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**Chemical Reaction &
Energy Transfer**
Session 4

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Learning Objectives

Factors Affecting Rate of Chemical Reaction

1. Nature of Reactants and the Products
2. Concentration of Reactants
3. Effect of Temperature and Pressure
4. Effect of Catalyst
5. Surface Area of the Reactant
6. Effect of Light

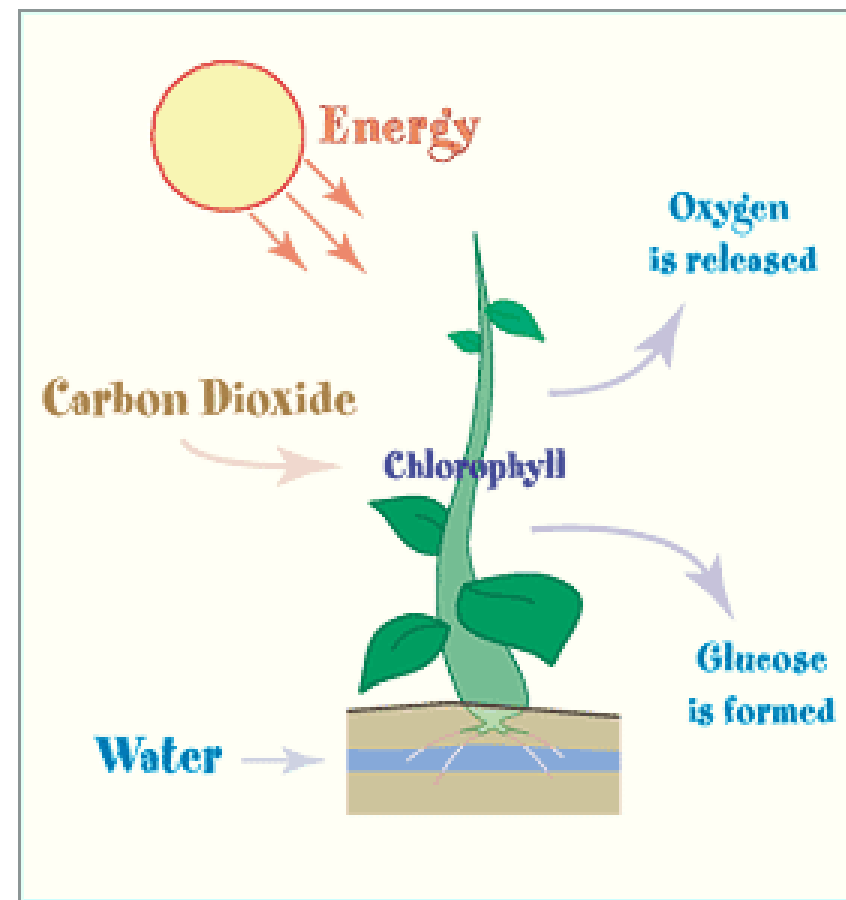
Factors: **1. Nature of Reactants and the Products**

Reactants which are covalent compound:
Slow Reaction

Reactants which are ionic compound: **Fast Reaction**

Factors: 1. Nature of Reactants and the Products

Reactants which are covalent compound:
Slow Reaction



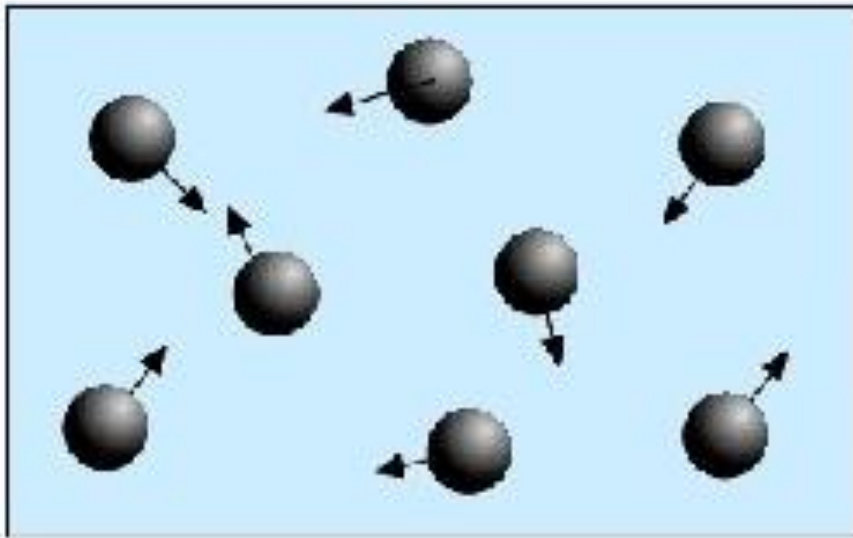
Factors: 1. Nature of Reactants and the Products

