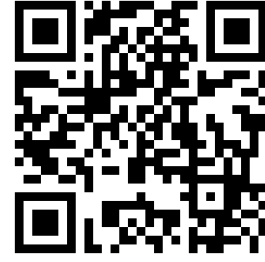


تم تحميل هذا الملف من موقع المناهج الإماراتية



الملف ملخص الدرس الأول Reactions Chemical التفاعلات الكيميائية مع أسئلة امتحانات الأعوام الماضية

موقع المناهج ← المناهج الإماراتية ← الصف التاسع المتقدم ← علوم ← الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب الصف التاسع المتقدم



روابط مواد الصف التاسع المتقدم على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

المزيد من الملفات بحسب الصف التاسع المتقدم والمادة علوم في الفصل الأول

[حل أسئلة الامتحان النهائي](#)

1

[مراجعة مهمة وفق الهيكل الوزاري](#)

2

[حل أسئلة الامتحان النهائي](#)

3

[حل أسئلة اختبار نهائي](#)

4

[حل تجميعة أسئلة امتحانية وفق الهيكل الوزاري](#)

5

Lesson 1 Chemical Reactions:

Dr. Mohamed Mostafa

Chemical reaction: process by which atoms or groups of atoms in substances are reorganized into different substances



Reactant: Before the Arrow

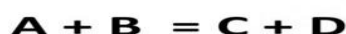
Product: After the Arrow

- **Reactant:** starting substance in a chemical reaction
- **Product:** substance formed during a chemical reaction
- The arrow means Yields or React to Form



MASS SHOULD STAY THE SAME

Reactant Mass = Product Mass



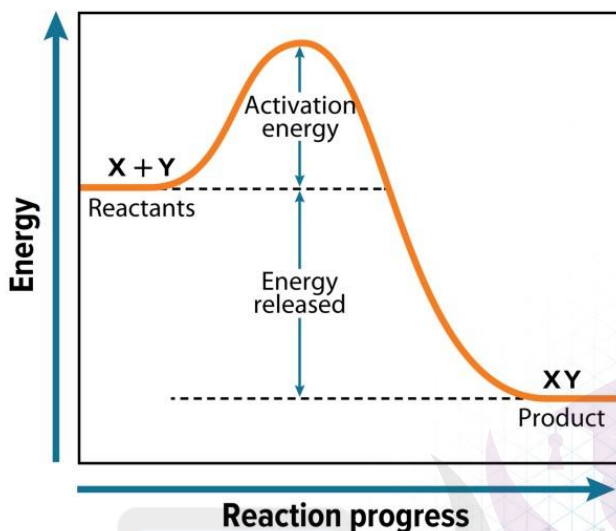
LAW of Conservation of Mass:

The number of atoms of each element on the reactant side must equal the number of Atoms of the same element on the product side

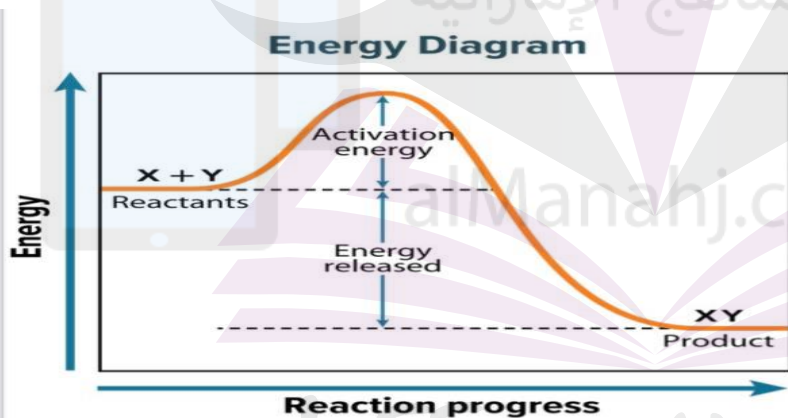
Matter cannot be created or destroyed in chemical reactions.

- Therefore, mass must balance in all chemical equations.

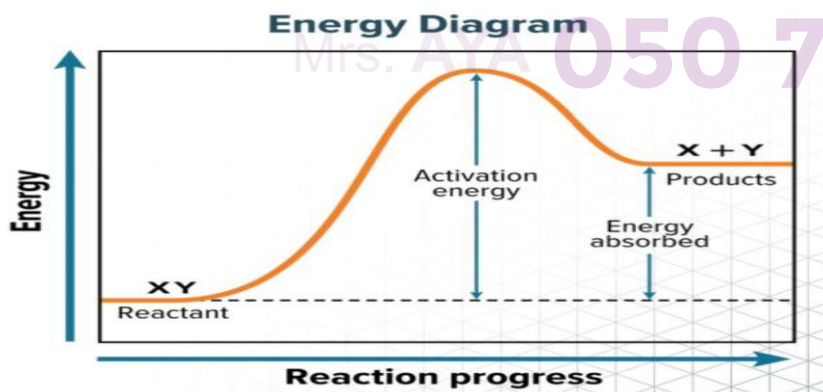
- **Activation energy:** minimum amount of energy needed for reactants to form products in a chemical reaction



- **Exothermic reactions:** energy is released in the form of heat or light.
As a result, the energy of the product is lower than the energy of the reactants.



