	Get the Gizmo ready:		66
Activity A: Temperature	<ul> <li>Click Reset (<sup>(1)</sup>).</li> <li>Check that the Reactant concentration is set to 1.0 mol/L, the Catalyst concentration is set to 0.00 mol/L, and the Surface area is Minimum.</li> </ul>	8	8

## Question: How does temperature affect the rate of a chemical reaction?

1. <u>Observe</u>: Select the ANIMATION tab. View the animation with **No catalyst** selected.

What do you see? the higher the temperature, the faster the chemical reaction.

When two reactant **molecules** meet, they form a temporary structure called an **activated complex**. The activated complex breaks up into the product molecules.

- 2. <u>Observe</u>: Return to the CONTROLS pane. Set the **Temperature** to 0 °C and the **Simulation speed** to its maximum setting. Click **Play**.
  - A. Describe the motions of the molecules. <u>They slow down.</u>
  - B. Now set the **Temperature** to 200 °C. How does in the temperature affect the

motions of the molecules? They speed

- C. What do you notice about the chemic mreation at the higher temperature? <u>The chemical eactors become faster</u>
- 3. <u>Interpret</u>: Select the GRAPH tab. Click the zoom out button ((=)) until you can see the whole

graph. What does this graph show? The reactants go down and the products go up.

4. <u>Predict</u>: How do you think temperature will affect the rate of a chemical reaction? <u>The</u> reaction will happen in a shorter amount of time if the temperature is up.

## (Activity A continued on next page)

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Gizmos