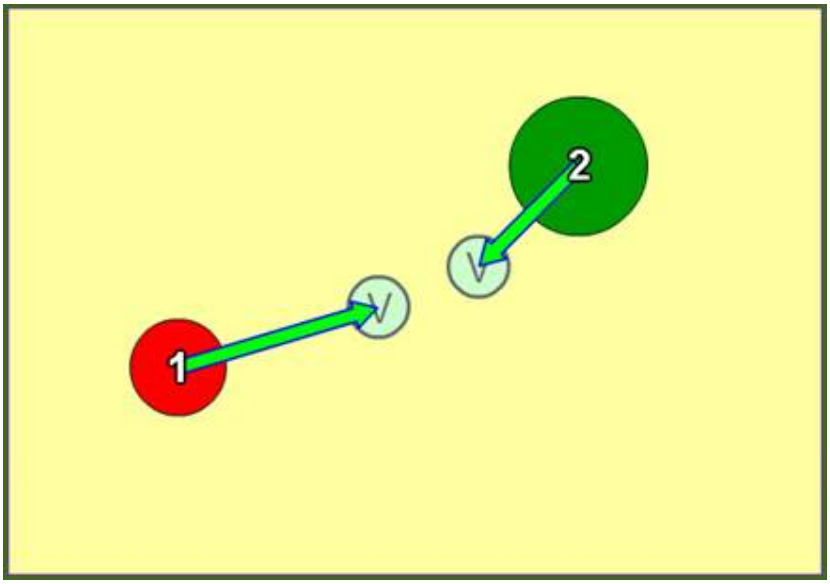
PDF File



MOMENTUM LAB

Unit Overview

When objects move, they have momentum. Momentum, p, is the product of an object's mass (kg) and its velocity (m/s). The unit for momentum, p, is kg·m/s. During a collision objects transfer momentum to each other, resulting in different motions than before the collision. In this activity you will study the motion colliding objects by manipulating a simulation to observe two different kinds of collisions; elastic and inelastic. You will also be able to see how momentum and kinetic energy are conserved after a collision. You will also be able to calculate momentum and kinetic energy before and after a collision.

Part I- Elastics Collisions

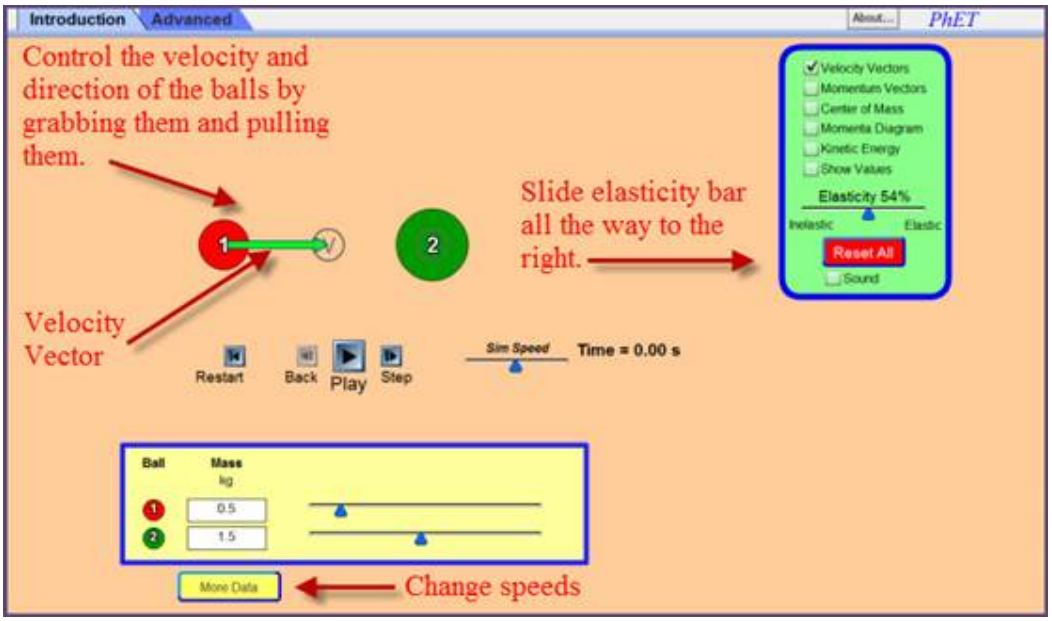
Procedure

1. Go to the website and run the simulation. http://phet.colorado.edu/en/simulation/collision-lab

2. Click on the more data button at the bottom of the simulation to change speeds easier.

3. The graph below is what you will see on the simulation page. Slide the elasticity bar all the way to the right.

4. You can control the velocity and direction of the balls by grabbing them and pulling them. You will see a green arrow which is your velocity vector, or you can control velocity and mass of the balls by typing the information into the data table.



Download the printable worksheet below, you will use the worksheet to record all of your lab information. You will attach your worksheet to question #1 in the question section of this unit.

Momentum Lab Activity Sheet

A Look Ahead

In the next unit, we will be reviewing for the semester exam. You will be asked to complete a series of questions that we have covered in the previous units. This will help you to focus on the important concepts covered for the semester exam. You will have to recall information from the labs as well. It is a good idea to put together an equation sheet of all the equations that we have learned so far, so that answering the questions and problems will be easier and less time consuming.

Below are additional educational resources and activities for this unit.

Unit 16 Resource 1

Unit 16 Resource 2