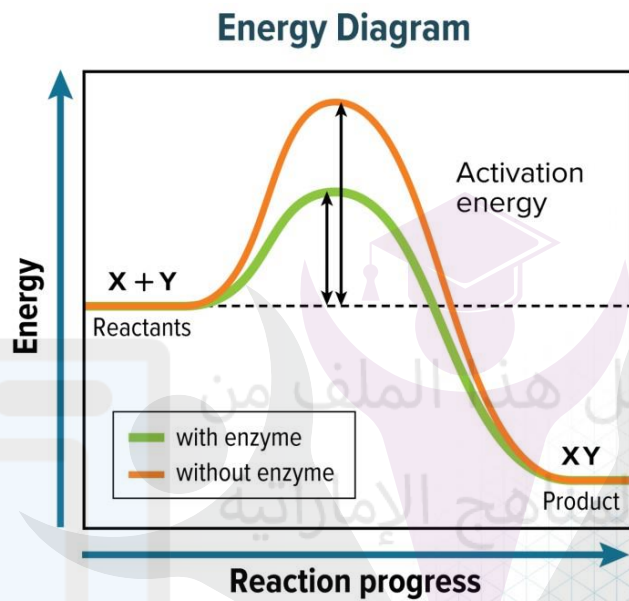
- **Endothermic reactions:** energy is absorbed.
As a result, the energy of the product is higher than the energy of the reactants



Note That: Additional substances are needed to reduce activation energy and reaction time in living organisms.

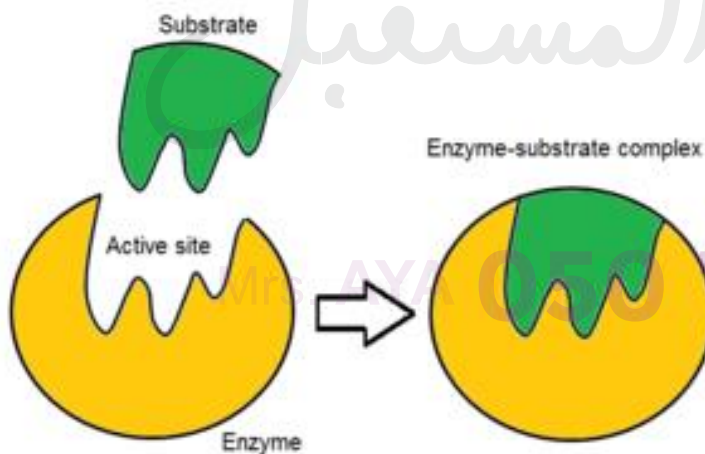
• **Catalyst:** substance that lowers the activation energy needed to start a chemical reaction

• **Enzyme:** protein that speeds up a chemical reaction in a biological process



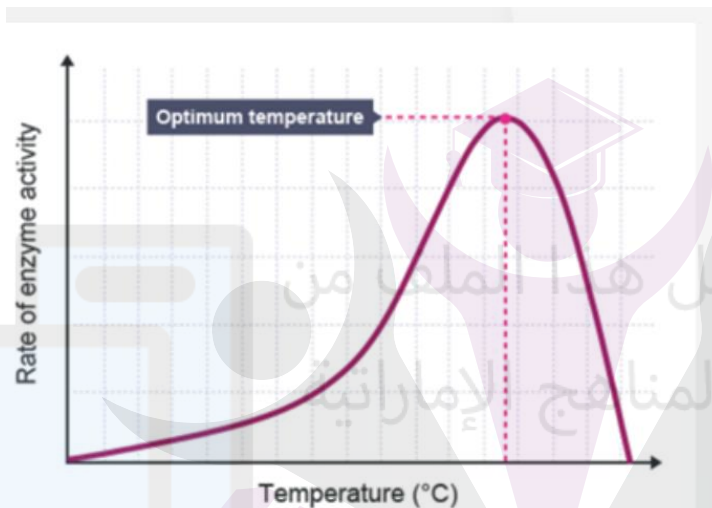
• **Substrate:** reactant that binds to an enzyme

