Name: Period:
Partners:

Explosion and Momentum Lab

Objective:

Materials:

Procedure: There are many steps to this lab. But here's the overview:

You will place two carts together and explode them with the spring trigger. After each trial you will adjust the mass of one cart. The heavier cart of course will travel slower. You will adjust the point of explosion so that both carts hit the end gates at the same time.

Follow these steps to set up and conduct your lab.

1) Assemble track:
   a. Place feet on opposite ends of the track.
   b. Place end gates on track.
   c. Level the track by twisting the screws on the feet.
2) Set the distance:
   a. Place 2 carts on the track.
   b. Adjust the end gates until the two carts have a distance of 1 meter between them. It will help with measurements and math if the center point is an easy number to work with (100cm, 150cm).
   c. Tighten end gate screws to lock in place.
3) Prepare to make your measurements:
   a. Find two carts with ends that do not have a strong magnetic repulsion to each other.
   b. Tape the exposed Velcro™ to prevent carts from sticking together.
   c. Using a piece of masking tape label one car with "A" and one with "B".
   d. Depress the plunger completely (press in and up). You will trigger the plunger using a hard object such as one of the weights or a block of wood.
   e. Place the carts in the center between the two end gates.
   f. Adjust the carts left or right so that they hit both end gates at the same time.
   g. Repeat the explosion several times until both carts hit the end gates at the same time consistently.
   h. Record data for the trial.
   i. Repeat for remaining trials by adjusting the mass of "Cart B":
      -trial 1: no extra mass
      -trial 2: ½ size mass
      -trial 3: 1 full mass
      -trial 4: 1½ masses
      -trial 5: 2 masses

Raw Data					
Trial	Mass Car A	Mass Car B	Distance Car A	Distance Car B	Time
1					1.0 sec
2					1.0 sec
3					1.0 sec
4					1.0 sec
5					1.0 sec

Calculations:
Fill out the chart below.
Note: Velocities and Momentums can be positive or negative

	Before Collision					After Collision				
Trial	v_a	v_b	P_a	P_b	P_{net}	v_a	v_b	P_a	P_b	P_{net}
1										
2										
3										
4										
5										

Conclusion:
Why is the time already filled in as 1 second?

Write up the rest of your conclusion.