Chapter 2 The Chemical Level of Organization

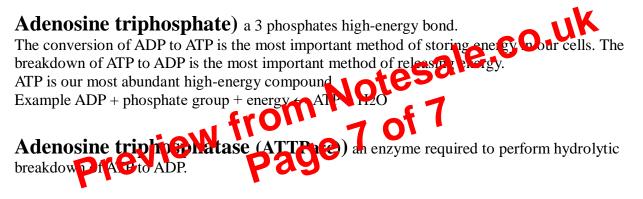
High energy bond) is a covalent bond whose breakdown releases energy that cell can use directly. Generally, these bonds bind phosphate group to an organic molecule. The product with such a bond is called a **high-energy compound**. Most high energy compounds are derived from nucleotides.

Phosphorylation) the process of attaching a phosphate group to another molecule. (Example...phosphate + phosphate=diphosphate or a phosphate + ADP= ATP

The requirements of high-energy bonds are:

- 1) A phosphate group
- 2) Enzymes capable of catalyzing the reactions involved, and
- 3) Suitable organic substrates to which the phosphate can be added

The most important such substrate is the nucleotide *adenosine (AMP)*, which already contains 1 phosphate group.



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Chemicals and their interactions form functional units called cells

Metabolic turnover) the ongoing process of continually removing and replacing of temporary organic molecules other than DNA