

## **Chapter 7**

**The physics of ...**



# Explosions



Collisions

 General Mayhem

Collision of train with a car

 <http://www.youtube.com/watch?v=j3QKR143i4g>

In a collision or an explosion, things happen so rapidly that you can't measure the forces involved.

How can you predict what will happen?

(Use idealized cases)

## Chapter 7

### Momentum

$$p = m v$$

### Impulse

$$Ft = \Delta (mv)$$

And, because of Newton's Third Law, we know that INTERNAL forces are balanced (Action = Reaction)

Therefore, if no EXTERNAL forces act, the TOTAL (VECTOR) MOMENTUM of the SYSTEM is conserved!



