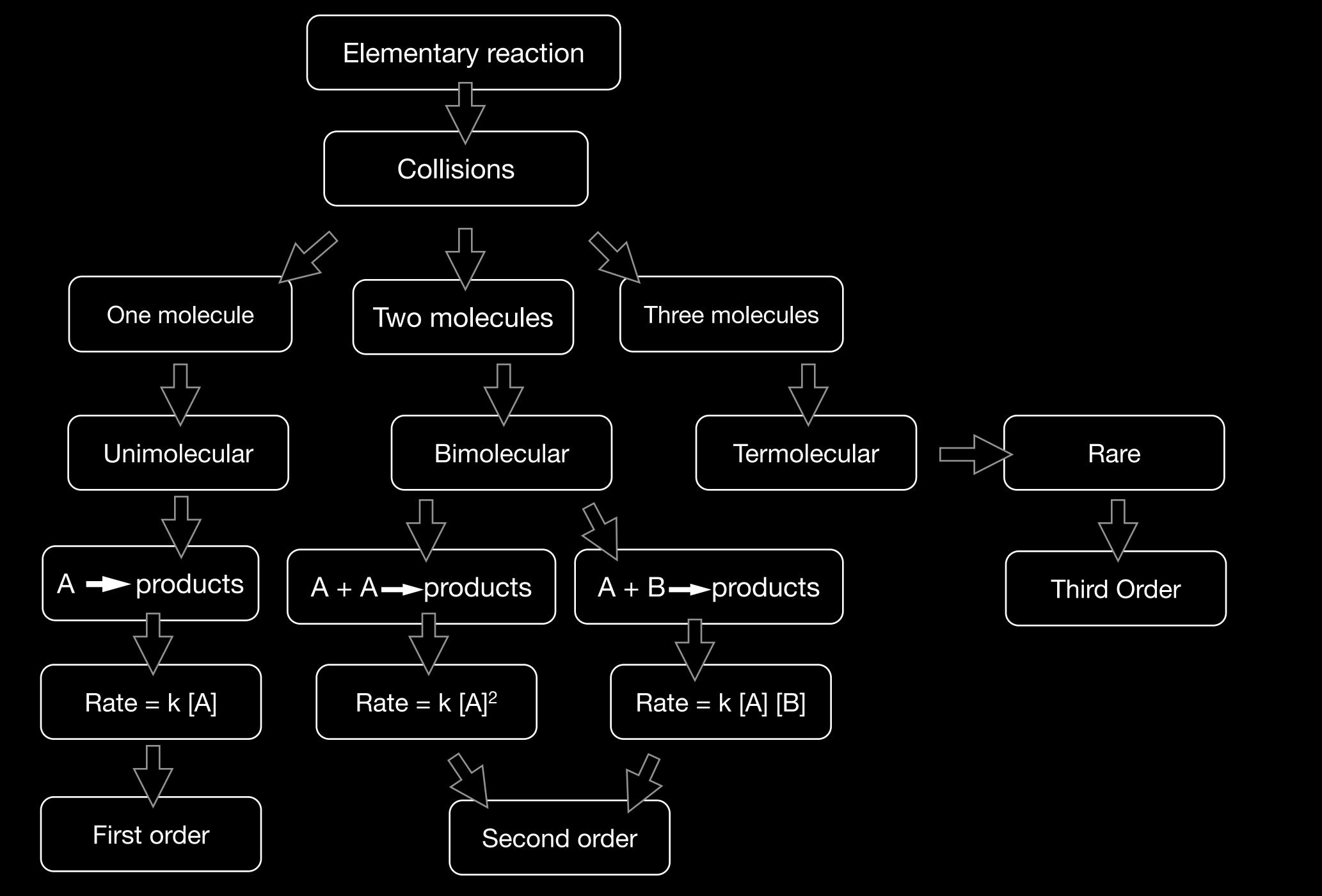


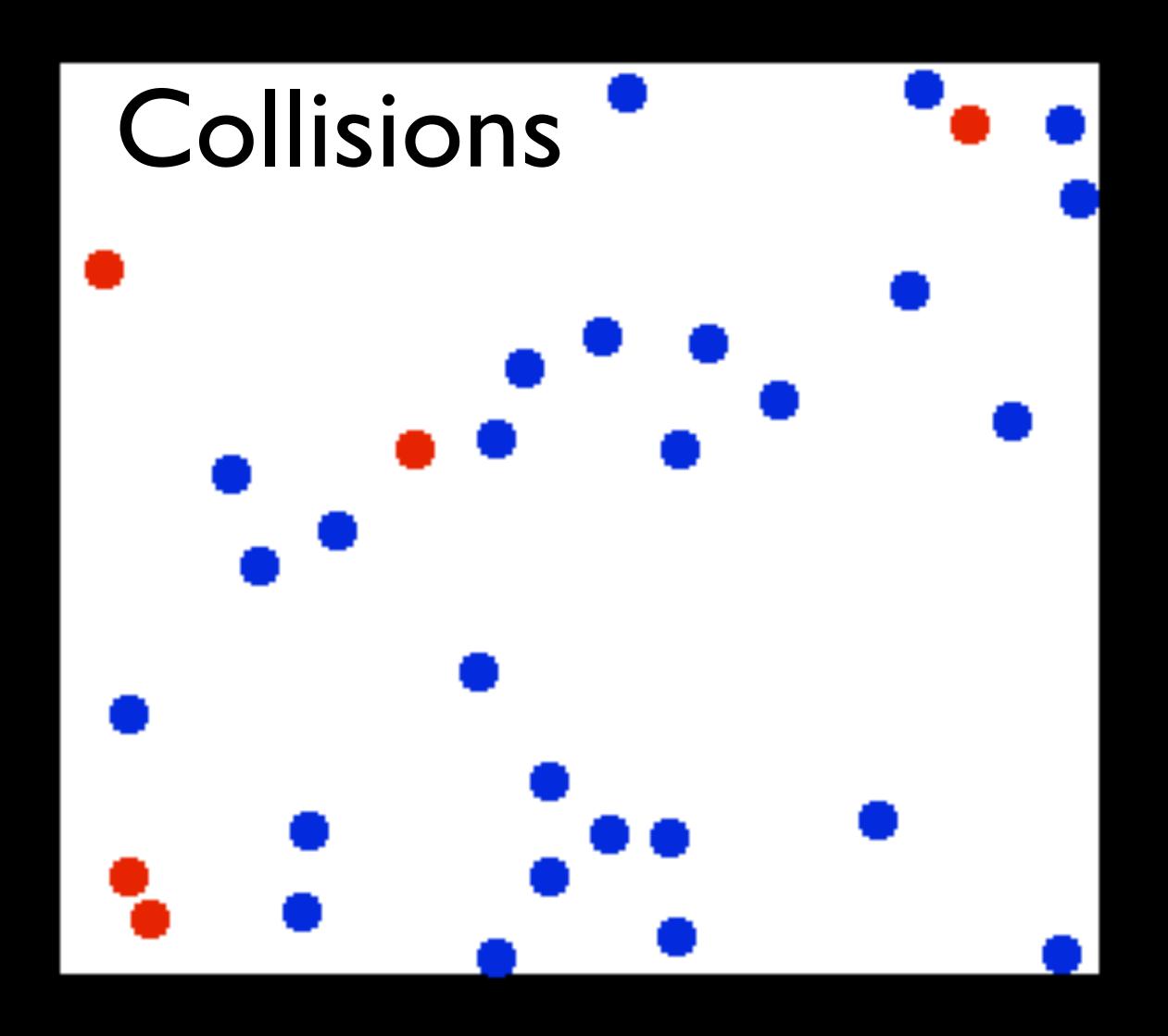
# Elementary Reactions

A + B — Products

Chemistry Essentials - 038



- Energy
- Orientation



# $CO + NO_2 \rightarrow CO_2 + NO$

### Stoichiometry





Measureable

# $CO + NO_2 \rightarrow CO_2 + NO$

Elementary Reaction

