

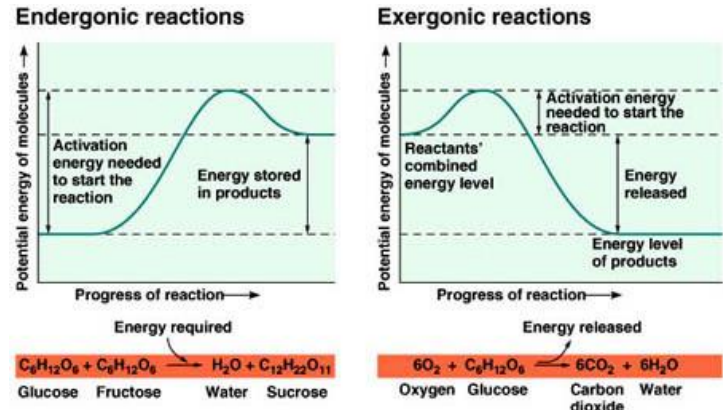
Energy:

Metabolism:

Kinetic:

Potential:

First Law of Thermodynamics:



Bond Energies:

Table 1 Average Bond Energies

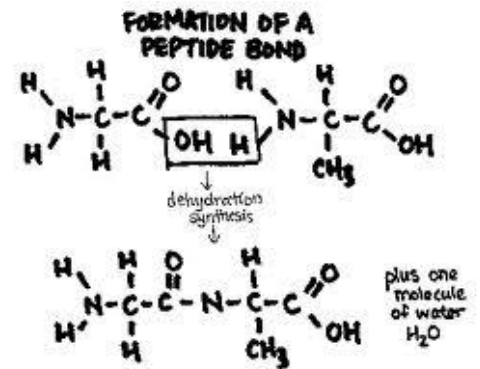
Bond type	Average bond energy (kJ/mol)
H-H	436
C-H	411
O-H	459
N-H	391
C-C	346
C-O	359
C=O	799
O=O	494

Energy & Condensation/Anabolic Reactions:

Bonds Broken:

Bonds Formed:

NET

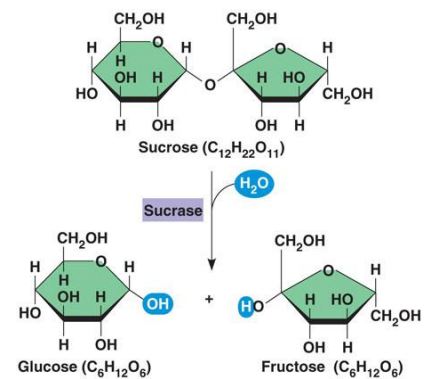


Energy & Hydrolysis/Catabolic Reactions:

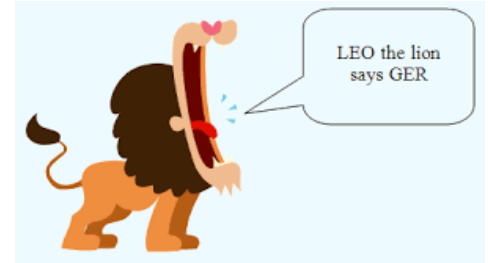
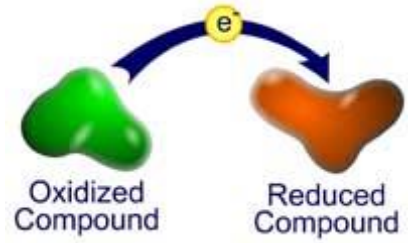
Bonds Broken:

Bonds Formed:

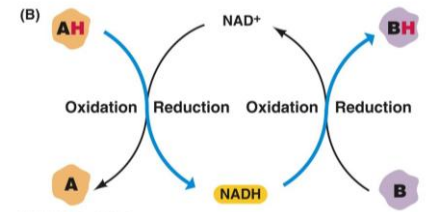
NET



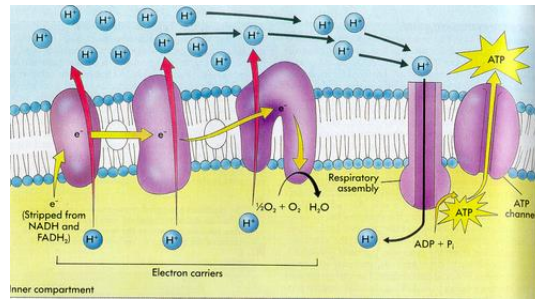
**Oxidation – Reduction (Redox) Reactions:**



**Coupled Redox Reactions:**

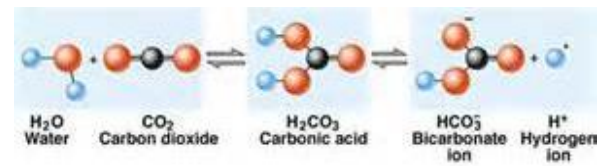


PRINCIPLES OF LIFE, Figure 6.4 (Part 2)  
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**Neutralization / Acid-Base Reactions:**

**Buffers:**



**Blood pH Levels**

