

AS Organic Chemistry

hi



Free Radical Substitution of Alkanes

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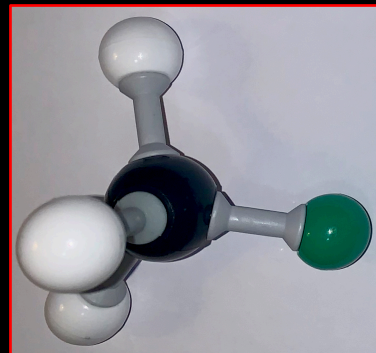
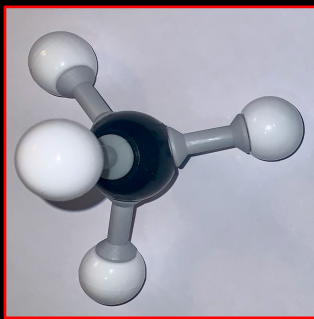
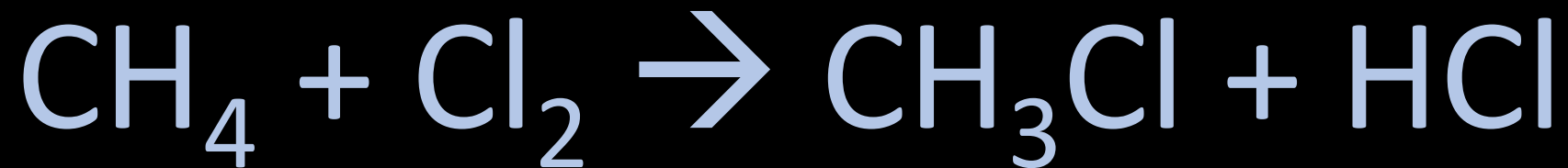
Free Radical Substitution of Methane

Free Radical Substitution of Methane

Conditions: UV light

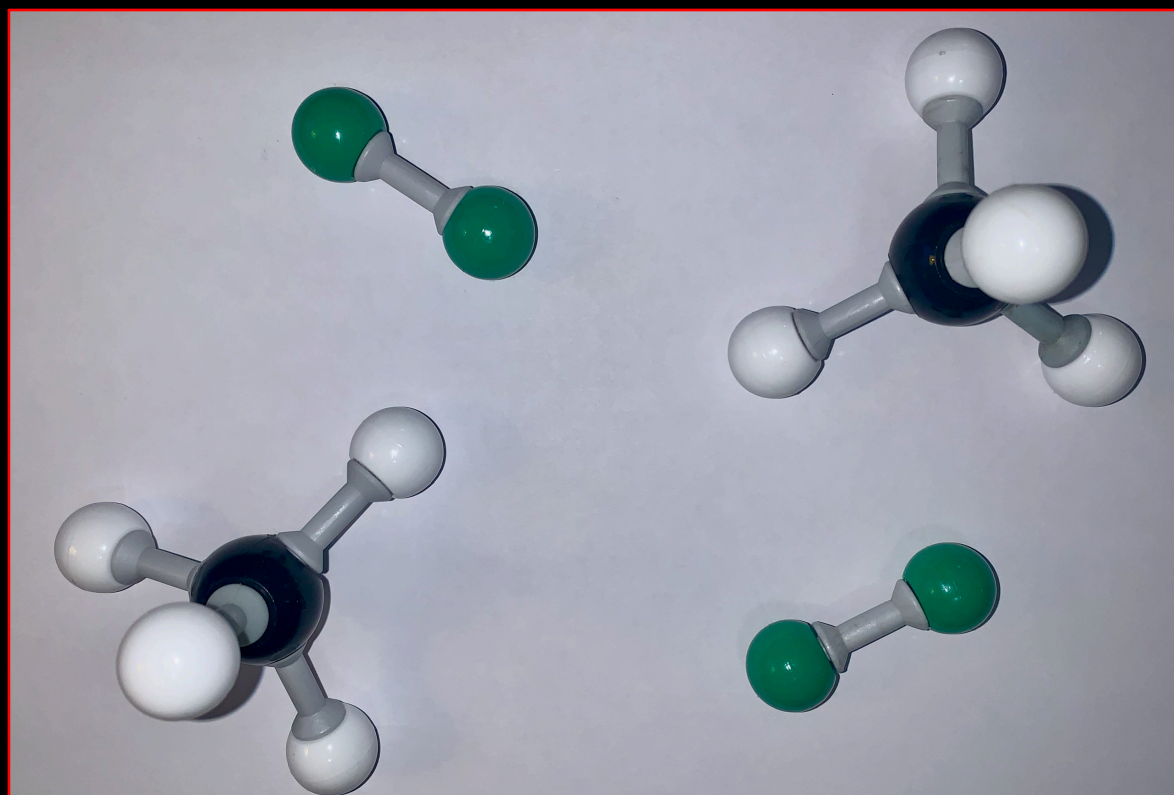
Overall Reaction:

