



Science-Infused Biology Online Learning

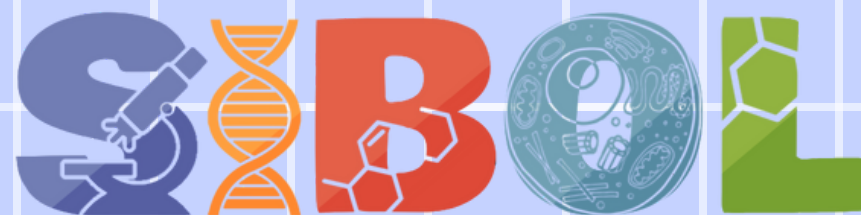
Let's Study!

This lesson will explore the ATP-ADP cycle, focusing on its significance, mechanisms, and regulatory aspects. The ATP-ADP cycle is fundamental to cellular energy metabolism, governing the transfer and utilization of energy in living organisms. Central to this cycle is adenosine triphosphate (ATP), widely recognized as the primary "energy currency" of cells.



ATP-ADP cycle

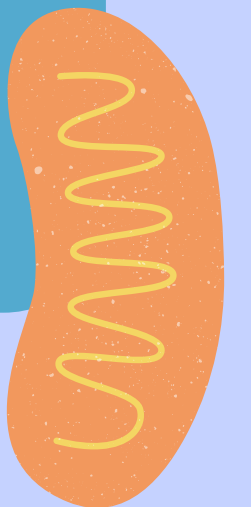
Prepared by:



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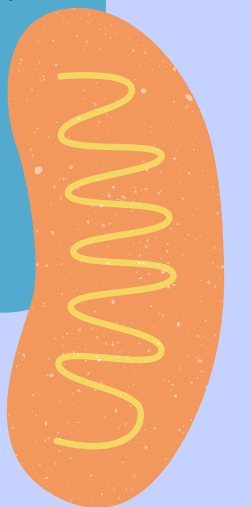
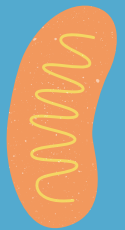
ATP-ADP Cycle

- **Develop and use models to explain how chemical reactions among ATP and ADP and inorganic phosphate act to transfer chemical energy within cells.**

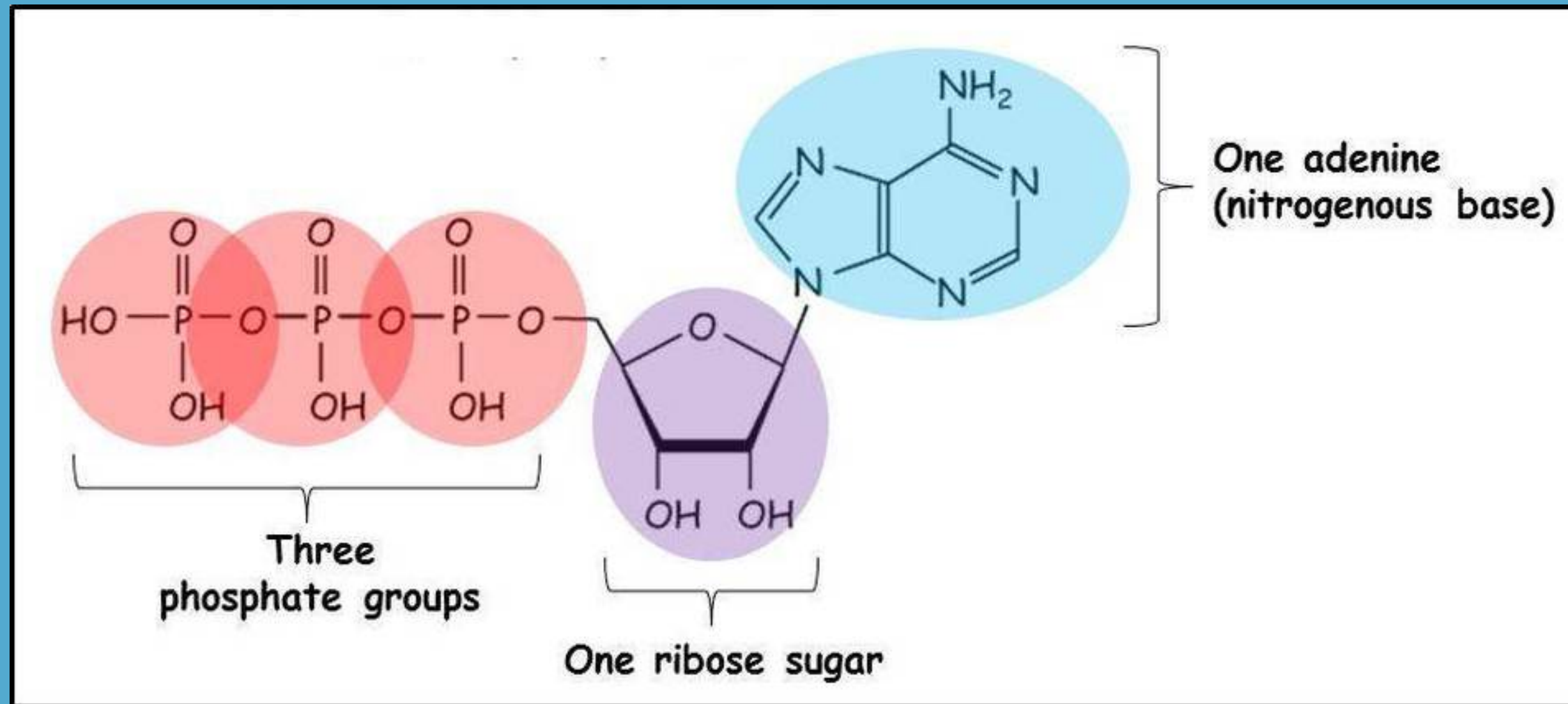


ATP-ADP Cycle

- **ATP** – The ATP Molecules in the body of an organism fuel all the metabolic processes that sustain life.
- **ATP is composed of three parts**
 1. A nitrogenous base (adenine)
 2. A sugar (ribose)
 3. Three phosphate groups bonded by “high energy bonds”
- **ADP is Adenosine Diphosphate** and it can be "recharged" or converted to **ATP** when energy plus an inorganic phosphate molecule is added.

