

Chapter 8.7

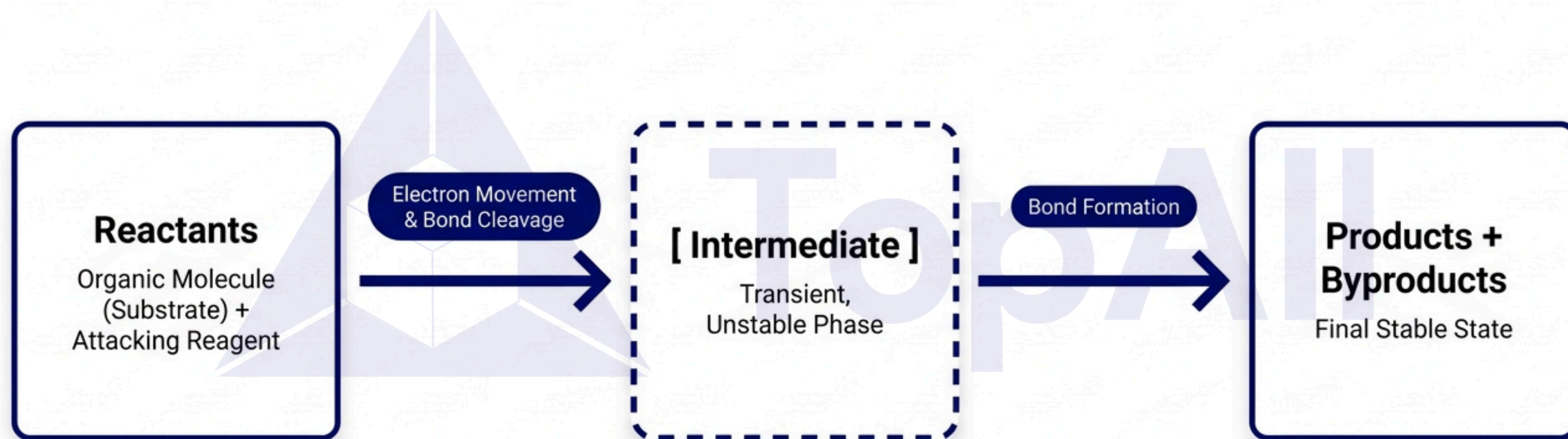
The Anatomy of an Organic Reaction

Fundamental Concepts in Reaction Mechanisms

Master the sequential steps, molecular actors, and electron movements that drive chemical transformations.

The Architecture of a Reaction

Every organic reaction follows a precise, predictable sequence from start to finish.



Substrate vs. Reagent

Reactants are not created equal. In organic chemistry, we classify them by their specific role in forming new bonds.

Substrate

The reactant that supplies carbon to the newly formed bond.

Note: If both reactants supply carbon, the choice is arbitrary, but it is usually the molecule specifically being observed.

