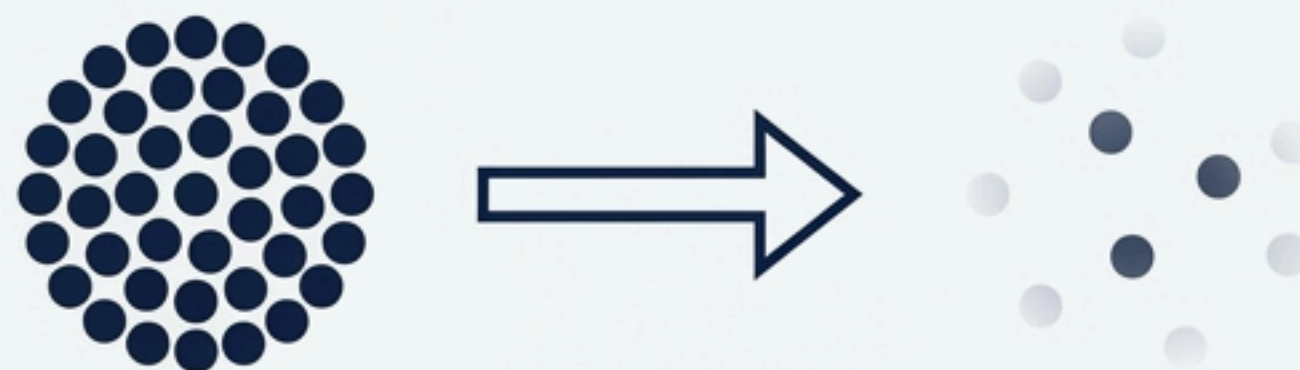


CONCEPT 2 — 3.2.1

Dependence of Rate on Concentration

Understanding the Decaying Speed
of Chemical Reactions.

Rate depends on the concentration of reactants and/or products.

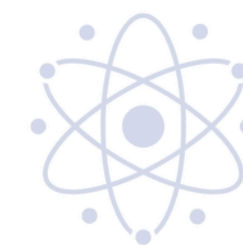


Falling Concentration = Falling Rate



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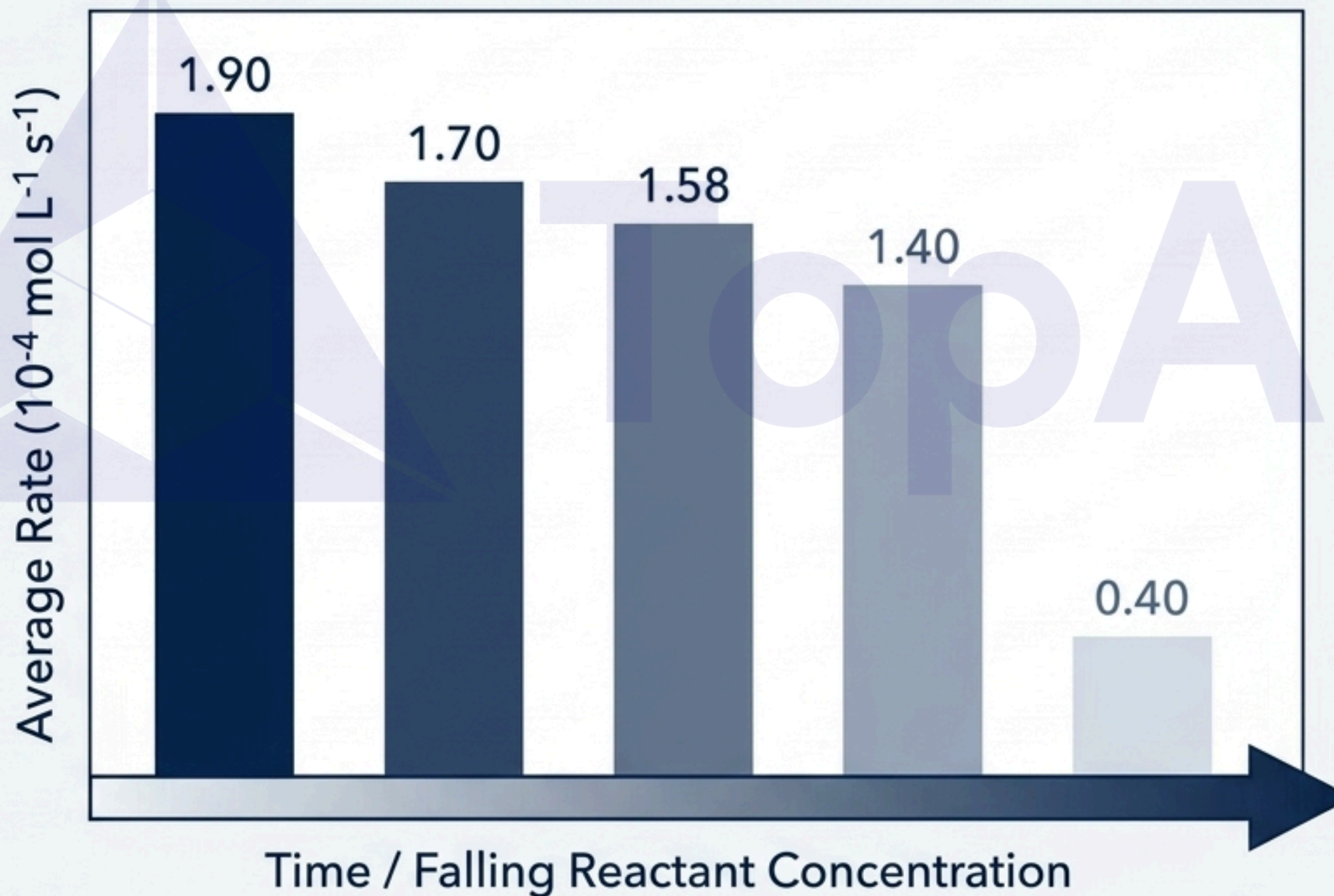
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The Empirical Proof: Hydrolysis of Butyl Chloride

As reactant concentration falls, the reaction rate falls.



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Rate is not a fixed number — it changes as the reaction proceeds.

Physics Myth



Constant Speed.

Chemistry Reality



The Moving Target: Speed decays as fuel [Reactant] burns out.

As a chemical reaction proceeds and the concentration of reactants $[R]$ decreases, which way does the rate move?

Option A: It remains constant.

Option B: It increases.

Option C: It decreases. ✓

Option D: It becomes zero.

Diagnostic Explanation: Less reactant = fewer collisions = lower rate. The rate is a moving target.

The Bridge to Math



Rate law connects rate to concentration — but the exact powers must be found experimentally.



← Determined in the Lab, Not on Paper





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