Reactants which are ionic compound: *Fast Reaction*

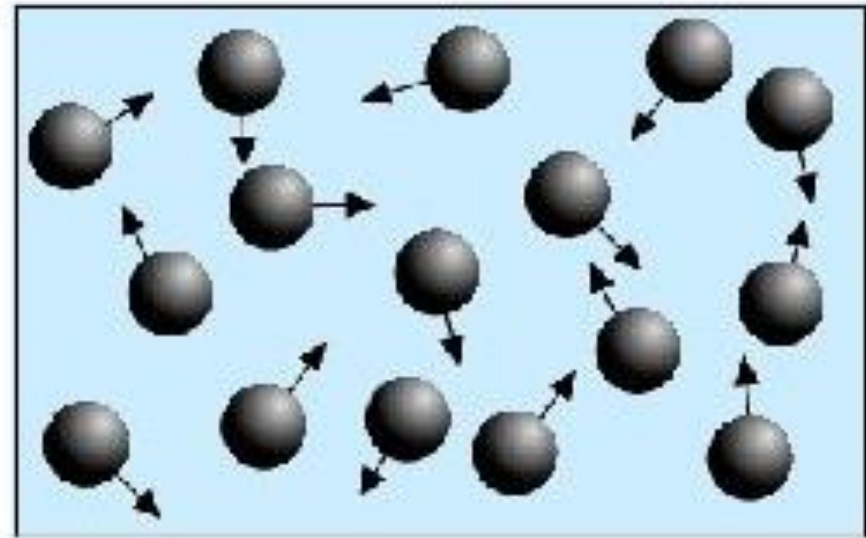


Factors: 2. Concentration of Reactants

Lower the concentration = **Slow Reaction**
Higher the concentration = **Fast Reaction**