Methane + Chlorine \rightarrow Chloromethane + Hydrogen Chloride



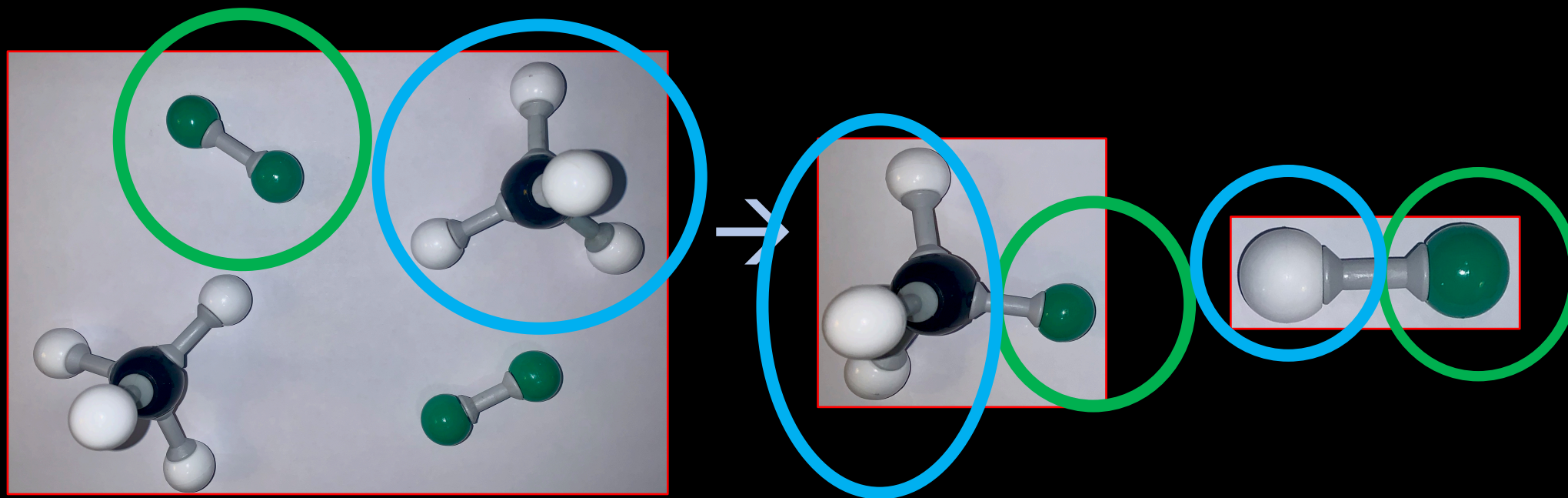
Free Radical Substitution of Methane

Methane + Chlorine \rightarrow Chloromethane + Hydrogen Chloride



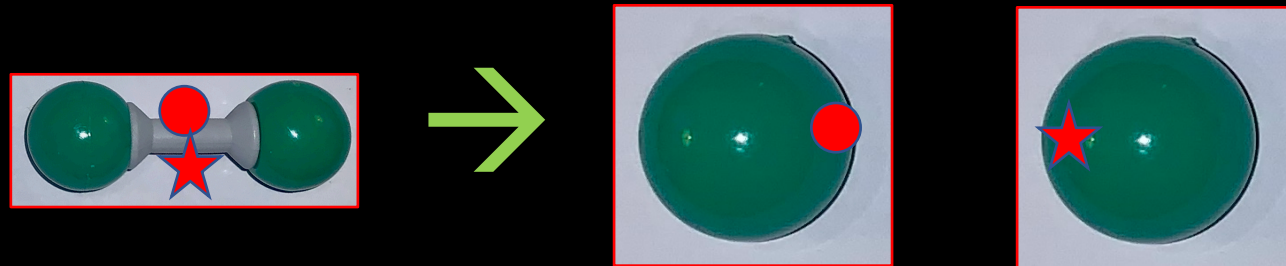
Free Radical Substitution of Methane

Methane + Chlorine \rightarrow Chloromethane + Hydrogen Chloride



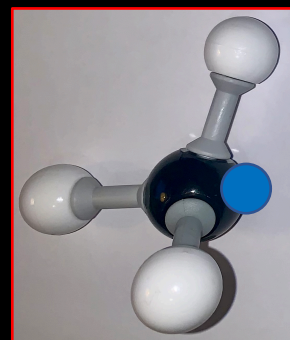
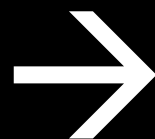
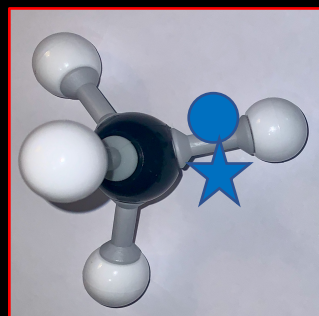
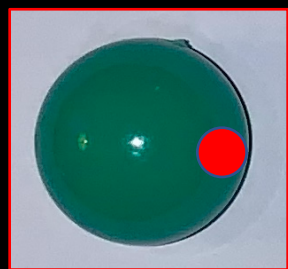
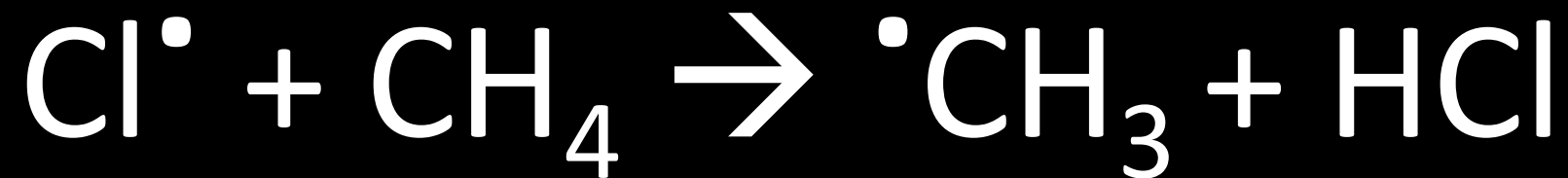
Reaction Mechanism

1. Initiation Step



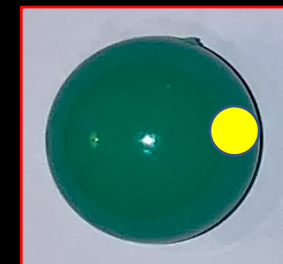
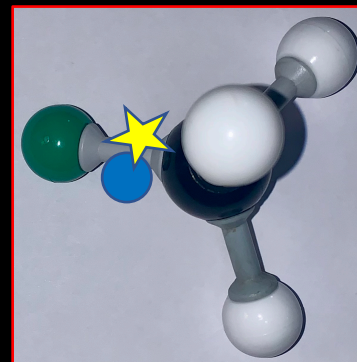
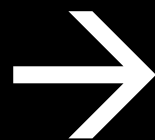
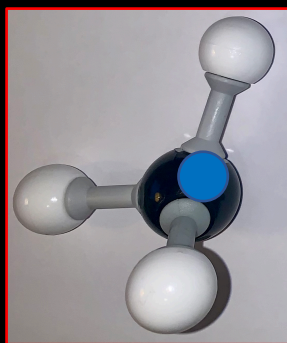
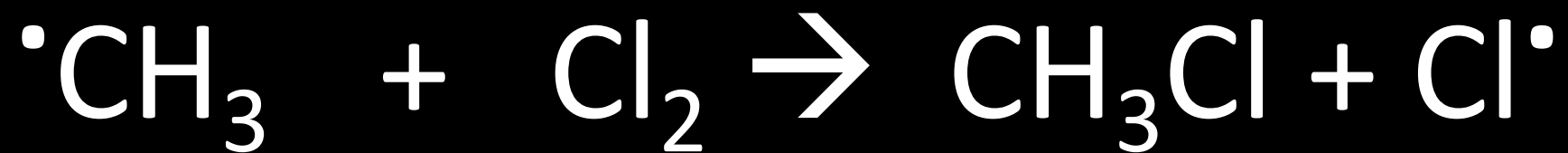
Free Radical Substitution of Methane – Reaction Mechanism

2. Propagation Steps



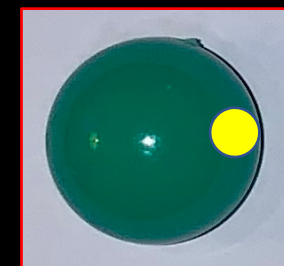
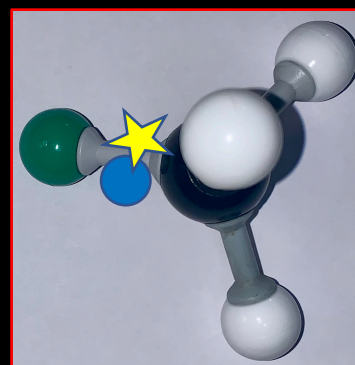
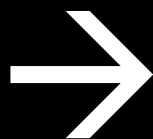
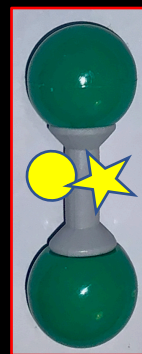
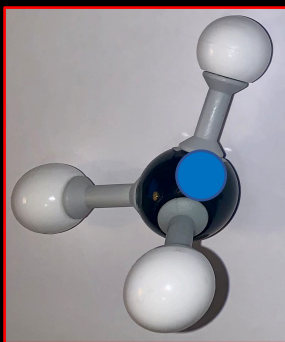
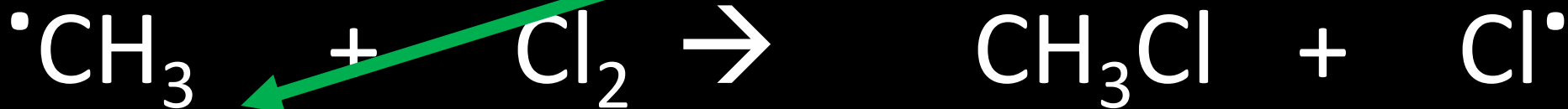
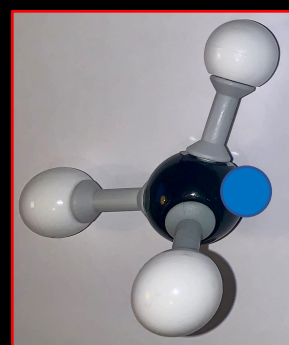
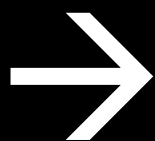
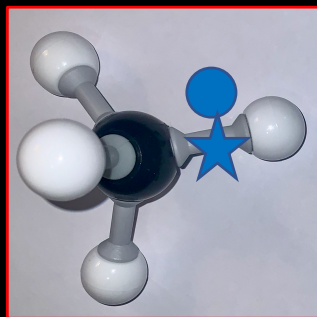
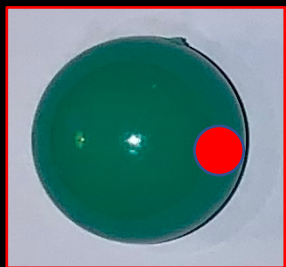
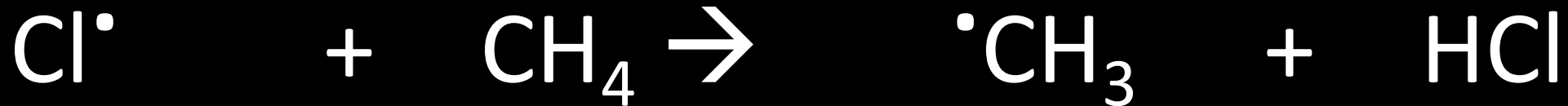
Free Radical Substitution of Methane – Reaction Mechanism

