Energy/ATP Study Guide

Defined as the ability to do work, or to create some kind of change.

| Mechanical Energy Forms Light Energy Sound Energy Potential Energy Potential Energy Forms of Energy Stored energy Sound Energy Potential Energy Forms Forms Stored energy Stored energy Forms of Energy Stored energy Stored energy Sound Energy Forms of Energy Stored energy energy conserved Forms Stored energy energy constant & conserved Converted to heat | Energy Forms | Types of Energy | | Laws of Thermodynamics | |
|---|---------------------------------------|-----------------|----------------------------|--|---|
| Electrical Energy of Energy Stored energy Sound Energy Forms of Energy Stored energy • Energy associated with objects in motion Energy conservation • Total amount of energy in universe is constant & constant & energy in universe is constant & | Mechanical Energy | | | 1 st | 2 nd |
| • Stored energy • Stored energy • Stored energy • Energy associated with objects in motion • Energy amount of energy in universe is constant & constant & heat | Electrical Energy Forms | Energy | Energy | Energy Conservation | Law of Entropy |
| | Light Energy of Energy Thermal Energy | | associated with objects in | amount of energy in universe is constant & | of energy is NOT 100% efficient (converted to |

Heat Energy:

The energy transferred from one system to another that is not work.

| Cellular respiration | Chemical Reactions | | | |
|---|--|--|--|--|
| Breakdown of chemical bonds in food molecules to release stored energy. Make ATP | Oxidation Reaction Catabolic | Reduction Reactions Anabolic | | |
| | Results from the loss of an electron & typically results in the RELEASE of energy, but require activation energy | Gains an electron & typically requires E | | |
| $C_6H_{12}O_6 + 6 O_2 \rightarrow \rightarrow \rightarrow 6 CO_2 + 6 H_2O + ATP$ Glucose Oxygen Carbon Water Energy | | | | |