

Name: _____ Date: _____

Period: _____ Do Now# |.|| Homework: |.||

Aim: How do ENZYMES work?

Vocabulary: (8)

1. enzyme 3. substrate 5. enzyme substrate complex 7. enzyme specificity
 2. catalyst 4. Active site 6. lock and key 8. Induced fit model

What is a CATALYST?

- A substance that speeds up the rate of a chemical reaction, without itself being used up or changed.
- Can be used more than once.

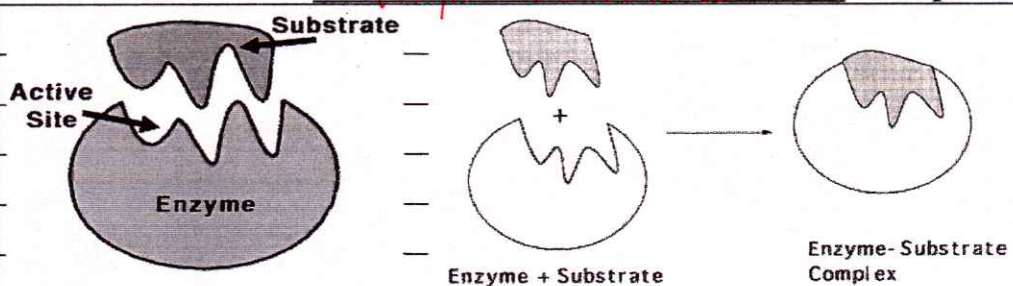
How do we describe ENZYMES?

1. Are organic catalysts.
2. Speeds up the rate of chemical reactions.
3. Large molecules.
4. Made of proteins / amino.
5. Each enzyme has a specific shapes.
6. The molecule that an enzyme works on is a substrate.
7. All enzyme names end with ase.

Examples:

What happens when a substrate attaches to an enzyme?

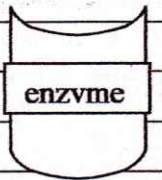
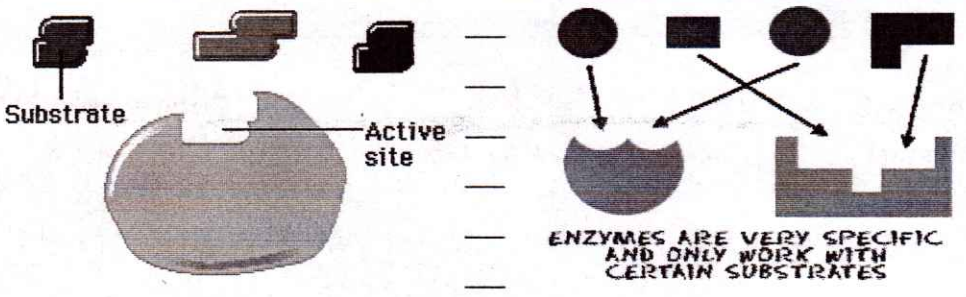
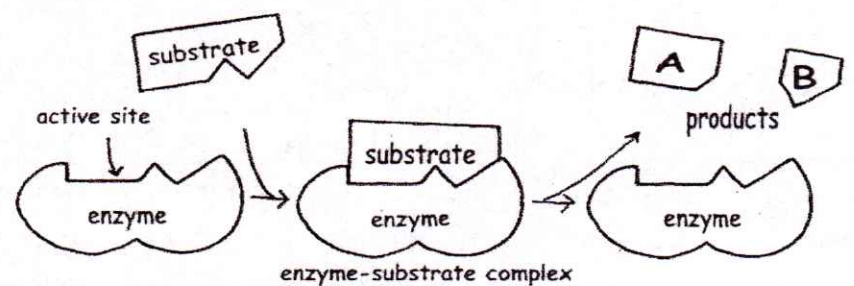
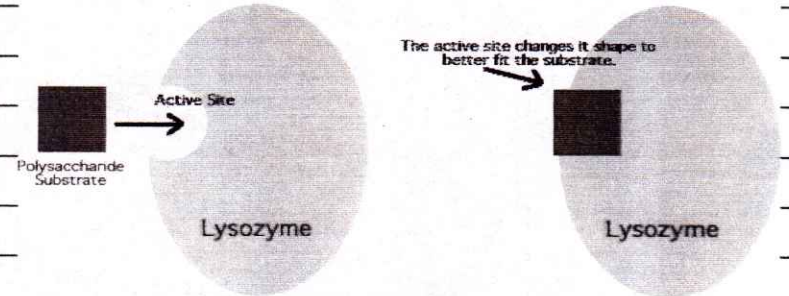
- It forms the enzyme substrate complex.



The diagram illustrates the lock-and-key model of enzyme action. On the left, a large grey circle represents the 'Enzyme' with a jagged 'Active Site' on its surface. A smaller grey shape, labeled 'Substrate', is shown fitting into this active site. An arrow points to the right, showing the 'Enzyme + Substrate' components separated. A second arrow points to the right, showing the 'Enzyme-Substrate Complex' where the substrate is now bound within the enzyme's active site.

Which part of an enzyme can a substrate attach to?

- Active site

Questions/Main Ideas:	Notes:
How do enzymes react with certain substrates?	<ul style="list-style-type: none"> Through the <u>lock</u> and <u>key</u> concept. Only certain enzymes react on certain <u>substrates</u>.
	(ENZYME SPECIFICITY)
<p><i>DRAW A SUBSTRATE!</i></p> 	 <p>ENZYMES ARE VERY SPECIFIC AND ONLY WORK WITH CERTAIN SUBSTRATES</p>
What happens to the substrate after it attaches to the enzyme?	<ul style="list-style-type: none"> Enzyme releases the <u>products</u>. The enzyme <u>can</u> be used again. 
What is the induced fit model in enzymes?	<ul style="list-style-type: none"> Sometimes the enzyme and <u>substrate</u> have shapes that require <u>molding</u> to fit.
<p>ACTIVITY: Draw your own Enzyme Substrate Complex. Cut it out. Name your enzyme and your substrate. Glue it on the chart paper.</p>	<p>An Example of Induced Fit: The Enzyme Lysozyme</p>  <p>The enzyme Lysozyme helps kill bacteria by binding to the polysaccharide coating of the bacteria. The fit is not perfect, so the shape of the active site changes to fit the polysaccharide substrate. This change of shape of the active site is called induced fit. By initiating this "induced fit", the enzyme breaks the polysaccharide, ultimately helping kill the bacteria.</p>

Summary: 2 points

The main idea is

Enzymes are

Enzymes

Enzymes are important because