2. Propagation Steps



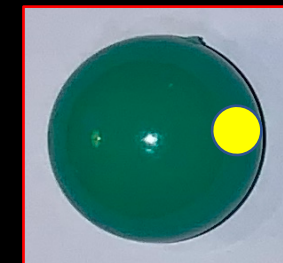
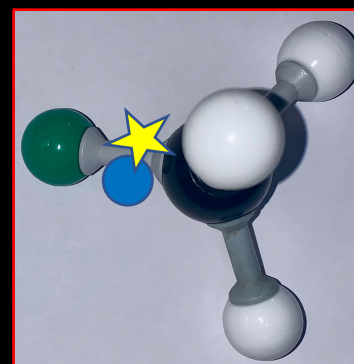
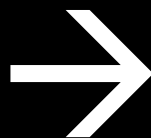
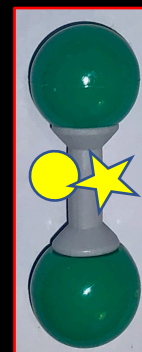
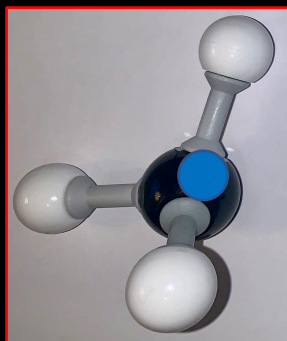
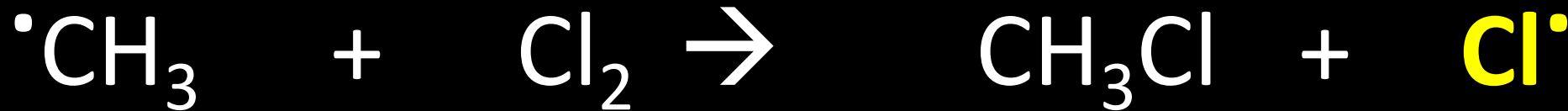
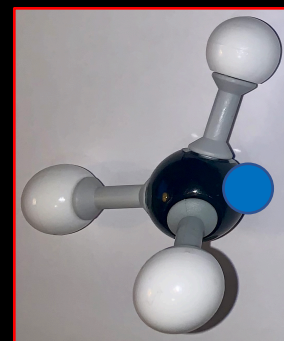
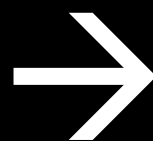
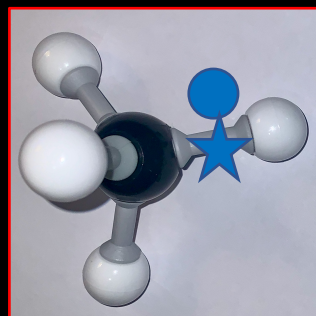
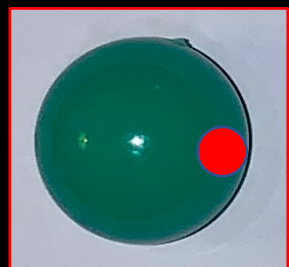
Free Radical Substitution of Methane – Reaction Mechanism

2. Propagation Steps



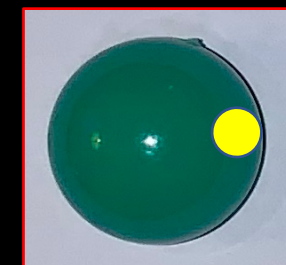
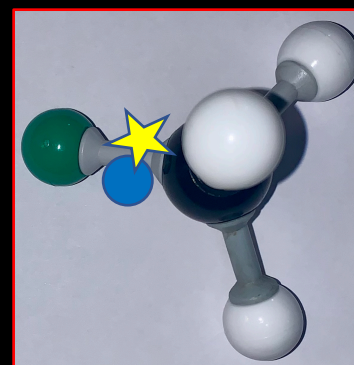
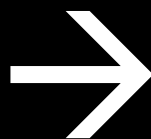
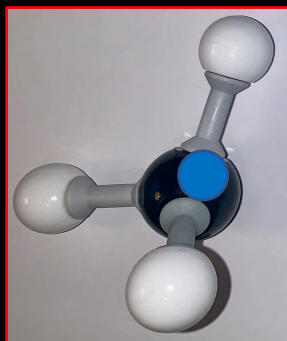
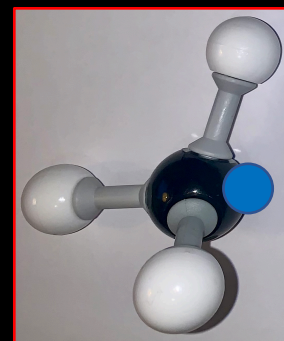
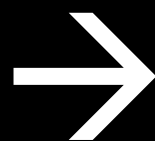
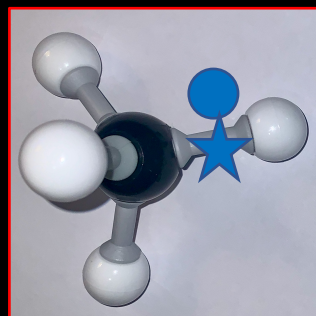
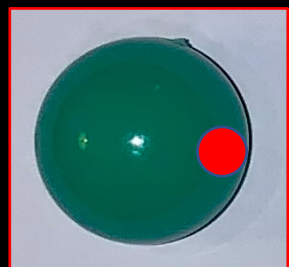
Free Radical Substitution of Methane – Reaction Mechanism

2. Propagation Steps



Free Radical Substitution of Methane – Reaction Mechanism

2. Propagation Steps



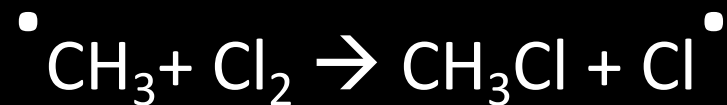
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



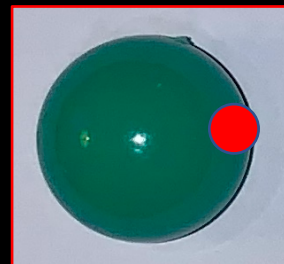
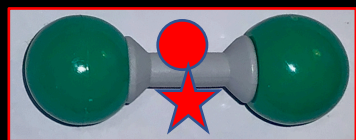
Propagation Steps



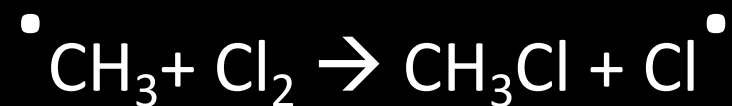
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