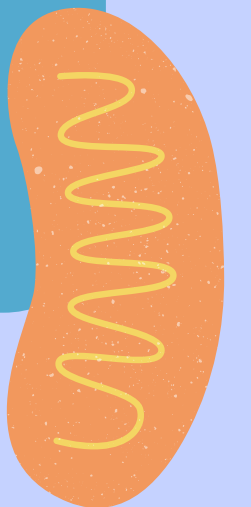


ATP-ADP Cycle

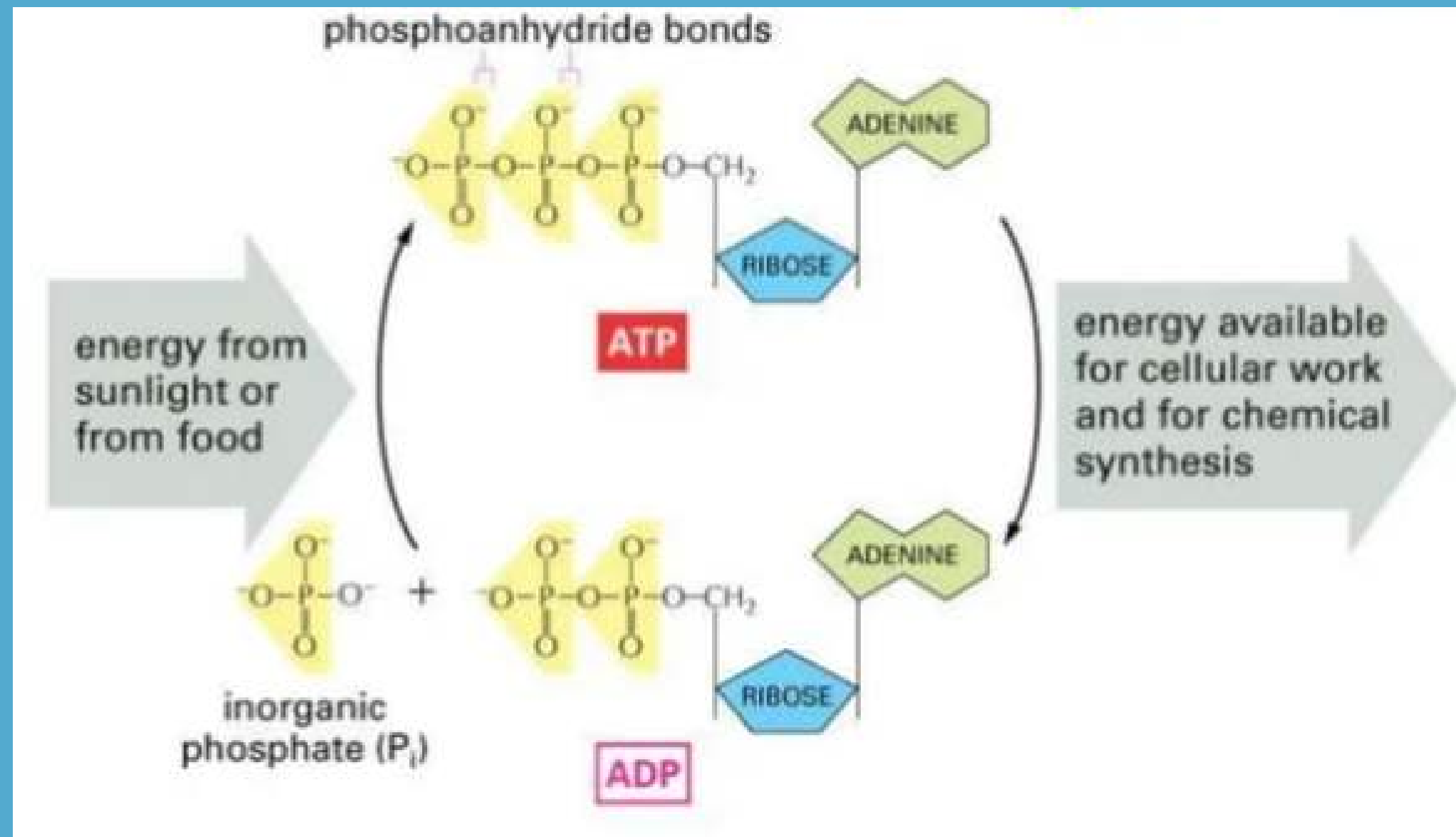


ATP-ADP Cycle

- Cells break phosphate bonds to supply energy to carry out most cellular functions converting ATP into ADP and a phosphate available for reuse.
- when any phosphate bonds are broken, or formed energy is involve.
- When a phosphate is removed from ATP energy is released
- Energy is used when a phosphate bonds to the molecule
- ADP is recycled back into ATP
- because ADP has less energy than ATP



ATP-ADP Cycle





**THAT'S
ALL!**