

PhET Collision Lab

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.