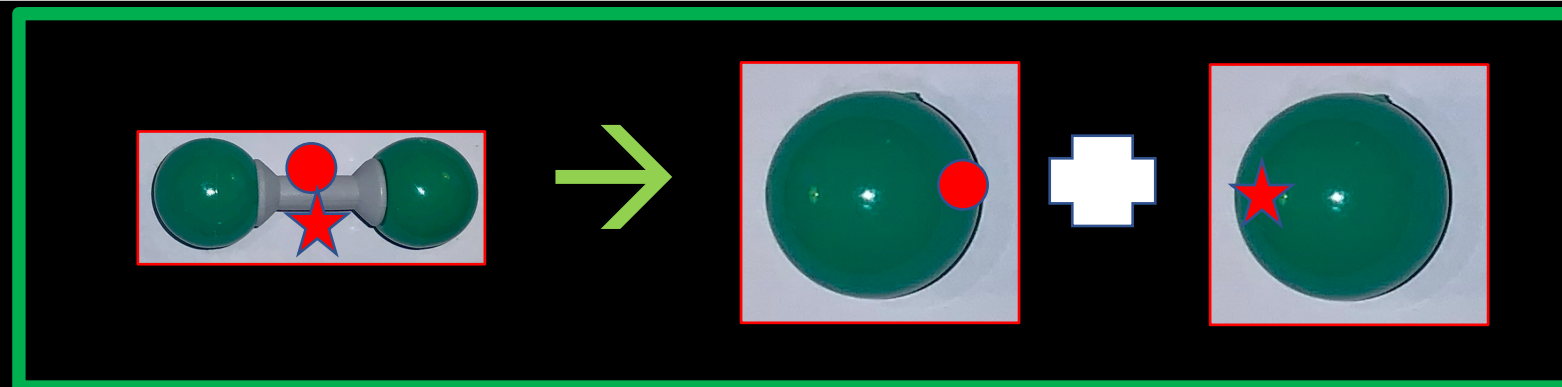
Propagation Steps



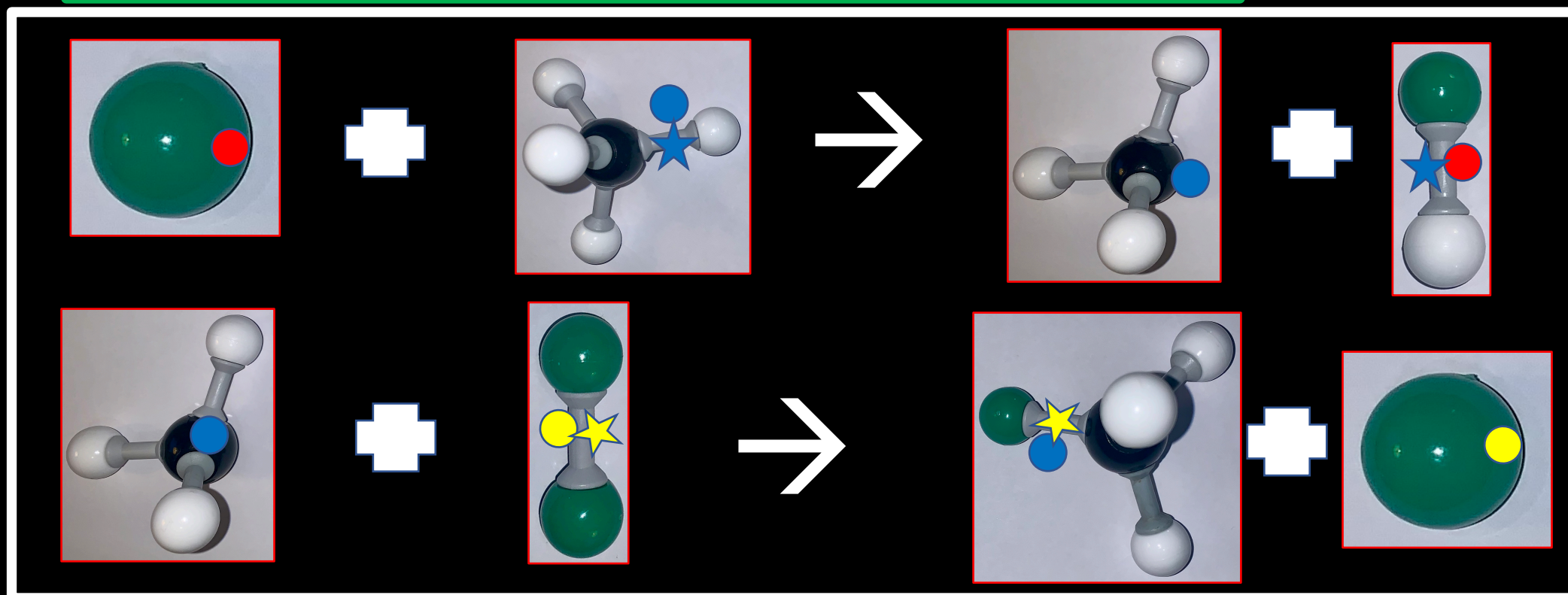
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



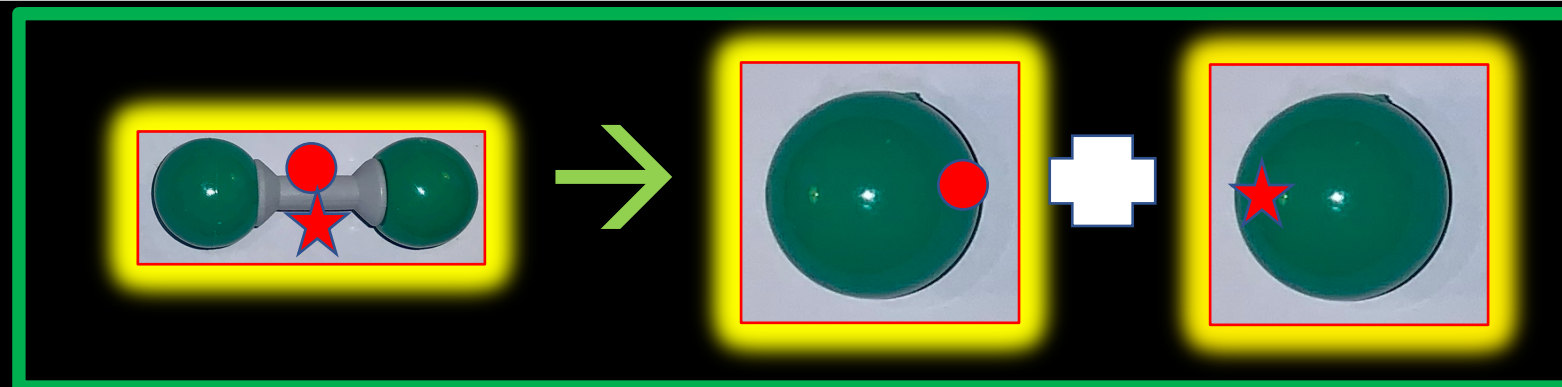
Propagation Steps



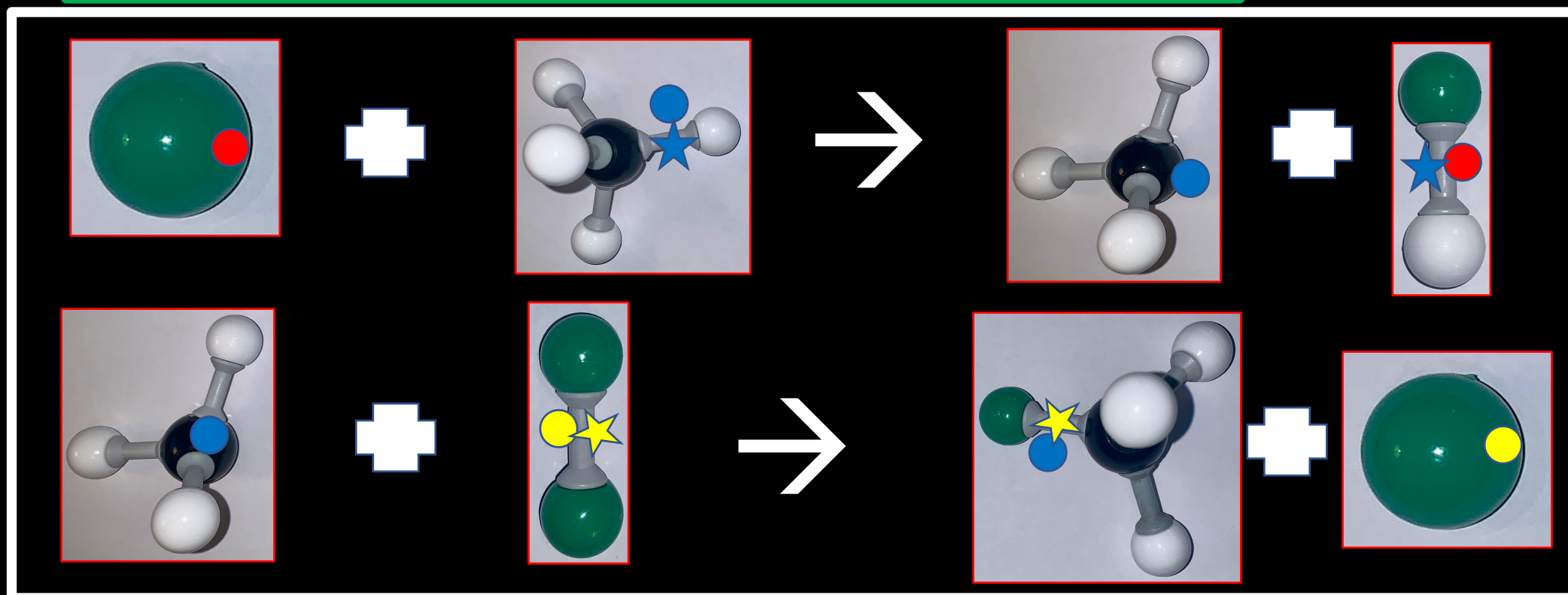
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



