Name _____ Class _____ Date _____

Activity 6.1: What happens when objects collide?

1. How does the kinetic energy change from before and after the collision of the steel balls? Explain your answer.

2. Describe the elasticity of the steel balls. Explain your answer.

3. Write your observations about the mark showing where the steel balls collided with the paper. Be specific.

4. What happened to the kinetic energy from the collision between the steel balls?

5. If we replaced the steel balls with two racket balls, will you get the same result? Why or why not? Explain your answer in terms of different types of **energies**.

Activity 6.3: How does temperature influence the motion of molecules?

1. Wear safety goggles for this part of the lab.

2. Fill a beaker with **200 ml** of **cold water** from the pitcher in from of the room. Do not include ice in your 200 ml.

3. Ask your teacher to fill your second beaker with **200 ml** of **hot water**.

4. Put one drop of food dye into the beaker of hot water. Time how long it takes for the dye to uniformly spread throughout the water. Write the time here: _____

5. Put one drop of food dye into the beaker of cold water. Time how long it takes for the dye to uniformly spread throughout the water. Write the time here: _____

6. How does temperature influence the speed that dye spreads out in a liquid? Why do you think this happens?

7. Draw a picture below of the motion of the water molecules **on the atomic scale** in hot versus cold water. **Use arrows** to indicate the **speed** the molecules are moving in each temperature.

8. Describe the kinetic energy of water molecules that are hot verses cold.