

How Organisms Obtain Energy (part 1)



Living things need energy to survive. This energy comes from food and the energy in most food comes from the sun.

Two Types of Organisms Obtain Energy in Two Different Ways

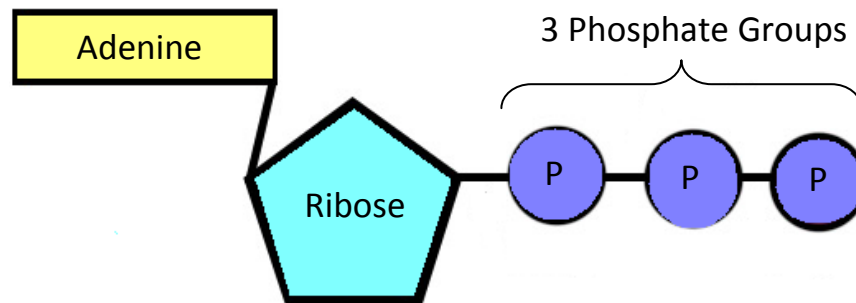
1. Autotrophs (like plants) make their own food.
2. Heterotrophs (like animals) get energy by consuming food.

Two Types of Energy-Storing Compounds

1. **Glucose:** type of carbohydrate that stores a lot of energy for cells.
 - Energy in glucose must be changed into a more efficient source of energy for cells.
2. **ATP (adenosine triphosphate):** basic energy source for all cells.
 - Stores a little bit of energy.
 - Energy in ATP can be used easily and efficiently in many cell activities.

How Does ATP Store and Release Energy for Cells?

ATP Molecule:



- The 3 phosphate groups are the key to ATP's ability to store and release energy.
- Energy is released for the cell to use when ATP loses 1 phosphate group.
- With only 2 phosphate groups, ATP becomes ADP (adenosine phosphate).
- ATP is like a charged battery ready to provide energy for cell use.
- ADP is like a partially charged battery that can become 100% charged if a phosphate group is added.
- ATP and ADP are used and created in processes where plants and animals obtain food and energy: photosynthesis and cell respiration.