Predictable

$$2 NO_2 \rightarrow NO_3 + NO$$

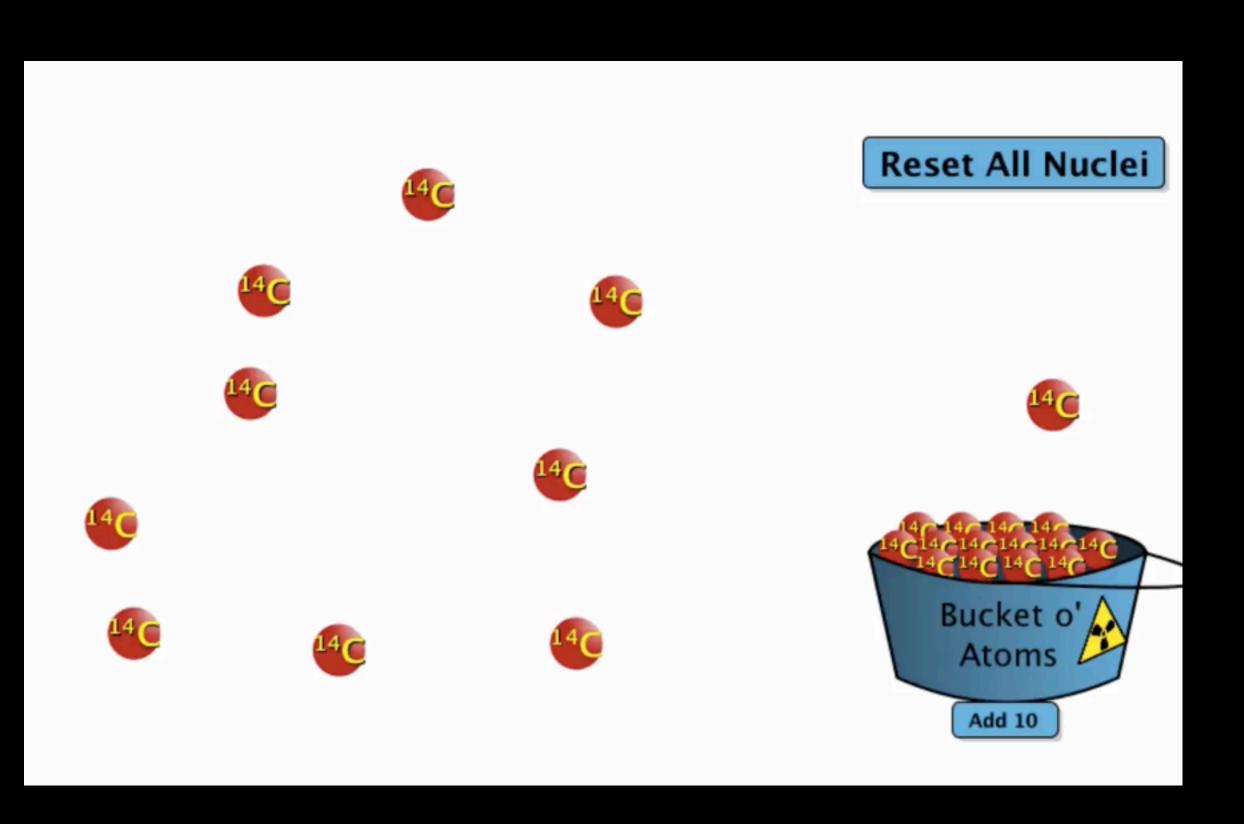
 $NO_3 + CO \rightarrow NO_2 + CO_2$ 

Reaction Mechanism

Measureable

#### Unimolecular Elementary Reaction

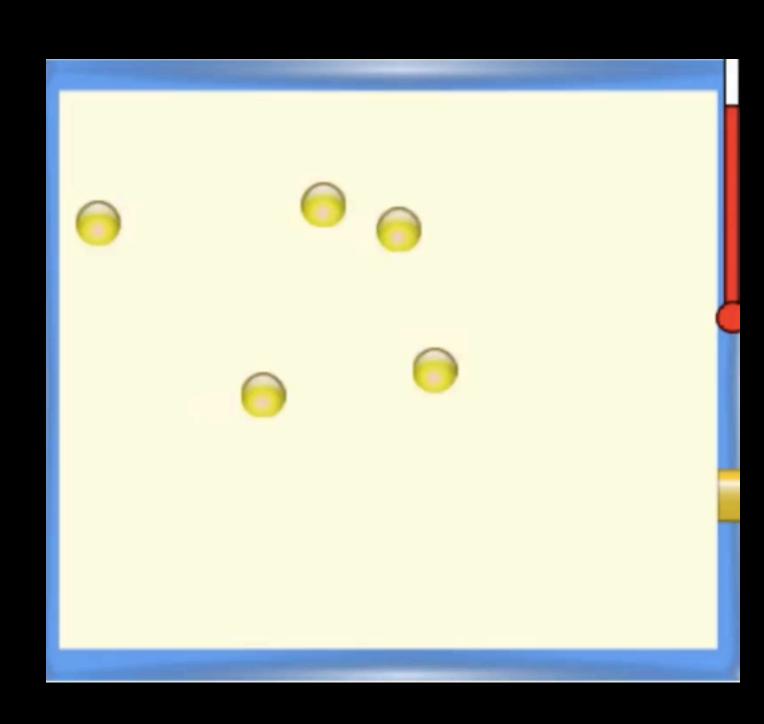
