

Week 6: Conserved Quantities

Conservation of Momentum

In this lab, you'll have a chance to experiment with a pair of PascoCars and design your own experiments on conservation of momentum. To measure speeds and times, you have a laser gate available that is interfaced with a laptop – high tech equipment that can give you very accurate measurements!

1. Familiarize yourselves with the computer-interfaced laser gate. Single-click on the program “**energy**” on the desktop. It records the time the light detector is blocked by the little metal strips that can be attached to the PascoCars.
2. Give one of the PascoCars a push and measure its speed as it rolls along the table. Describe this type of motion. What can you say about the velocity of the car?
3. Device a procedure to investigate conservation of momentum for each of the following scenarios:
 - a. Inelastic collisions between two cars (at least three different values of mass/velocity combinations)
 - b. “Explosions” between two cars (three different mass combinations). *Hint:* In this part, you'll need to collaborate with the group on the other side of the table.
4. Present your data in a table. Write your data on the board.
5. How do you determine whether or not you have convincingly demonstrated conservation of momentum?