

Check One:

Pretest

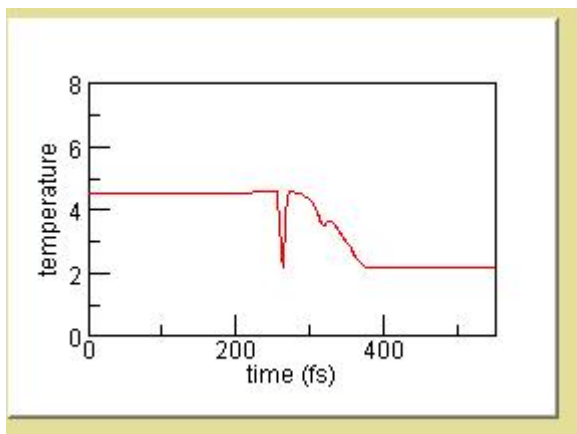
Posttest

Test for **Reaction Rates, Catalysis, and Pasteurization** Activity

Name _____ Teacher _____

Date _____ Class _____

1. Chemical energy is converted into heat energy when bonds form. Based on this information, look at the graph below and determine if the bond for the substance formed or broke.



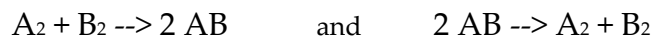
(Check one)

a. The bond for the substance formed.

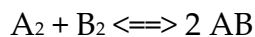
b. The bond for the substance broke.

2. List two ways in which you can increase the speed of a chemical reaction.

3. The following two reactions can occur:

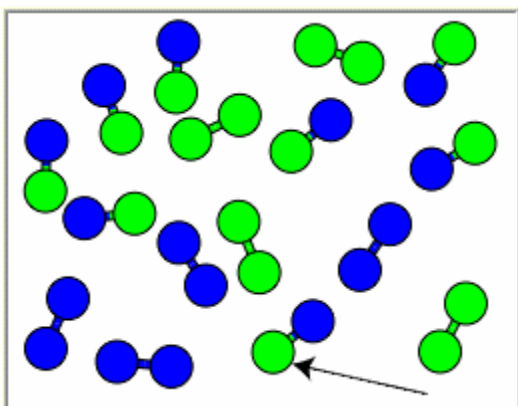


This can be indicated by using a double arrow in the reaction description.



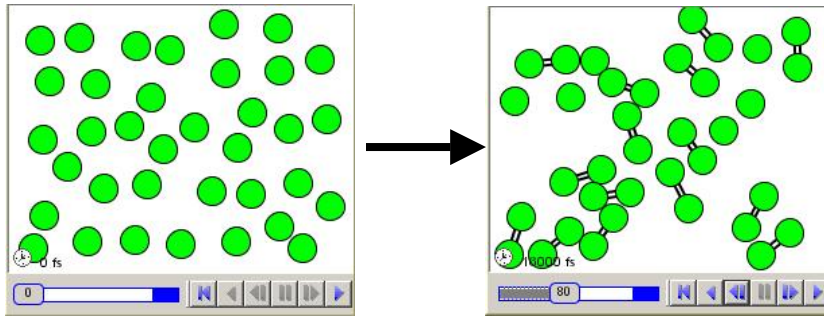
a. At some point the two reactions reach equilibrium. Explain what it means for a chemical reaction to be in equilibrium.

b. Below is a snapshot of the equilibrium reaction $A_2 + B_2 \rightleftharpoons 2 AB$. This snapshot was taken when the chemical system was in equilibrium. If this system stays in equilibrium, will the atom indicated by the arrow always be bonded to the same atom it is currently bonded to? Explain your answer.



4. In a pasteurization plant a lab technician takes random samples to ensure quality of the milk being delivered. The lab technician found that all samples, as expected, contained a low level of bacteria and the milk flavor was good. However, in the last sample of milk ALL of the bacteria were killed and the milk tasted terrible. What could have happened during the pasteurization process that could explain the result?

5. The picture below on the left shows many atoms that will react by forming a bond. The picture on the right shows the atoms after a short period of time.



The graphs below represent three different reactions that were conducted. Each time a different set of atoms (or substance) was used which would form bonds that were stronger or weaker depending on the type of atom used.

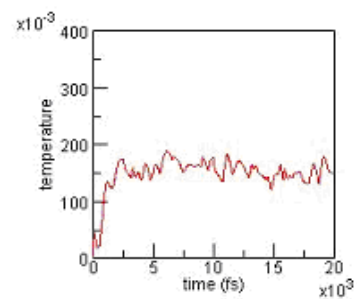
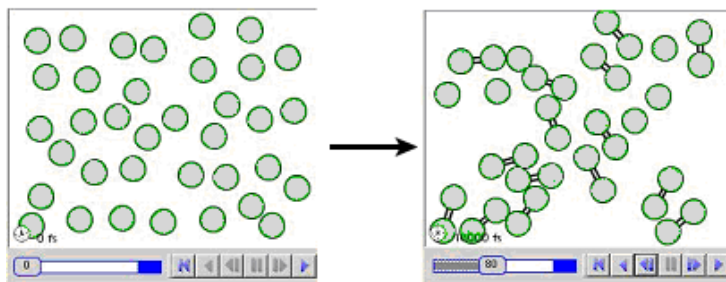
Which graph shows the substance that has the strongest chemical bonds?

___ Substance in Graph A

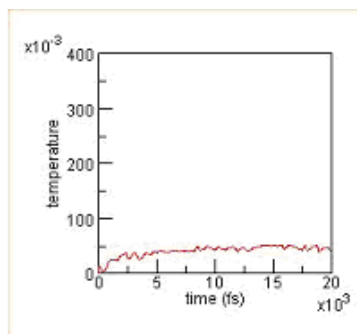
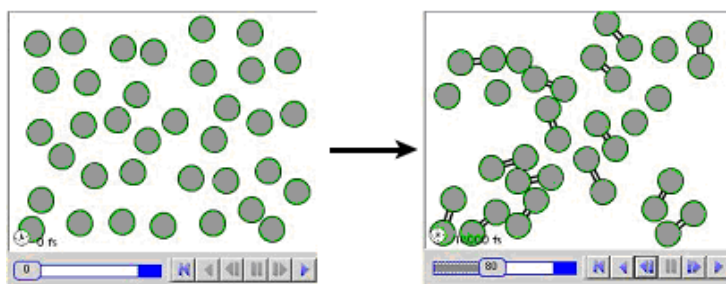
___ Substance in Graph B

___ Substance in Graph c

Substance A



Substance B



Substance C