Low concentration = fewer collisions

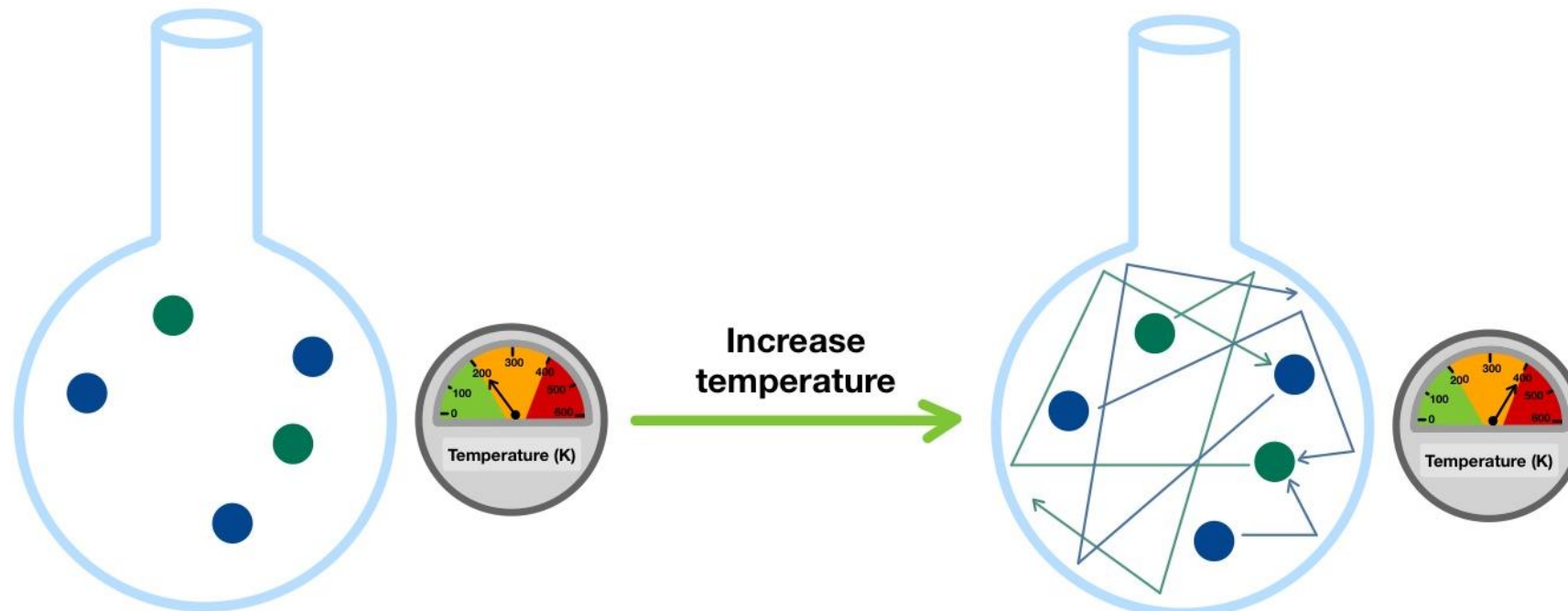


Higher concentration = more collisions

Factors: 3. Effect of Temperature and Pressure

Low Temperature: Slow Reaction

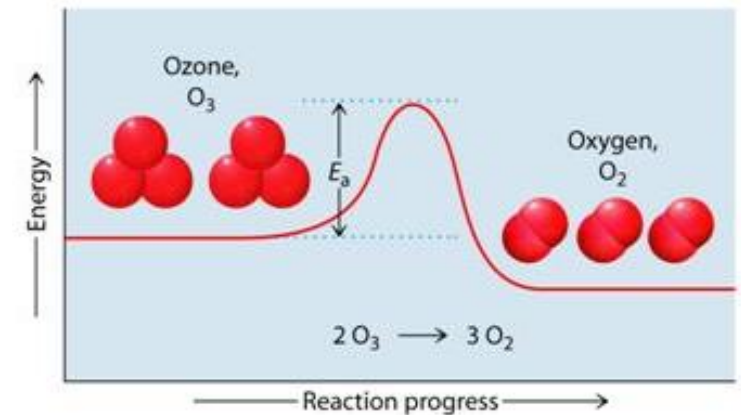
High Temperature: Fast Reaction



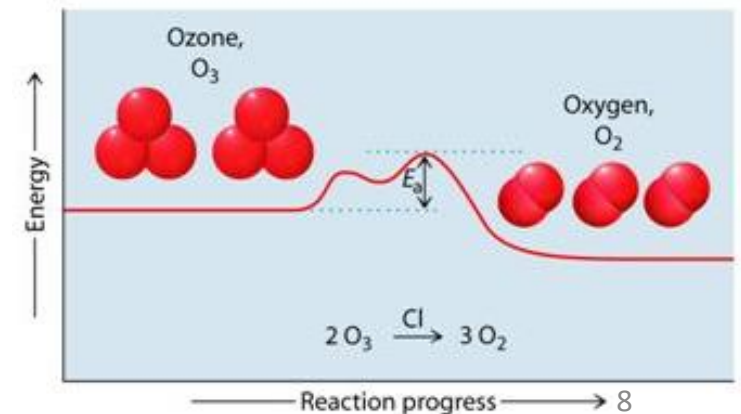
Factors: 4. Effect of Catalyst

Catalyst: *Substance that speeds up the chemical reaction*

- Without Catalyst: Slow Reaction
- With Catalyst: Fast Reaction



(a) Without catalyst



(b) With chlorine catalyst

Factors: 5. Surface Area of the Reactant

- Lower the Surface Area: Slow Reaction
- Greater the Surface Area: Fast Reaction



Factors: 6. Effect of Light

Without Light: Slow Reaction

In the presence of Light: Fast Reaction

