

**GCSE Review 4 - Enzymes**

**Basic Revision Aims:**

- 4.1. The structure of enzymes & how they work
- 4.2. Factors affecting the rate of enzyme activity

**Resources**

Use the GCSE Bitesize sections below and your GCSE textbook, class notes and GCSE revision guide.

Enzymes

<https://www.bbc.co.uk/bitesize/guides/zcttv9q/revision/5> (AQA)

<https://www.bbc.co.uk/bitesize/guides/z88hcj6/revision/1> (Edexcel)

**4.1. The Structure of Enzymes & How They Work**

Circle the type of biological molecule that is an enzyme:

Lipid

Carbohydrate

Protein

Enzymes can also be known as .....

The main role of an enzyme is to .....

What is a substrate? .....

What is the active site? .....

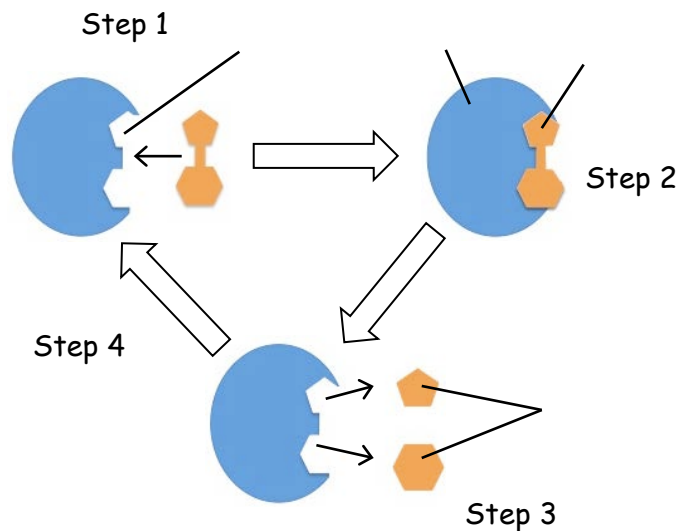
Label the diagram below and add descriptions to the step numbers:

1. ....

2. ....

3. ....

4. ....



Describe why only one enzyme is specific for one substrate.

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There are three main types of enzyme used in digestion:

- Carbohydrases
- Proteases
- Lipases

Carbohydrases

These enzymes break down .....

Starch is broken down into ..... by the enzyme .....

Maltose is broken down into .....

Proteases

These enzymes break down .....

What are the products? .....

Lipases

These enzymes break down .....

What are the products? .....

What would happen to the pH as the reaction progressed? .....

*4.2. Factors Affecting the Rate of Enzyme Activity*

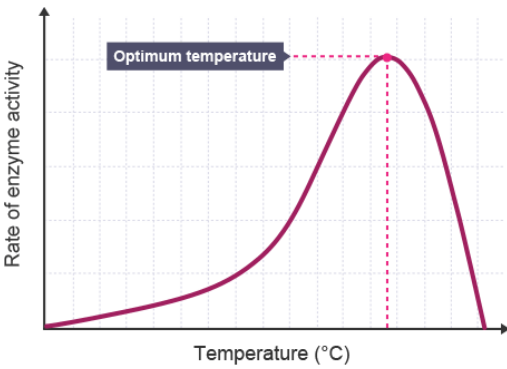
Complete the equation below for calculating the rate of enzyme activity:

Rate of reaction = \_\_\_\_\_

Three main factors affect enzyme activity:

1. Temperature
2. pH
3. Substrate concentration

Temperature



Explain why enzyme activity is low at low temperatures.

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Enzyme activity is greatest when the enzyme is at its .....

Describe what happens to an enzyme's structure at high temperatures.

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The enzyme is now .....

What will the substrate no longer be able to do? .....

What will happen to the rate of reaction? .....

pH

What does a change in pH do to an enzyme's active site? .....

Describe how the change in pH does this.

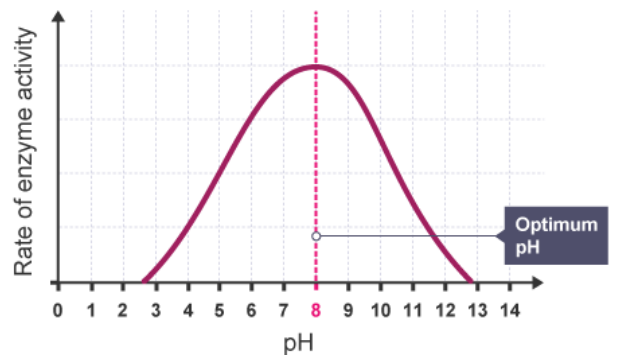
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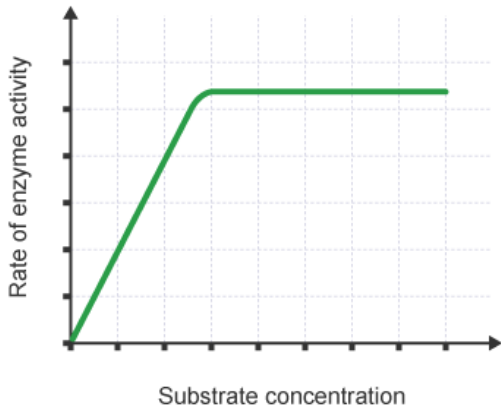
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What will extremes of pH do to enzymes? .....

Substrate Concentration



Describe what happens to the rate of reaction as substrate concentration increases.

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Why does the rate of enzyme activity level out?

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Well done! You have completed the fourth GCSE review pack to help you prepare for the first part of the A-level Biology course! Now move onto GCSE Review 5 - Transport in Cells & Gas Exchange.