

2 Underlying biology

Example 1

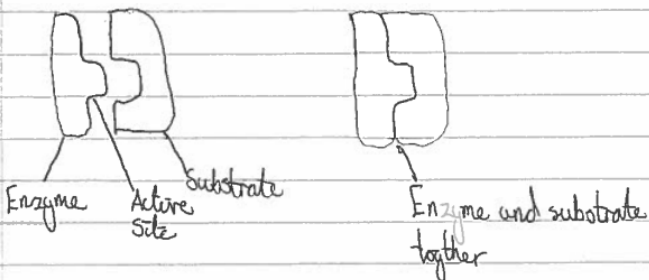
Enzymes are biological catalysts which speed up chemical reactions. The active site of an enzyme is specific to one type of substrate. When enzymes are exposed to high temperatures or pH levels they become denatured. Enzymes work the most efficiently at their optimum temperature. Enzymes are made from proteins which are made from amino acids joined by peptide bonds.

Example 2

Enzymes are made from proteins. Enzymes are a biological catalyst which help speed up reactions in our body like breaking down food. These biological catalyst never runs out.

Enzymes are sometimes described as a lock and key. This means that only one substrate and one enzyme can fit together like a lock and key.

Lock and key theory



What lets the enzyme and the substrate stay together is the active site.

When you heat up an enzyme to a certain temperature it will become denatured and no longer fit that substrate making it useless. Enzymes also have a temperature which they work best at, that temperature is 37°C the same temperature as the human body.

Example 3

Underlying Biology

- Catalysts are substances which can speed up chemical reactions.
- Enzymes also known as a biological catalysts are produced by every living cell.
- Enzymes are also specific too their substrate, as each enzyme has a unique shape to fit with the shape of its substrate/active site also known as the 'lock and key' hypothesis.
- The active site is where the chemical reactions take place.
- Lock and key hypothesis diagram ↓

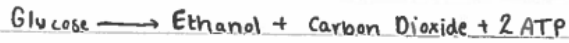
Enzyme + Substrate Enzyme + Substrate complex Enzyme + products

Example 4

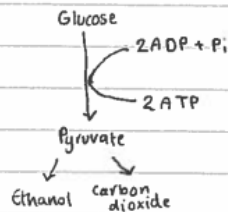
Enzymes are proteins that ^{catalyse} speed up biochemical reactions. Enzymes work best at appropriate conditions (pH, temperature), this is known as it's optimum condition. If the optimum condition is exceeded the enzyme will become denatured or the rate of reaction will decrease.

Example 5

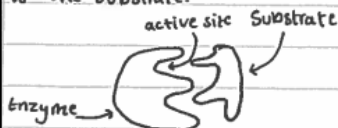
Underlying Biology: Fermentation is an irreversible process which occurs in yeast cells. It converts:



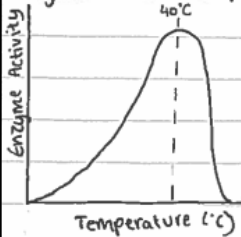
The first stage of fermentation is glycolysis and it produces the 2ATP and pyruvate. It also occurs in the cytoplasm in ~~anaerobic~~ anaerobic conditions:



The bubbles of gas that we saw being produced in our experiment must be CO_2 gas from fermentation. Enzymes also aid in the process of fermentation: Enzymes are biological catalysts which speed up reactions. In order for an enzyme to have an effect, its active site must be complementary to the substrate:



Enzymes are therefore specific. Enzymes also act differently at different temperatures



At low temperature an enzymes activity will be slower and so the reaction will also be slower. However at around 40°C an enzymes activity is optimal and so the reaction will happen fastest. After that point the active site of the enzyme will change shape and will no longer work with its substrate, the enzyme is then denatured and the reaction will stop.