IMPULSE

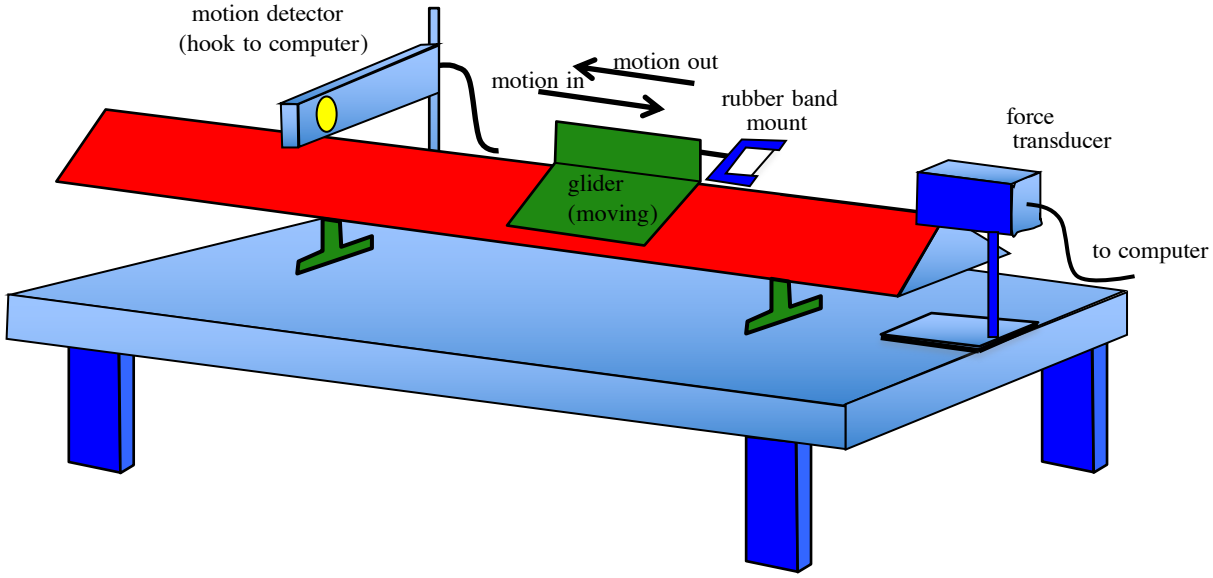
(L-12covid)

Does the *impulse* applied to a body really equal the body's *change of momentum*? This lab will give you the opportunity to find out.

PROCEDURE--DATA

Part A: (comparing the *impulse* $\mathbf{F}\Delta t$ to a body's *change of momentum* $\Delta\mathbf{p}$)

a.) The lab will have a glider strike a Force Transducer attached to a computer, which will generate a *force vs time* graph for the collision. Additionally, a motion detector will generate a *velocity vs. time* graph for the motion. A sketch of the overall device is shown below.



b.) Look at the video at https://www.youtube.com/watch?v=R_e3ujHalJk&feature=youtu.be, which will shows all of this happening. From it you will be able to glean all the data needed to write up this lab.

CALCULATIONS

Part A: (relationship between *impulse* and a body's *change of momentum*)

1.) The collision's *impulse* $F\Delta t$, as determined by the area under the *force versus time* graph (your computer gave you this number), was provided in the video. What was that value?

2.) We'd like to see if the impulse determined using the *force versus time* graph is, indeed, the same as the cart's *change of momentum*. That is, if $\mathbf{F}\Delta t = \Delta\mathbf{p}$. Use the information provided in the video to make a case that this relationship is a good one.

3.) So what can you say in general about a body's response to the application of an impulse?