

**CONCEPT: TYPES OF PHOSPHORYLATION**

• During aerobic cellular respiration, ATP is made via \_\_\_\_\_ different types of phosphorylation:

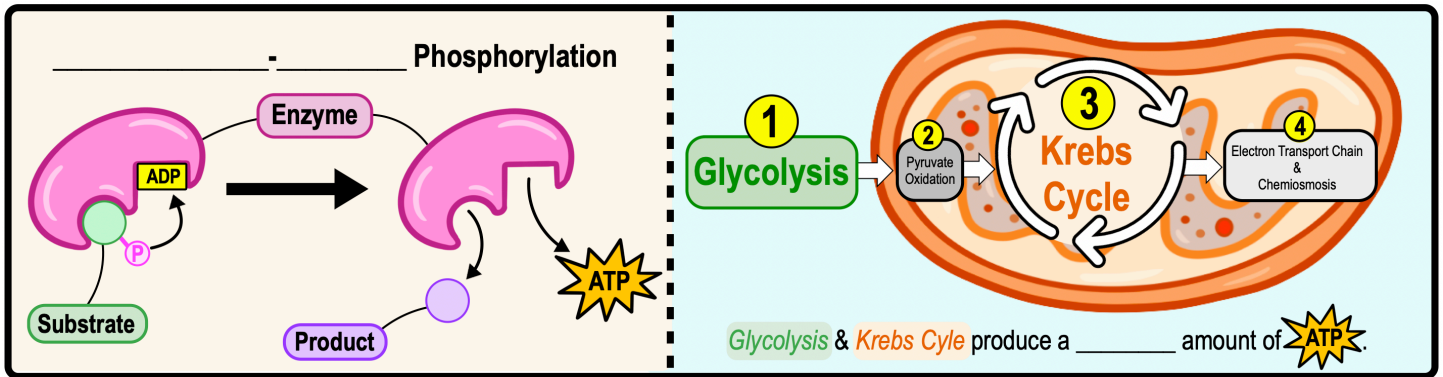
- 1) Substrate-Level Phosphorylation      &      2) Oxidative Phosphorylation.

**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.

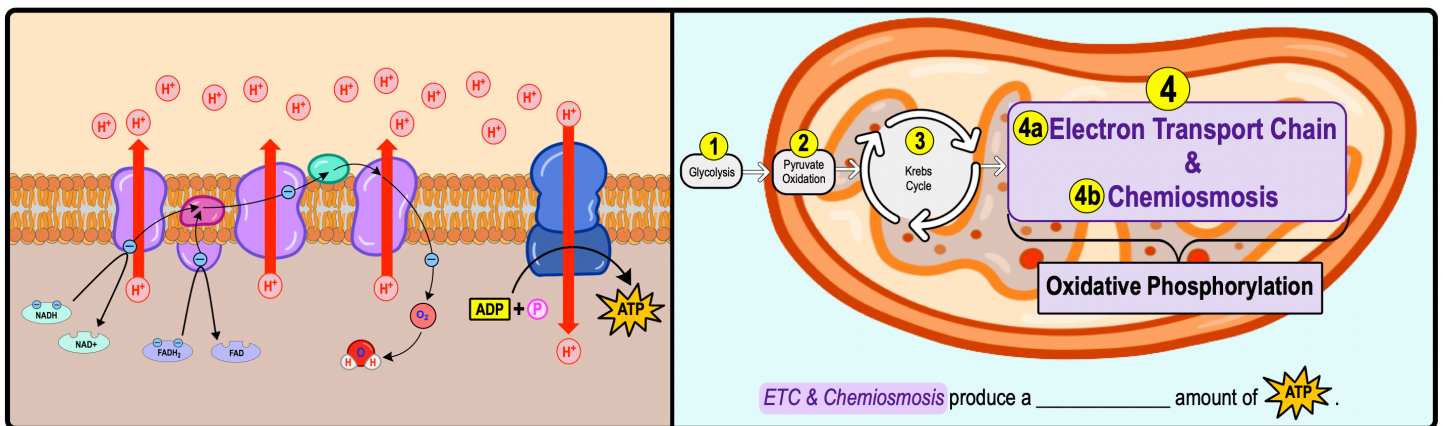


**2) Oxidative Phosphorylation**

• 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.