

- For a reaction to occur the reactants must collide with sufficient energy to alter the arrangement of atoms in the molecule
 - i.e. an initial boost of energy is needed
 - activation energy
 - must be overcome
 - before a reaction can proceed.
- In chemical reactions this may be carried out by heating
- Enzymes work by lowering the activation energy
- When a substrate enters the active site of an enzyme
 - The shape of the molecule is altered slightly
 - This enables metabolic processes to take place at temperatures lower than chemical reactions not catalysed by enzymes.

Enzymes:

- Are inactive at 0°C
- If the temperature increases then they become active again
- Enzymes become denatured at temperatures >40°C
- By lowering the activation energy enzymes decrease the input of energy required to allow reactions to take place at the lower temperatures found in cells.