellular respiration*, ATP is made via _____ different types of phosphorylation:

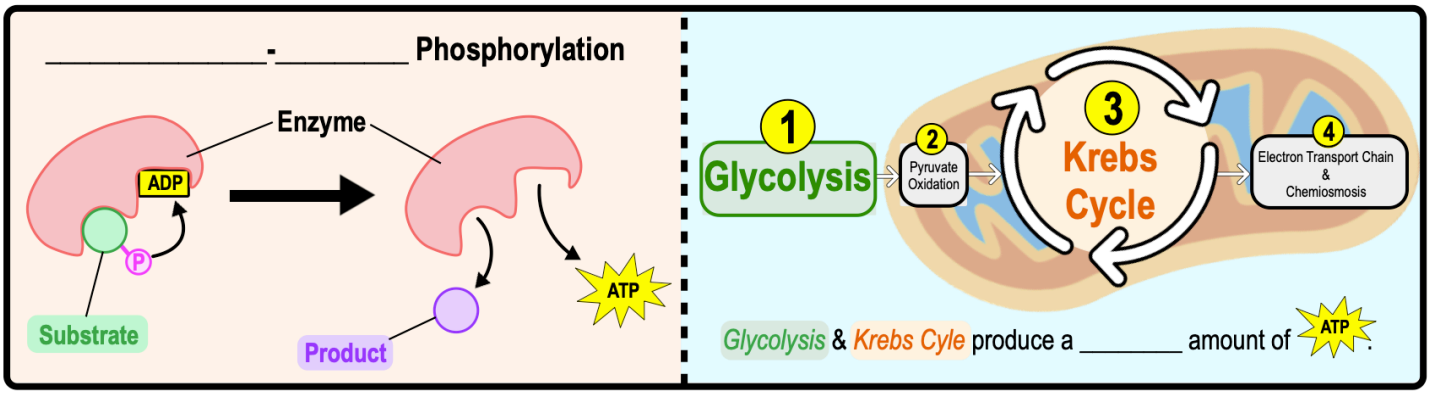
1) *Substrate-Level* Phosphorylation & 2) *Oxidative* Phosphorylation.

1) Substrate-Level Phosphorylation

●Uses an _____ & a *substrate* to directly transfer a phosphate group to ADP, creating _____.

□ Used to make a _____ amount of ATP during *Glycolysis* and the *Krebs Cycle*.

EXAMPLE: Substrate-Level Phosphorylation.



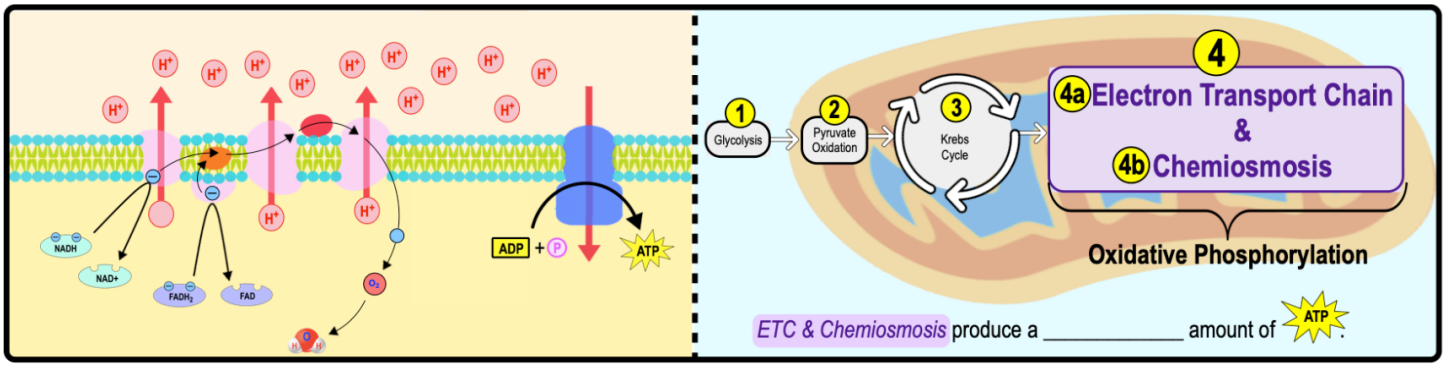
2) Oxidative Phosphorylation

●Uses energy from _____ *reactions* in the *Electron Transport Chain* (*ETC*) to phosphorylate ADP.

□ Builds a _____ *concentration gradient*, which is used to make a _____ amount of ATP.

□ **Chemiosmosis**: diffusion of ions across a membrane _____ their concentration gradient (high to low).

EXAMPLE: Oxidative Phosphorylation.



Oxidative Phosphorylation = _____ + Chemiosmosis

CONCEPT: TYPES OF PHOSPHORYLATION

PRACTICE: Substrate-level phosphorylation is utilized to create ATP in which steps of aerobic cellular respiration?

a) Electron Transport Chain and Chemiosmosis.
b) Glycolysis and Pyruvate Oxidation.
c) Pyruvate Oxidation and Krebs cycle.
d) Glycolysis and Krebs cycle.

PRACTICE: Which type of phosphorylation synthesizes ATP using an enzyme that transfers a phosphate group to ADP?

a) Adaptive Phosphorylation.
b) Oxidative Phosphorylation.
c) Substrate-level Phosphorylation.
d) Product-level Phosphorylation.

PRACTICE: The largest amount of ATP made by cellular respiration is created by the process of _____, in the _____ steps of aerobic cellular respiration.

a) Substrate-level phosphorylation; first.
b) Oxidative phosphorylation; first.
c) Oxidative phosphorylation; final.
d) Substrate-level phosphorylation; final.