Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_

## Activity 1.2 - *What happens to energy when objects collide?*

#### **Part 3 –** Collisions with different masses

**Materials**

* 2 spheres with **different** **size** and **mass**

**Investigate**

Collide the larger/heavier sphere with the smaller/lighter sphere. Note what happens to the speed and direction of each sphere when they collide. Test each of the following at least 3 times.

1. Set the lighter sphere in place and roll the heavier sphere toward it. Vary the speeds & observe.
2. Set the heavier sphere in place and roll the lighter sphere toward it. Vary the speeds & observe.
3. Roll both spheres toward each other with the same initial speed.
4. Method of your choice.

|  |  |  |
| --- | --- | --- |
| **Test Type** | **Observations of motion before collision** | **Observations of motion after collision** |
| **1** |  |  |
| **1** |  |  |
| **1** |  |  |
| **2** |  |  |
| **2** |  |  |
| **2** |  |  |
| **3** |  |  |
| **3** |  |  |
| **3** |  |  |
| **4** |  |  |
| **4** |  |  |
| **4** |  |  |

**Data Analysis**

1. Compare the observations of the different mass spheres to your observations with the same mass spheres (Part 2). What did you notice? Anything change/remain the same?
2. Based on your observations so far, do you think the total amount of energy changes when two spheres collide? Justify your answer.