

3.4.2

BIOL

Why do organisms need energy?

- 1) Metabolism (e.g. polysaccharide/peptide synthesis/DNA+RNA synthesis)
 - 2) Movement (within an organism, e.g. circulation of blood/movement of organism itself, locomotion)
 - 3) Active transport^{*}/secretion
 - 4) Production of substances such as enzymes/hormones
 - 5) Maintenance, division + repair of cells/organelles
 - 6) Maintenance of body temperature in endotherms (birds and mammals) - energy needed to replace that lost as heat to the environment.
- ~~7) Activation of molecules. $+ P_i = \downarrow E_a$.~~

Energy is stored as ATP: Adenosine triphosphate (3 P_i)
Bonds between these phosphate groups are unstable: low E_a so easily broken.
When bonds break, energy is released. Usually only 1 P_i removed