General announcements

Reminders about impulse and momentum

Moving objects, in addition to having KE, also have **momentum**

$$\vec{p} = m\vec{v}$$ Units are $kg \cdot {}^{m}/_{s}$

If your momentum changes…

- you've probably changed your velocity – you've accelerated! This requires a force applied for a certain amount of time.

The quantity $\vec{F}\Delta t$ is known as **impulse.** Putting these together:

$$\vec{F}\Delta t = \Delta\vec{p}$$

This quantity is known as **impulse**.

An impulse causes a **change in momentum**.

Units are Ns …which is the same as $kg\ m/s$!

Impulse lab (L-12a)

Go to the class Website and read the lab.

- Note that you will need to mass your cart; you will need to use the integrate function in Logger Pro to determine impulse from your F vs t graph; you will need to use a regression line on your *position versus time* graph to get your cart's initial and final velocities. Be sure to print the graphs!
- Be sure you don't lose the hook that goes with the Force Transducer

"The Wave"

A rollercoaster car at the bottom of a hill splashing into water. Using the information given in the video, determine the average force the water exerts on the car.