## A - Products

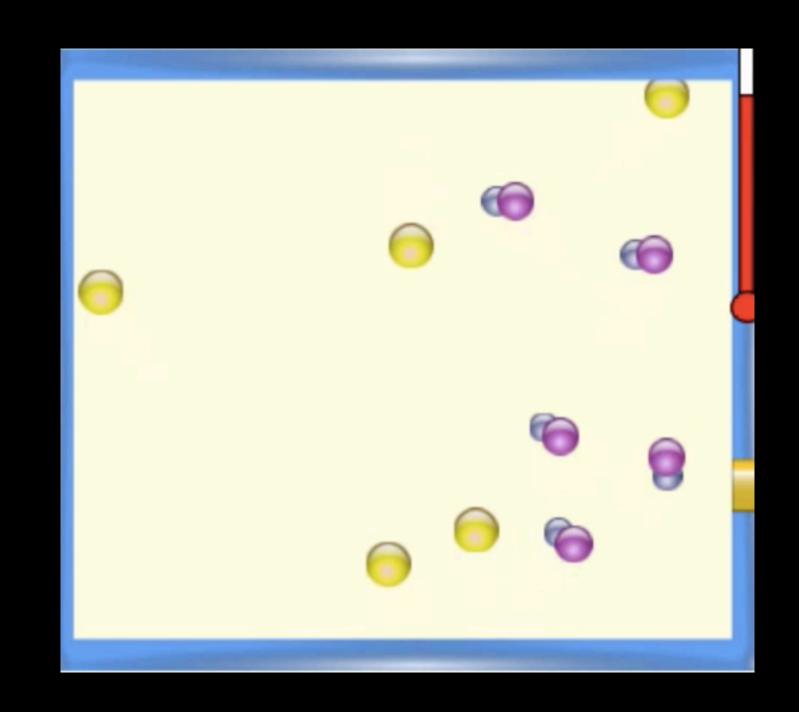


Rate = k [A]

# Bimolecular Elementary Reaction

 $A + A \rightarrow Products$   $A + B \rightarrow Products$ 

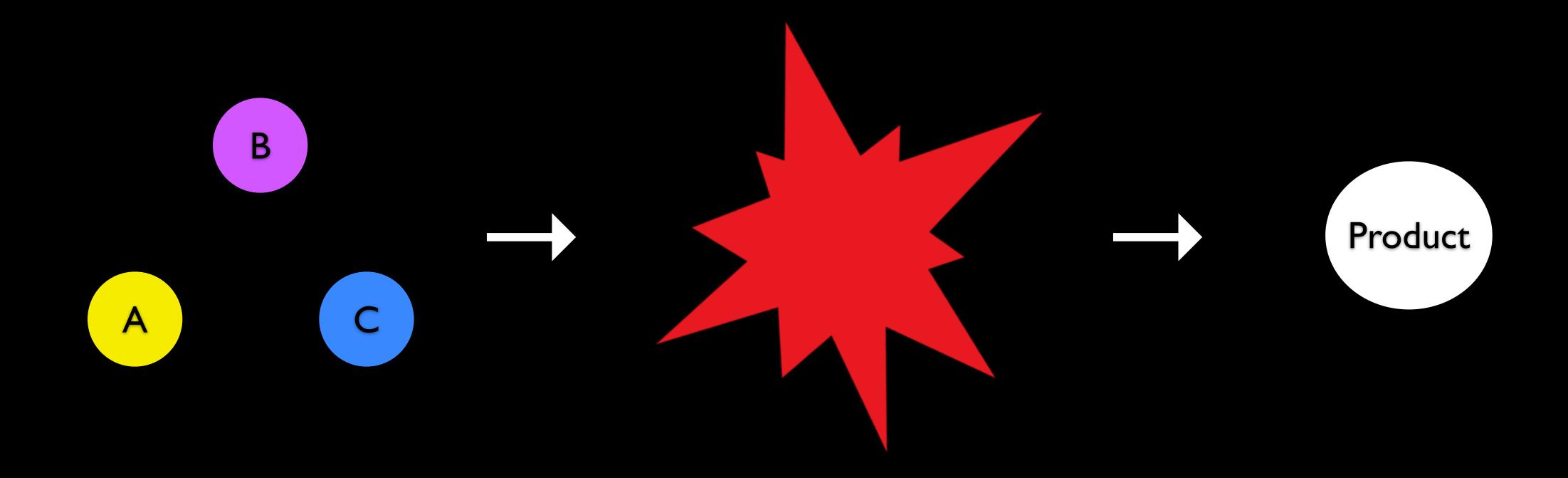




Rate =  $k [A]^2$ 

Rate = k [A][B]

#### Termolecular Elementary Reaction



Rate = k [A][B][C]

Did you learn?

Rate = 
$$k[A][B]$$

To connect the rate law for an elementary reaction to the frequency and success of molecular collisions.

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#### Acknowledgements

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