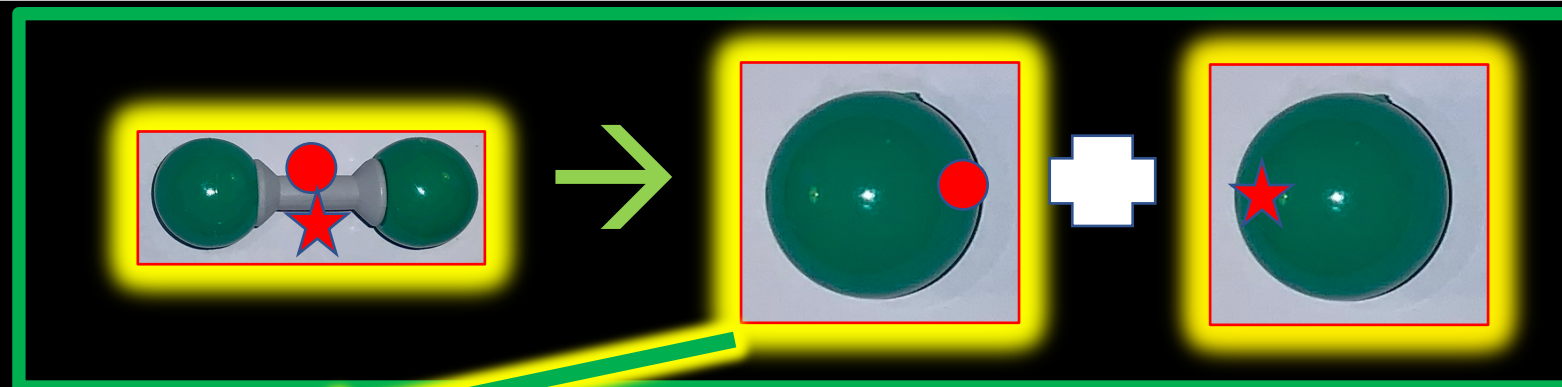
Propagation Steps



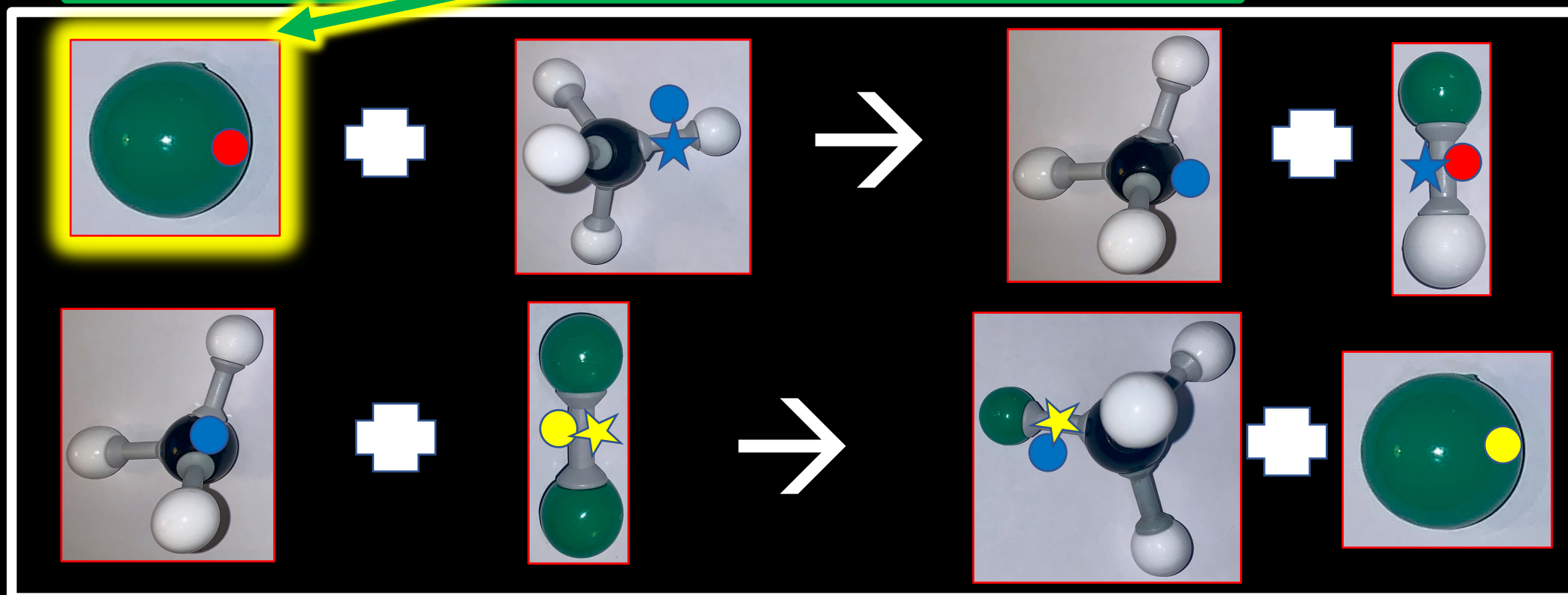
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



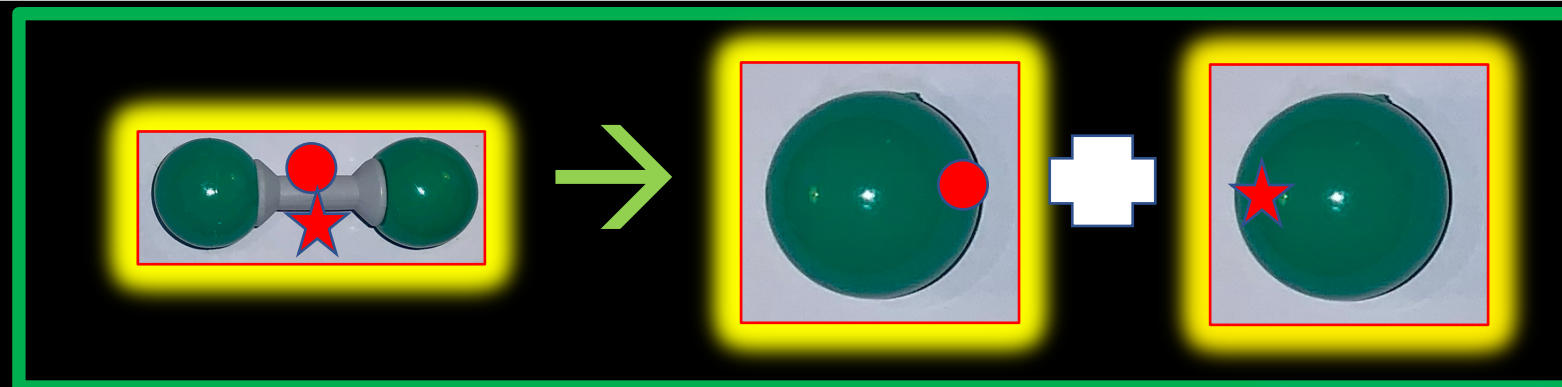
Propagation Steps



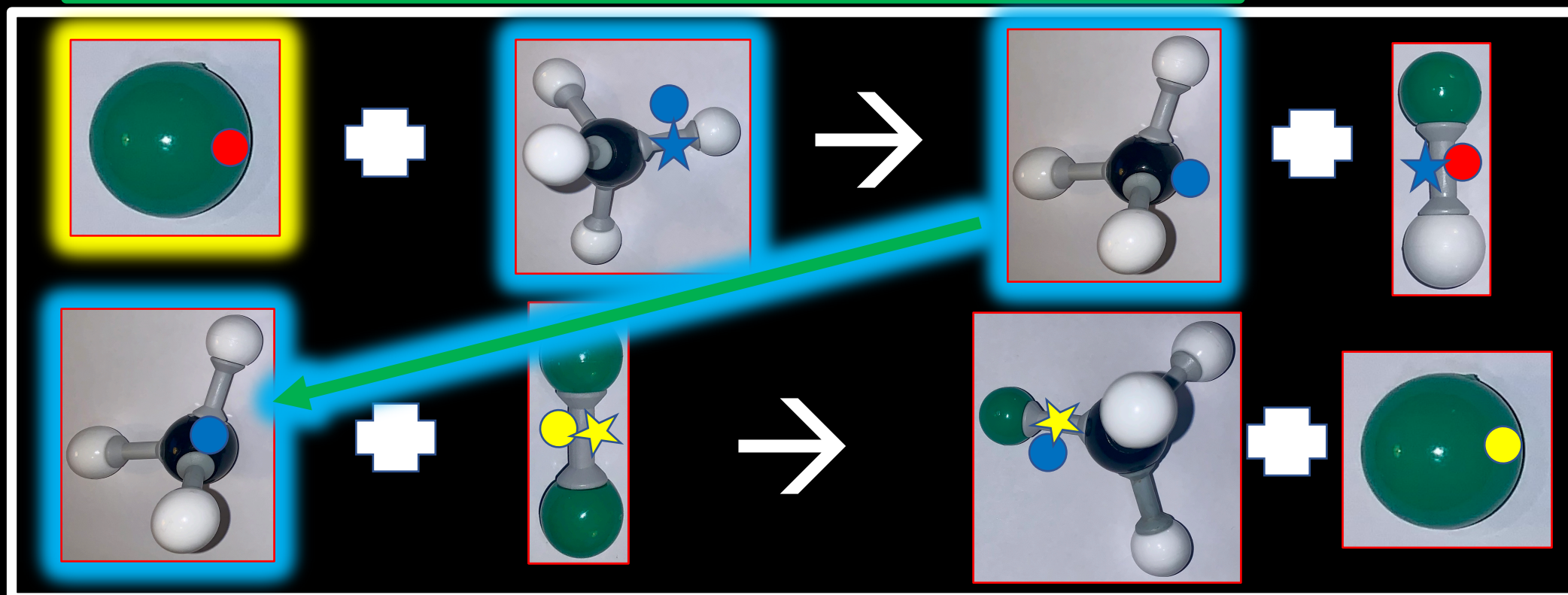
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



