Gizmos

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Student Exploration: Collision Theory

Vocabulary: activated complex, catalyst, chemical reaction, concentration, enzyme, half-life, molecule, product, reactant, surface area

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. Suppose you added a spoonful of sugar to hot water and another to ice-cold water. Which type of water will cause the sugar to dissolve more quickly? _The hot water_____

2. Suppose you held a lighted match to a solid hunk of wood and another match to a pile of wood shavings. Which form of wood will catch fire more easily? _The shavings_____

Gizmo Warm-up
A **chemical reaction** causes the chemical compositions of substances to change. **Reactants** are substances that enter into a reaction, and **products** are substances produced by the reaction. The Collision Theory Gizmo allows you to experiment with several factors that affect the rate at which reactants are transformed into products in a chemical reaction.

You will need blue, green, and orange markers or colored pencils for the first part of this activity.
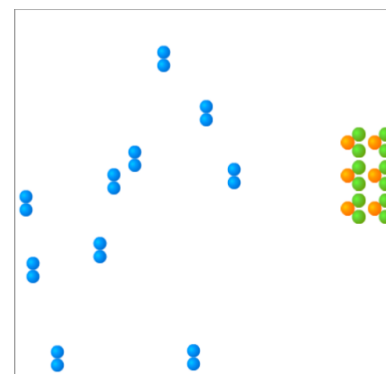
1. Look at the key at the bottom of the SIMULATION pane. In the space below, draw the two reactants and two products of this chemical reaction.

Reactants: Products:

A.   A.

B.   B.
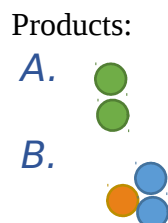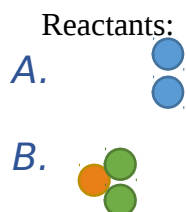
2.   Click **Play** (▶). What do you see? _____ _Reactant A bounces around bumping into Reactant B which is on the right side vibrating against the side. When Reactant A succeeds in breaking the bonds of Reactant B the orange substance on Reactant B breaks off and bonds with Reactant A forming Product B, leaving the two green substance molecules which are Product A_

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