How organisms obtain energy

Energy - The ability to DO WORK

Chemical, Kinetic, mechanical, thermal, potential
Sound, light

Thermodynamics - The study of the transfer of energy

Laws of Thermodynamics

* First Law of Thermodynamics *

- Conservation of energy
  - ↳ energy cannot be created or destroyed it can only change forms

Second Law of Thermodynamics

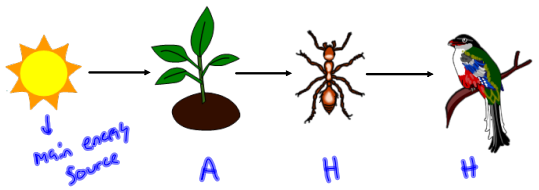
- Entropy → the amount of disorder

Entropy is always ↑

Autotrophs vs Heterotrophs

Autotrophs
- plants / producers
- create their own food / energy

Heterotrophs
- consumers / animals
- must eat / ingest something to get energy



Metabolism

- all of the chemical reactions that take place in the cell

- a series of chemical reactions in which the product of one reaction is the starting point of another reaction is known as a metabolic pathway

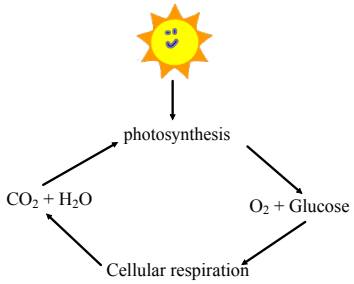
* CATABOLIC - release energy by breaking down large molecules

ex. cellular respiration

* ANABOLIC - use energy to build large molecules out of smaller molecules

Steroids

ex. photosynthesis

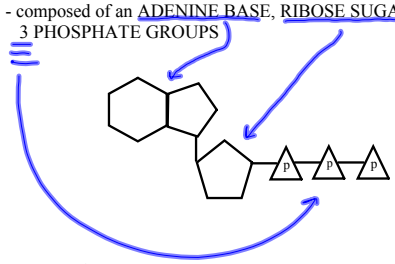


ATP

- Adenosine Triphosphate

- the most important biological molecule that provides chemical energy

- composed of an ADENINE BASE, RIBOSE SUGAR, and 3 PHOSPHATE GROUPS



ATP Function