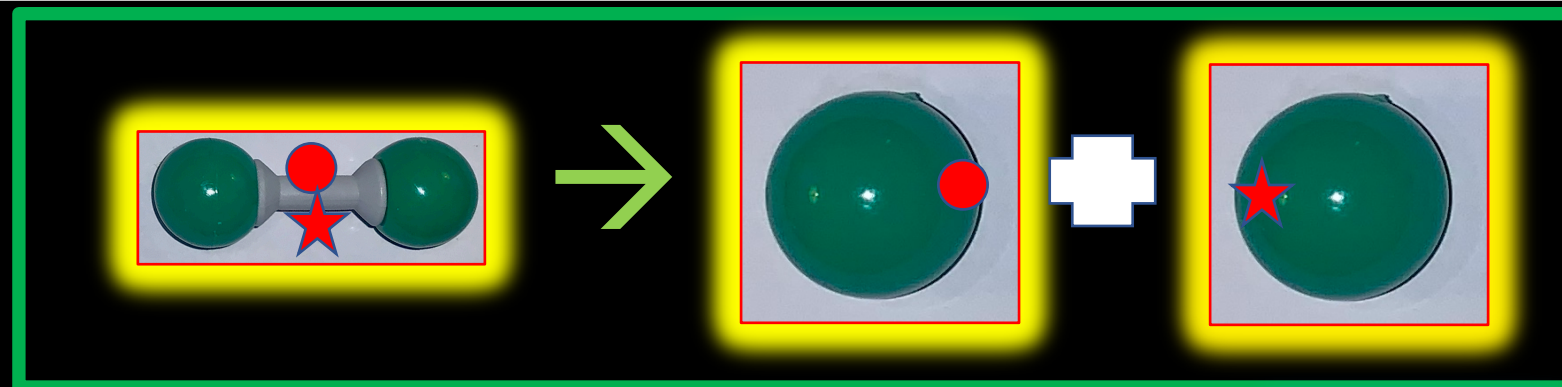
Propagation Steps



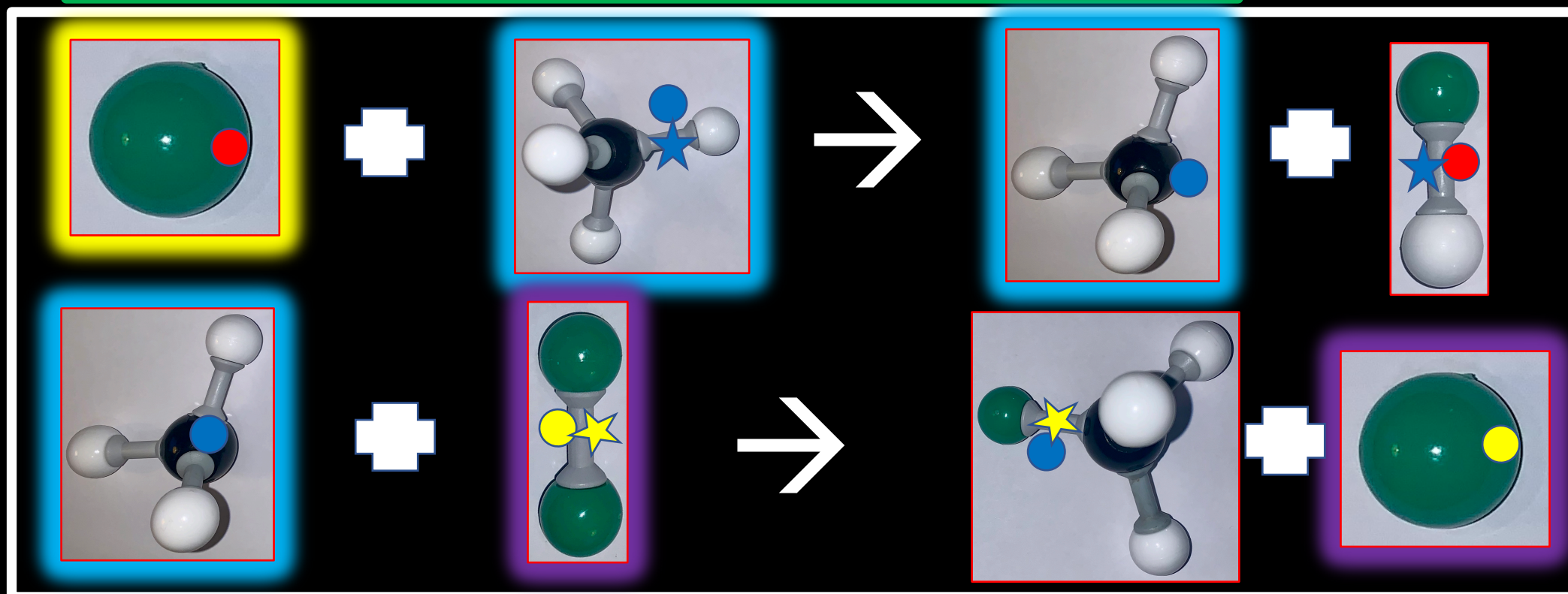
Free Radical Substitution of Methane – Reaction Mechanism



