HPS PhET Collision Lab 2020 Name:

Objective 4: Apply the Law of Conservation of Momentum in a real-life scenario.

Directions: Go to the website <http://phet.colorado.edu/en/simulation/collision-lab>

**Make sure the 1-d box is checked.**

**Part 1**

*Scenario #1:*

*Elastic* collision between balls of *equal mass*

* Make a hypothesis about initial and final momentums *before* playing with the sim.
* Make a data table for the following: mass, velocity and momentum of each ball before and after.
* What is the relationship between the initial and final *total* momentums?
* Describe the motion of the balls before and after the collision?

*Scenario #2:*

*Elastic* collision between balls of *unequal mass.*

* Make a hypothesis about initial and final momentums *before* playing with the sim.
* Make a data table for the following: mass, velocity and momentum of each ball before and after.
* What is the relationship between the initial and final *total* momentums?
* Describe the motion of the balls before and after the collision?

**Part 2**

Create 3 more distinct scenarios in 1-d including one totally *inelastic* collision. Make a hypothesis whether or not each will follow conservation of momentum. Collect some data and prove or disprove your hypothesis.

Summary: Describe the main ideas learned in this activity regarding initial and final total momentum in 1-d collisions.