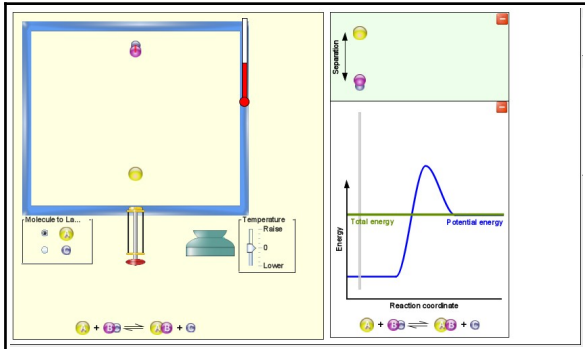
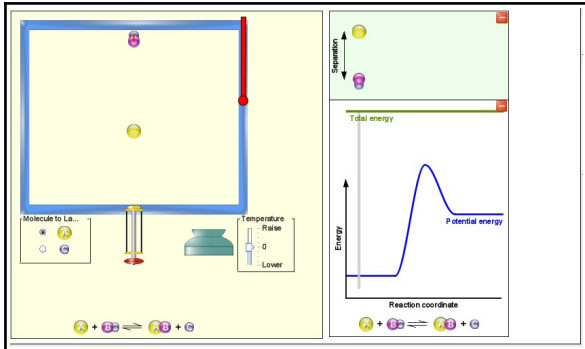
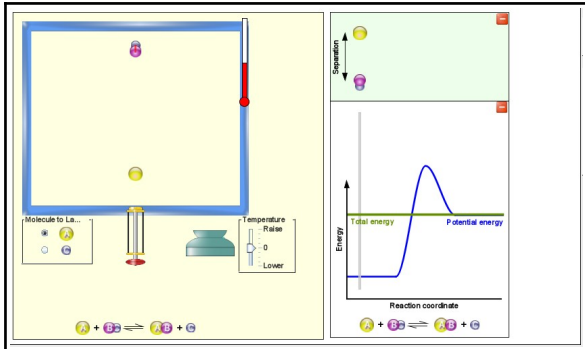


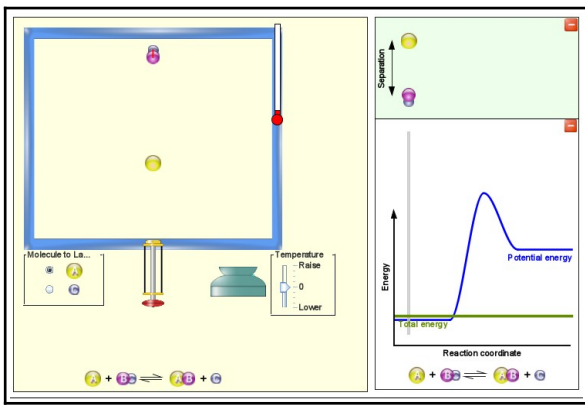
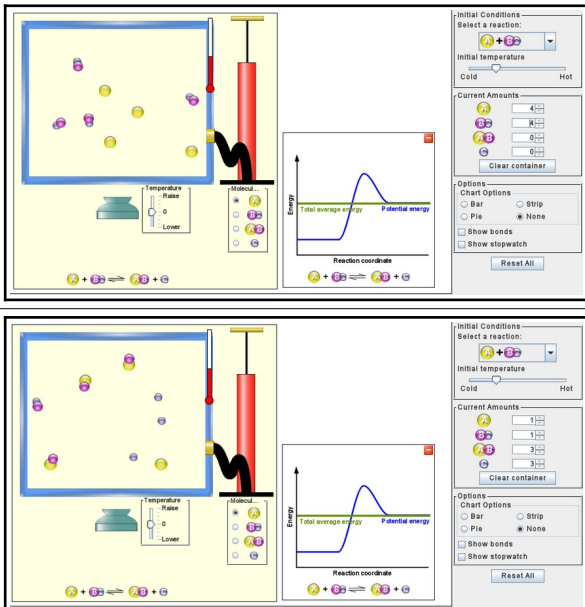
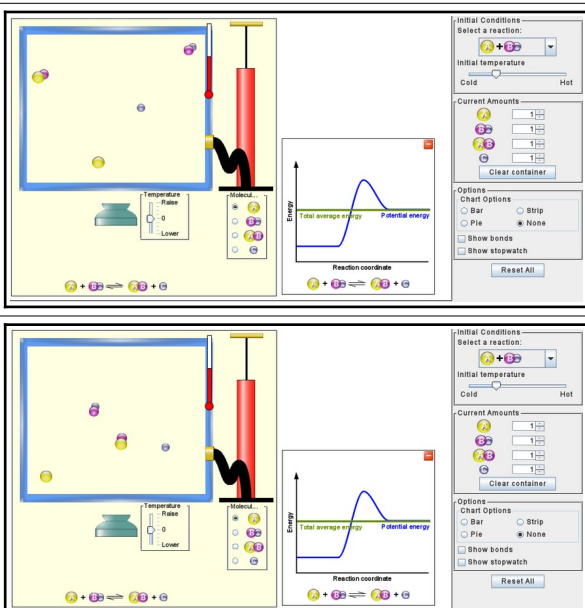
MPT1: Reaction Rates

March 18 2021

Investigation & Analysis:

- Temperature and concentration will change the *rate* of a reaction. Complete the table below by comparing your predictions to your observations. Use the “Single Collisions” tab to complete the chart when changing the temperature. Use the “Many Collisions” tab to complete the chart when changing the concentration of the reactants.
 - Predict** what will happen to the rate of reaction for each variable listed below.
 - Test** your prediction with the simulation and record observations.
 - Explain** your observations. Were all of your predictions correct? Which test changed your thinking about reaction rates? How did the simulation change your prediction?

Variable	Predict	Test	Explain
Increase temperature	The particles will move faster.		The particles will move faster since heat is also energy and thus causes the particles to be more chaotic and move faster.
			
Decrease temperature	The particles will move slower.		The particles will move slower because cold temperature causes it to lose its energy and also lose its kinetic energy.

			
<p>Increase concentration of the reactants</p>	<p>The reactions will be more frequent.</p>		<p>The reactions will be more frequent since more particles in a unit volume would definitely mean more particles would collide and react.</p>
<p>Decrease the concentration of the reactants</p>	<p>The reactions will be less frequent.</p>		<p>The reactions would be less frequent since lesser particles in a unit volume means lesser reactions at a time.</p>

- Based on your findings, explain how temperature and concentration of reactants can change the activation energy of a chemical reaction. ***Be specific as to how these variables change the amount of activation energy required.***

Temperature varies the activation energy directly since temperature is also energy, thermal energy to be specific. Concentration on the other hand doesn't affect the activation energy

that much, but it affects the rate of reaction directly, since the concentration of the substance kind of also defines how much particles are going to collide and react at a time.