Initiation Step



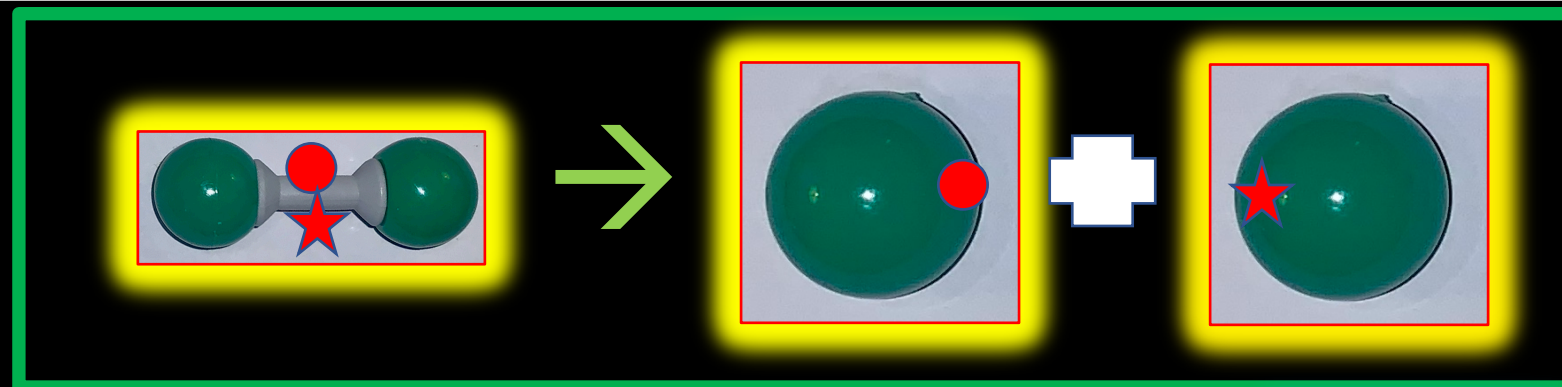
Propagation Steps



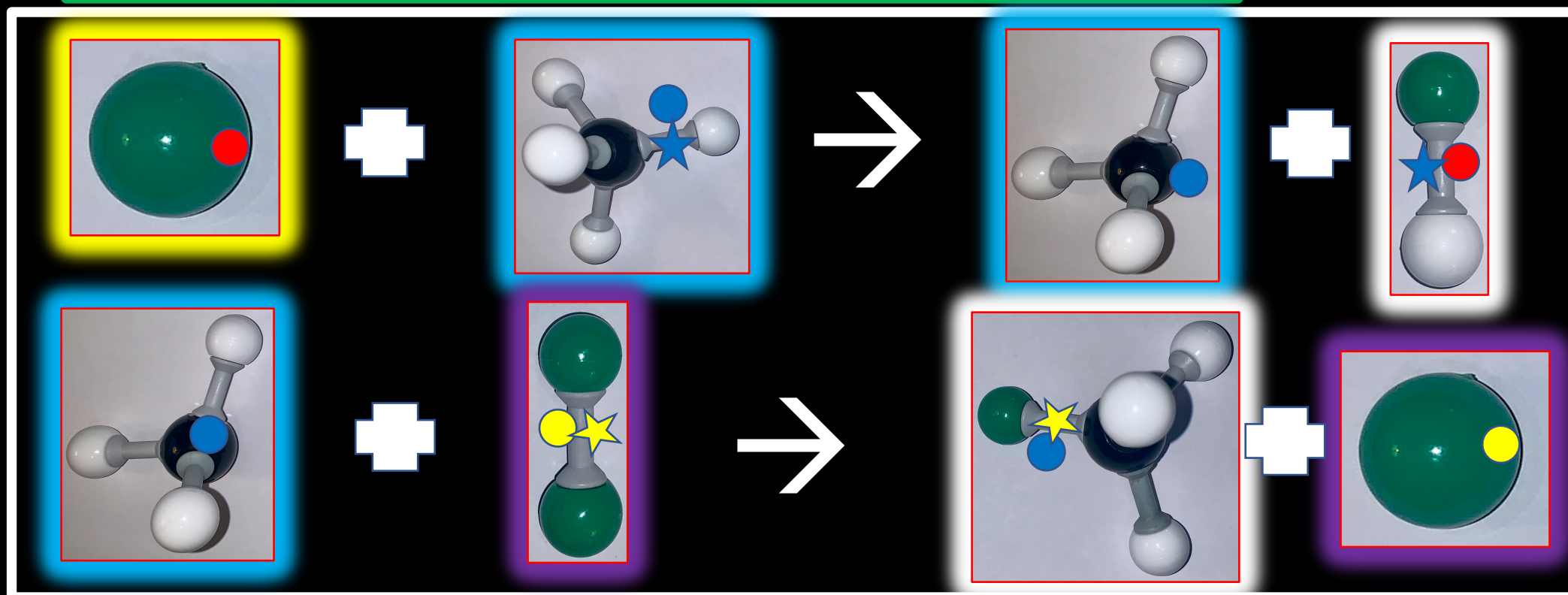
Free Radical Substitution of Methane – Reaction Mechanism



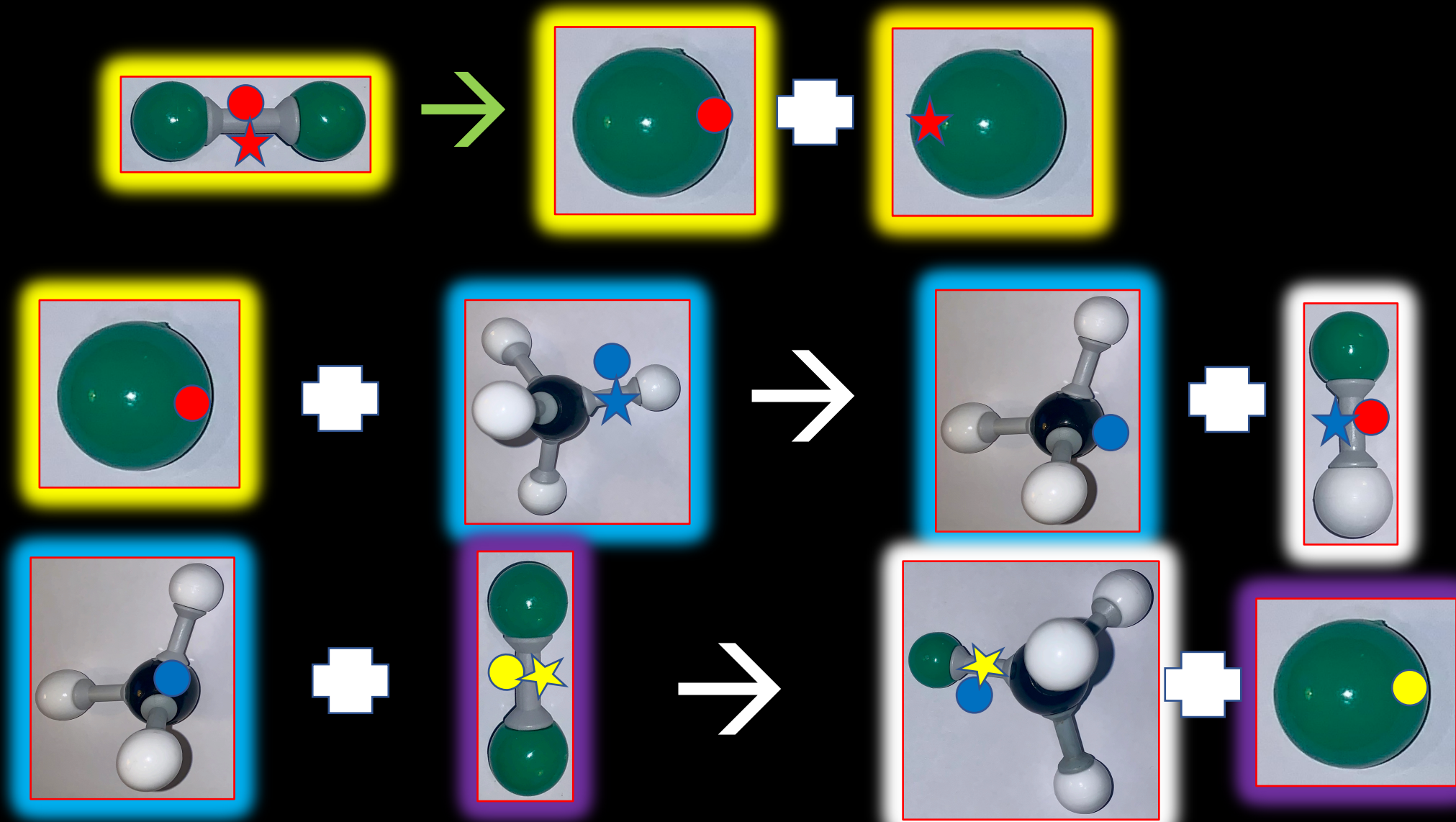
Initiation Step



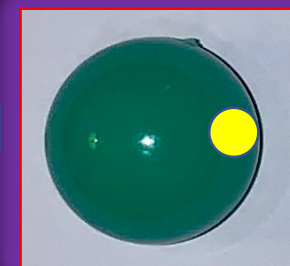
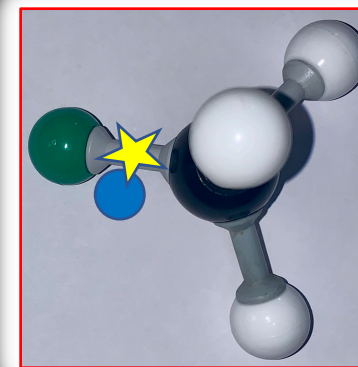
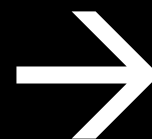
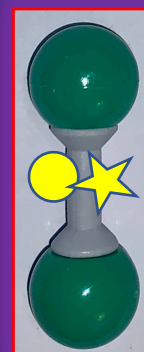
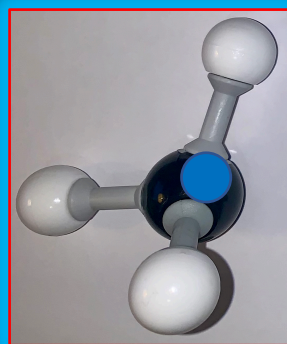
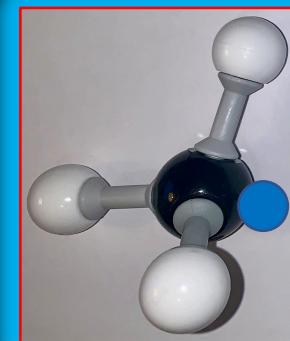
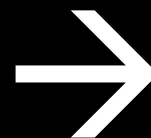
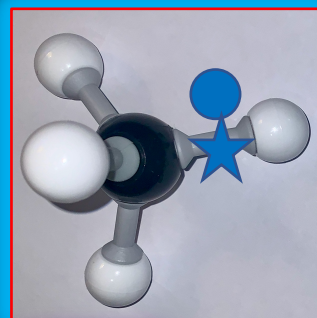
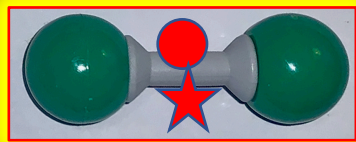
Propagation Steps



