Types of Enzymes

Learn the following enzyme reactions.

Substrate	Enzyme	Product	Type of reaction	Memory aid
Starch	Amylase →	Maltose	Degrading	SAM
Protein	Protease/pepsin →	Amino acids	Degrading	PPAA
Fat	Lipase →	Fatty acids & glycerol	Degrading	FLAG
Hydrogen peroxide	Catalase →	Oxygen & water	Degrading	HPCOW
Glucose-1-phosphate (G1P)	Phosphorylase →	Starch	**Synthesising**	G1PPS

Word Equation

$$\text{Substrate} \xrightarrow{\text{Enzyme}} \text{Product}$$

Enzymes

Location of Enzymes

Enzymes are found in all **living cells** as they function as **biological catalysts**.

Enzyme Function

Enzymes speed up cellular reactions but are not changed in the process.

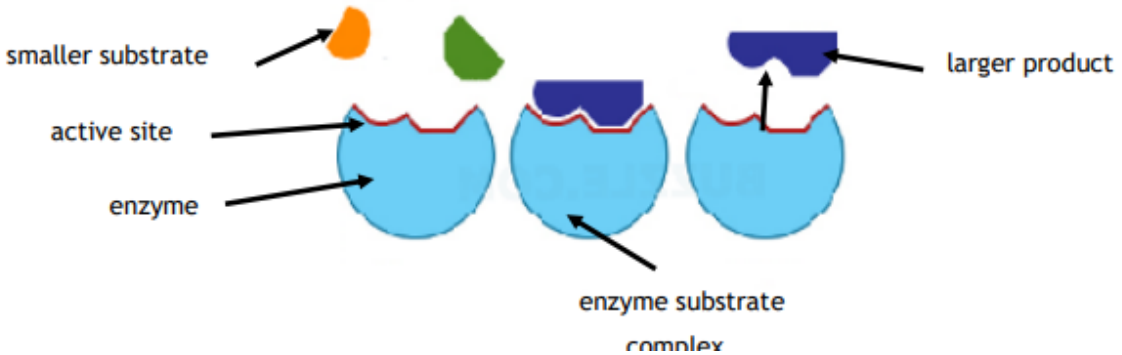
Specificity of Enzymes

The shape of the enzymes active site is **complementary** to its specific substrate forming a product.

Type of Enzyme Reactions

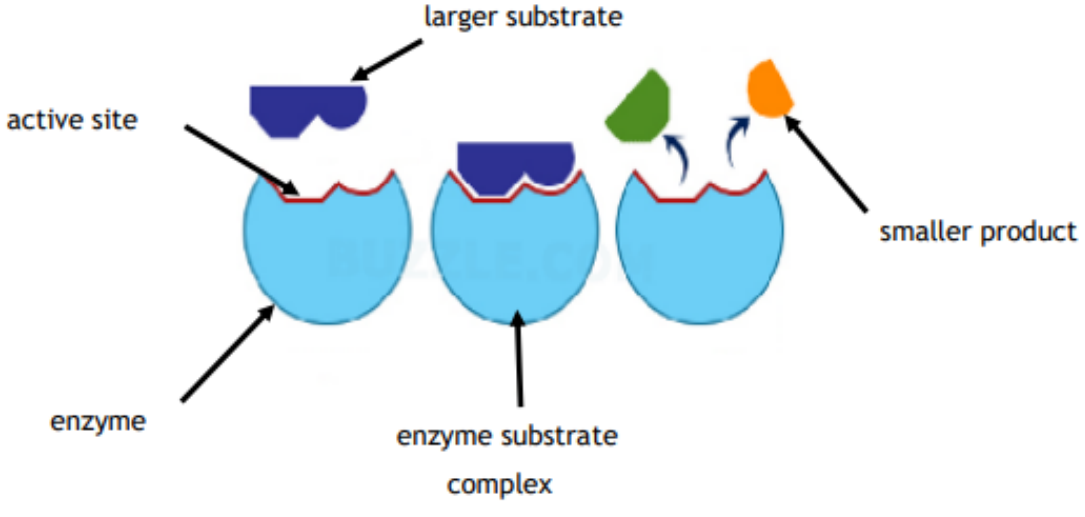
1. Synthesising Reactions

Smaller substrates are converted into a **larger product.**



2. Degrading reactions

Larger substrate is broken down into **smaller products.**

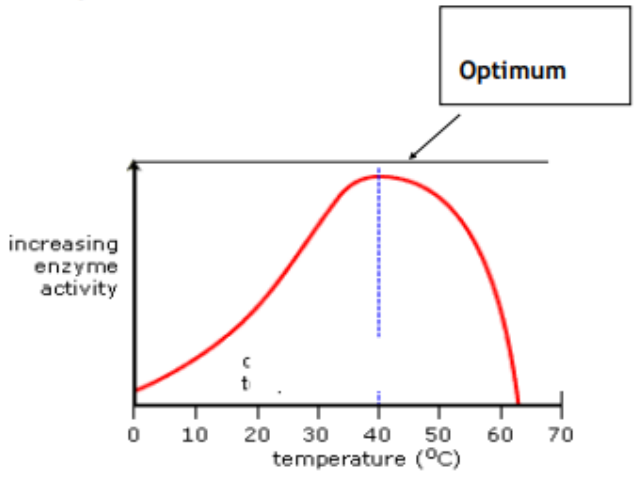


Enzyme Action

Enzyme Action

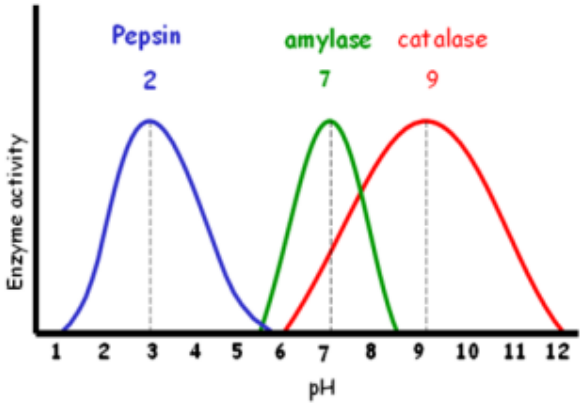
The activity of enzymes & other proteins can be affected by the **temperature** and **pH**.

Temperature



Optimum temperature - when enzymes are their **most active** is **37°C**

pH



Different enzymes work best at different pH values, their optimum pH.

Many enzymes' optimum pH is neutral (pH 7) but not all!

Denatured Enzymes

At **high** temperatures or pH's out-with the enzyme's acceptable range the enzyme is **denatured.**

When an enzyme is denatured the **shape of the active site** changes shape so the substrate can no longer react with the enzyme **lowering** the reaction rate.