

Unit 7: Kinetics & Equilibrium

Kinetics = the study of the _____ or _____ of a reaction

A REACTION is the _____ or _____ of chemical bonds to make entirely new compounds as products.

For all chemical reactions there is what is called the _____

_____ ,

or the step-by-step process needed to make a new product; how you get from A to B; very similar to a

_____ .

Just like if you are making a cake, you must follow the reaction mechanism step-by-step without skipping or changing the order of any steps or changing the reactants (your ingredients). This means that certain reactions will occur quickly while others will take more time and energy.

What Determines the Rate of a Reaction?

1. The number of steps - more steps can mean a _____ reaction.

2. Rate Determining Step - the _____ step of a reaction mechanism; the most important factor influencing rate of reaction; also called the Rate _____ Step

Collision Theory

In order for a chemical reaction to occur, reactant _____ and have the following to do so:

1. Proper amount of _____

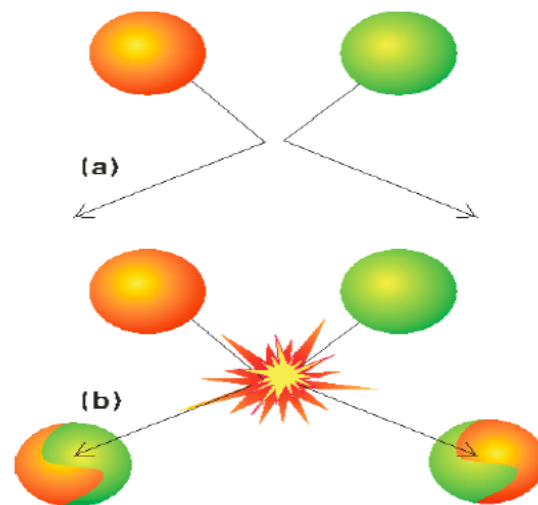
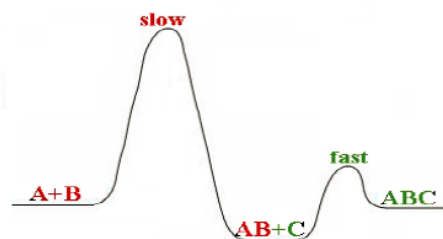
2. Proper _____ /

_____ /

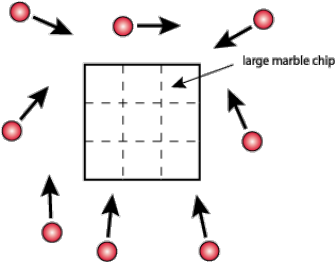
****Only when particles collide with _____ and**

_____ will a chemical reaction occur!

Rate Determining Step



The SIX Factors Affecting Rate of Reaction

Factor	How Rate is Affected	Why does it Increase the Rate?
1. Nature of Reactants	Ionics → Covalents →	
2. Temperature	Increase in _____ → _____ in reaction rate	
3. Pressure	(affects _____ ONLY!!)	
4. Concentration		
5. Surface Area		 <p>The diagram shows a central square labeled 'large marble chip' with a dashed grid pattern. Surrounding the chip are several red spheres, each with a black arrow pointing towards the chip, representing reactant particles colliding with the surface of the marble chip.</p>
6. Catalysts	_____ the reaction WITHOUT CHANGING the nature of the Reactants or Products	