Attacking Reagent

The active species that attacks the substrate to trigger the chemical change and drive the reaction forward.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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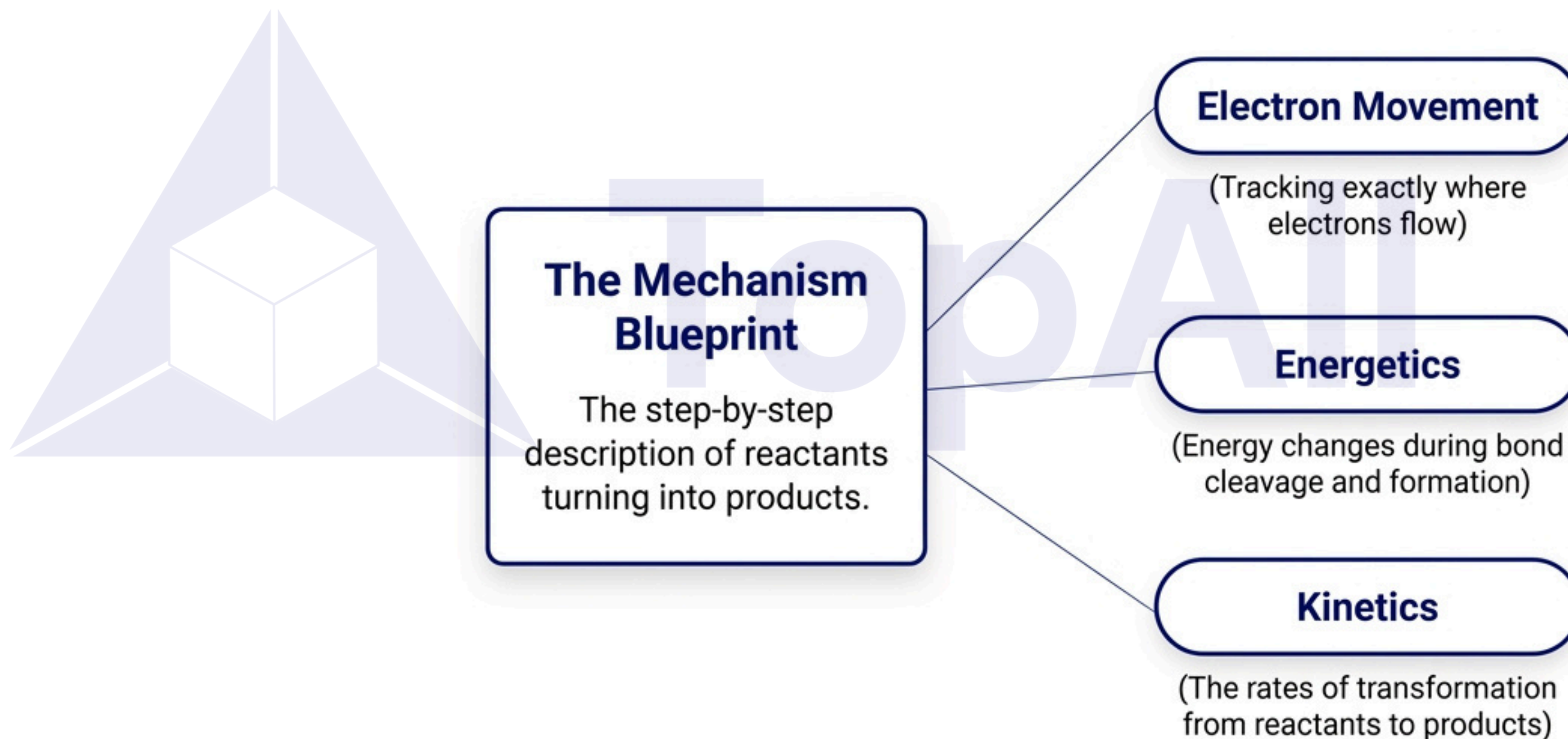
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What is a Reaction Mechanism?

A mechanism is more than a summary equation. It is a rigorous, sequential account of exactly how a transformation occurs.



Bond Breaking & Bond Making

Reactions do not happen instantaneously. They proceed through discrete steps involving a highly reactive middle phase.

Step 1: Bond Cleavage (Fission)

The covalent bond of the substrate breaks. This step requires energy and creates a short-lived, highly reactive species known as an **Intermediate**.

Proceeds to...

Step 2: Bond Formation

The intermediate rapidly undergoes further electron movement to form a new, stable covalent bond, yielding the final Product.

Exam Focus

Mechanism Fundamentals Mastered

- ✓ **The Equation:** Substrate + Reagent $\rightarrow$ [Intermediate] $\rightarrow$ Product.
- ✓ **The Substrate:** The specific reactant acting as the carbon-supplier for the newly formed bond.
- ✓ **The Mechanism:** The complete, sequential story of electron movement, energy changes, and reaction rates.
- ✓ **The Process:** Reactions are not magic; they are rigorous, stepwise processes of bond cleavage (breaking) followed by bond formation (making).



You've Learned the Theory.

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