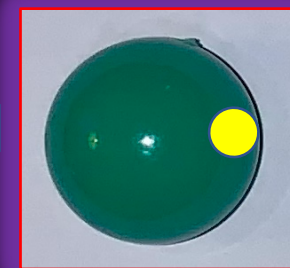
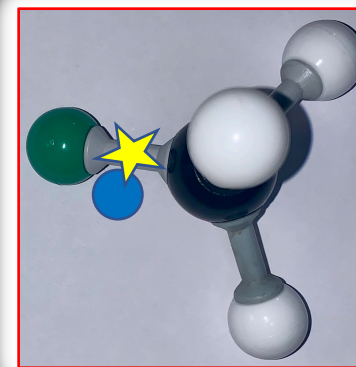
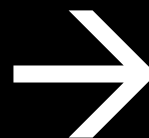
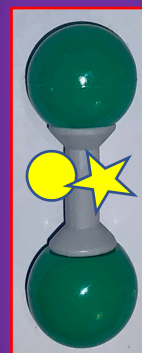
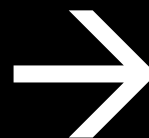
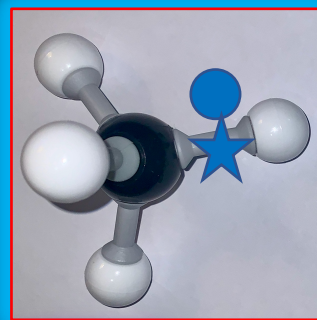
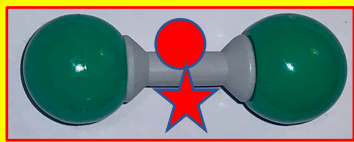
Free Radical Substitution of Methane – Reaction Mechanism



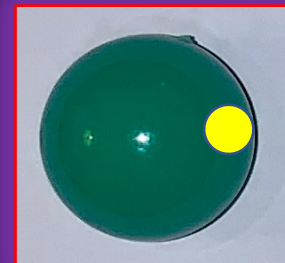
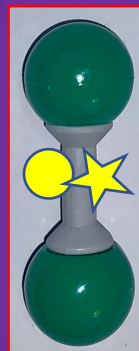
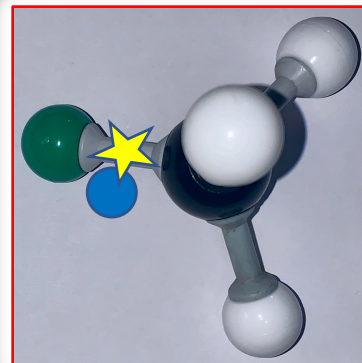
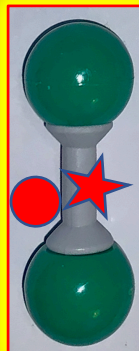
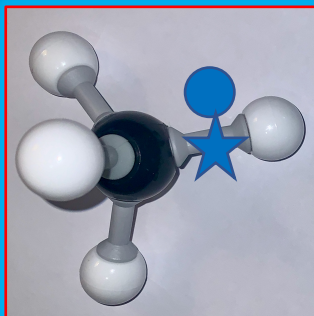
Free Radical Substitution of Methane – Reaction Mechanism



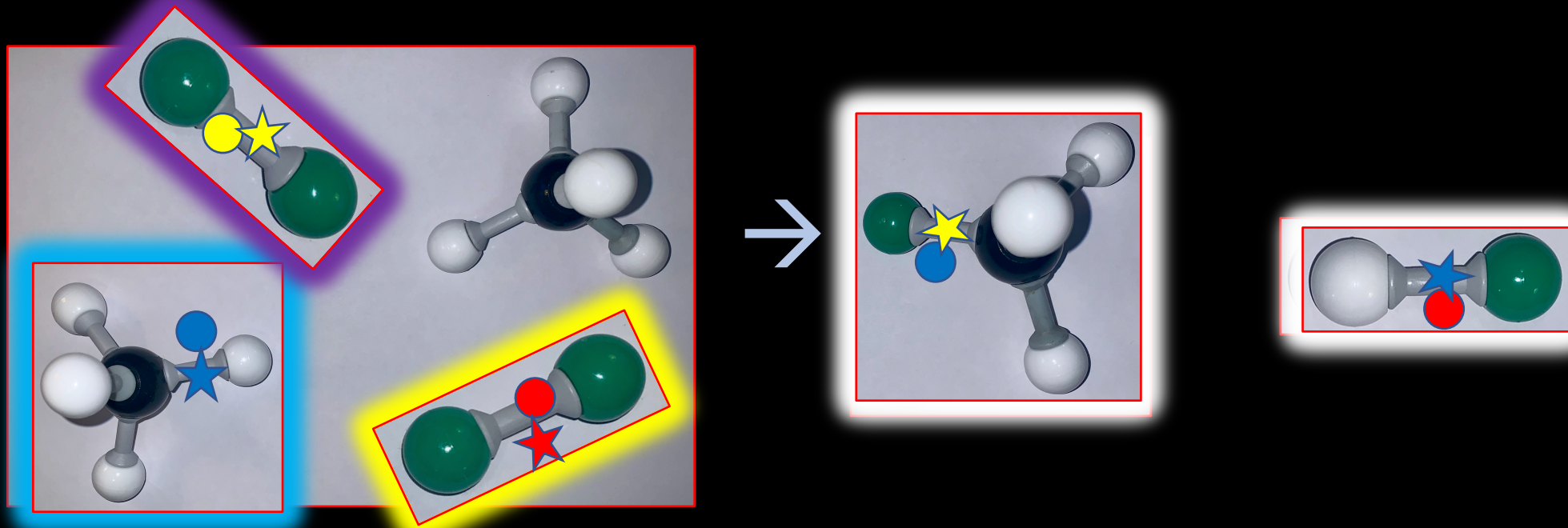
Free Radical Substitution of Methane – Reaction Mechanism



Free Radical Substitution of Methane – Reaction Mechanism



Free Radical Substitution of Methane – Reaction Mechanism

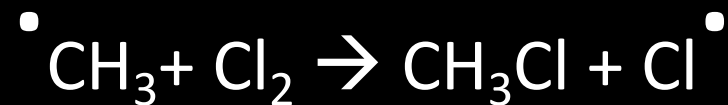


Free Radical Substitution of Methane – Reaction Mechanism

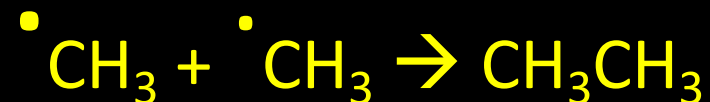
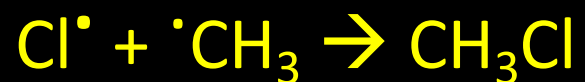
Initiation Step



Propagation Steps



Termination Steps



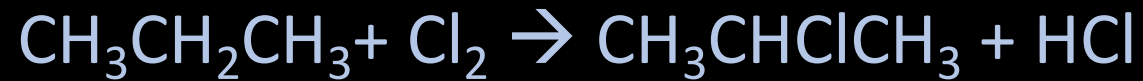
Free Radical Substitution of Propane

Free Radical Substitution of Propane

Propane + Chlorine → 1-Chloropropane + Hydrogen Chloride



Propane + Chlorine → 2-Chloropropane + Hydrogen Chloride



Conditions: UV light

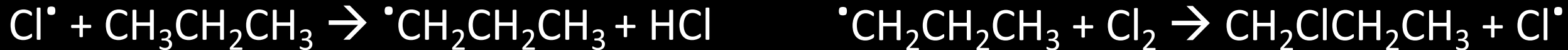
Free Radical Substitution of Propane – Reaction Mechanism



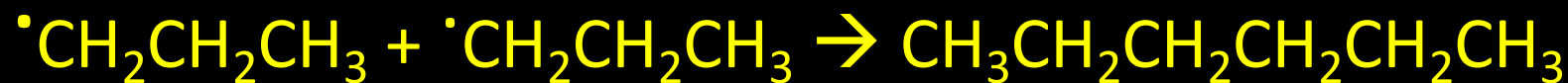
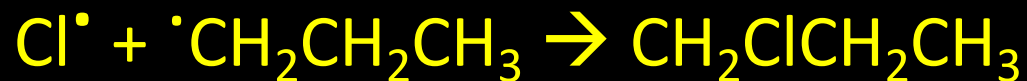
Initiation Step



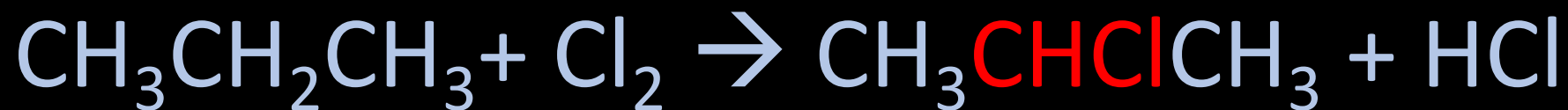
Propagation Steps



Termination Steps



Free Radical Substitution of Propane – Reaction Mechanism



Initiation Step



Propagation Step - 1



Propagation Step – 2



Termination Steps

