

## Enzyme Notes

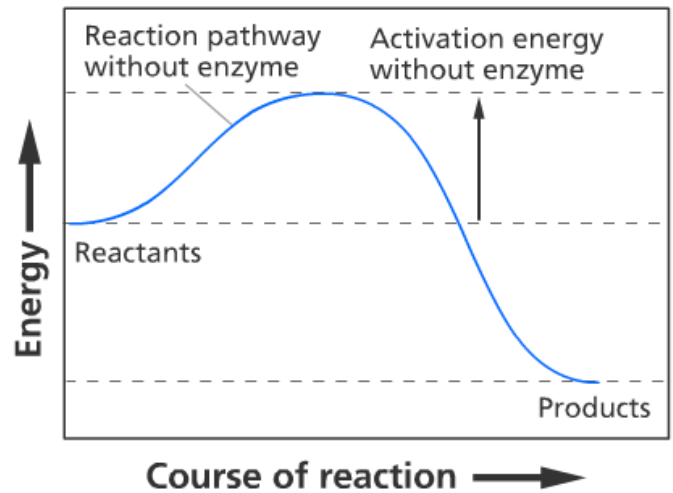
### Introduction

- What do **enzymes do**?
- What is the **activation energy** of a chemical reaction?
- What do enzymes and other **catalysts** do to the activation energy of a chemical reaction?
- What is a **substrate**?

Enzyme Shape Tutorial Animation Step	Question	Answer
1	When do <b>chemical reactions</b> occur in living things?	
	How fast would chemical reactions occur in living things <i>without enzymes</i> ?	
2	What 3 letters usually end the names of enzymes?	
3	What is the role of the <b>active site</b> in an enzyme?	
	What does the active site do to the energy needed for a chemical reaction?	
4	How is the shape of the active site related to the shape of the substrate?	
5	What is the “enzyme-substrate complex?”	

### Enzyme Shape Tutorial Animation Step 6

- On the graph at right:
  - Draw and label the “**reaction pathway with enzyme.**”
  - Label the “**activation energy with enzyme.**”
- How does the **activation energy** without enzyme compare to the **activation energy** with enzyme?



### Enzyme Shape Tutorial Animation Step 7

- What is meant by the “**products**” of an enzyme-driven reaction?
- Is the enzyme “used up” or permanently changed after the chemical reaction? Explain.

### Enzyme Shape Tutorial Step 8

- Identify **two** factors that can affect enzyme function.
- Describe how an enzyme-driven reaction changes as the environmental factors of the enzyme near the **optimal level**.
- What is most likely the **optimum** temperature of a human enzyme? Explain.

### Enzyme Shape Tutorial Animation Step 9

- What happens to an enzyme if its shape (especially its active site) changes?
- Describe one environmental factor that can change an enzyme’s shape.

Draw a diagram of **the action of enzymes**. Include the following in your diagram: *active site, enzyme, enzyme-substrate complex, product, and substrate.* (Animation steps 4 – 7)