• **Active site:** location where a substrate binds on an enzyme

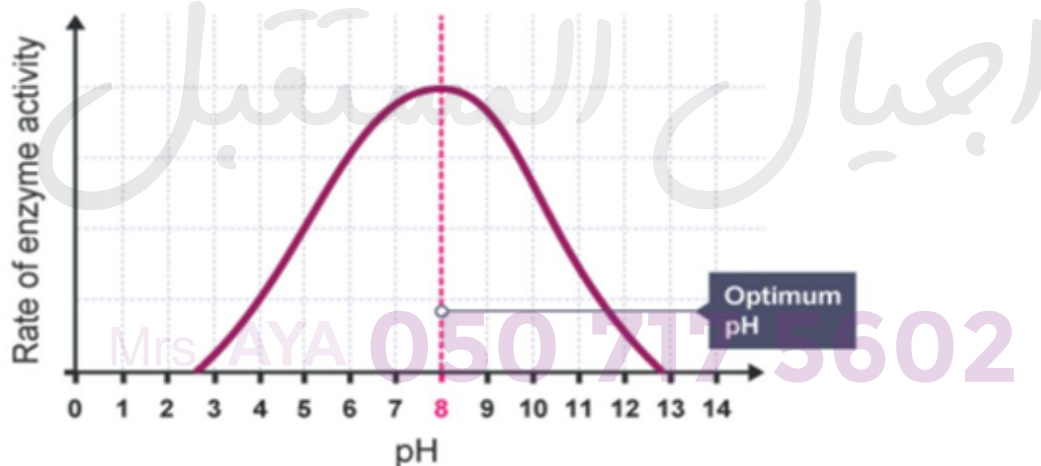


Factors that Affect Enzyme Activity:

- 1- **Inhibitors:** can bind to an enzyme's active site, preventing the substrate from binding to the enzyme, and slowing the rate of reaction
- 2- PH and Temperature affect the enzyme activity, as the temperature increases the rate of enzyme increase till it reaches optimum then if it increased more therefore denaturation occurs that decreases the activity of enzyme,



- 3- While change in pH can alter the shape of enzyme activity Note that each enzyme has its optimal pH



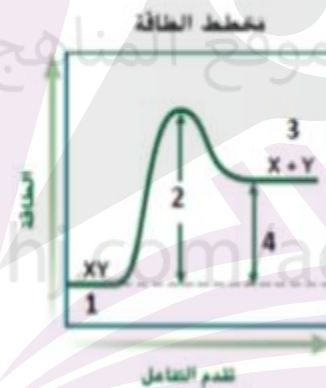
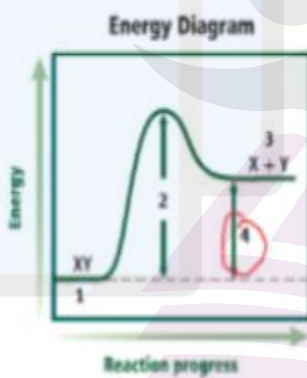
Previous Exams Questions اسئلة الاعوام الماضية

The minimum amount of energy needed for a chemical reaction is called ____.

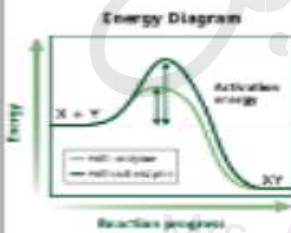
- A) product threshold
- B) absorbent energy
- C) principle mass
- D) activation energy

Based on the diagram below, which number represents the energy absorbed during the chemical reaction?

استناداً الى المخطط أدناه، أي رقم يمثل الطاقة الممتصة خلال التفاعل الكيميائي؟



How can enzymes benefit chemical reactions, as shown in this energy diagram?



- A) lowering activation energy
- B) raising activation energy
- C) slowing reactions
- D) increasing the amount of product

(Final Exam Advanced 2022)

- Select the correct choices to complete the sentence.
 - ✓ Special proteins called **Enzymes** are the biological catalysts that speed up the rate of chemical reactions in biological processes. (Final Exam 2021)
- **What are the biological catalysts?** (Final Exam 2019)
Enzymes
- protein that speeds up a chemical reaction in a biological process.
Ans. Enzyme (Final Exam 2022)
- **Which statement is true of chemical equations?** (Final Exam 2022)
Multiple choice questions
 - Reactants come after the arrow, products come before.
 - Reactants and products come before the arrow.
 - Reactants come before the arrow, products come after.**
 - Reactants and products both come after the arrow.
- **Which of factors influence enzyme activity?** (Final Exam 2020)
Select all that apply
 - PH**
 - Temperature**
 - Time of day
 - Activation energy
 - Whether reaction is exothermic or endothermic

Explain the effect of extreme conditions on the activity of enzymes?

(Final writing Exam 2022)

Ans.

- As the temperature increases the rate of enzyme increase till it reaches optimum then if it increased more therefore denaturation occurs that decreases the activity of enzyme.
- While change in pH can alter the shape of enzyme activity

Important definitions:

- **Chemical reaction:**
 - ✓ Process by which atoms or groups of atoms in substances are reorganized into different substances.
 - ✓ bonds broken and new bonds formed
- **Activation energy:** minimum amount of energy needed for reactants to form products in a chemical reaction
- **Catalyst:** substance that lowers the activation energy needed to start a chemical reaction
- **Enzyme:** protein that speeds up a chemical reaction in a biological process
- **Active site:** location where a substrate binds on an enzyme
- **Activation energy:** minimum amount of energy needed for reactants to form products in a chemical reaction
- **Inhibitors:** can bind to an enzyme's active site, preventing the substrate from binding to the enzyme, and slowing the rate of reaction

اجيال المستقبل

Mrs. AYA 050 717 5602