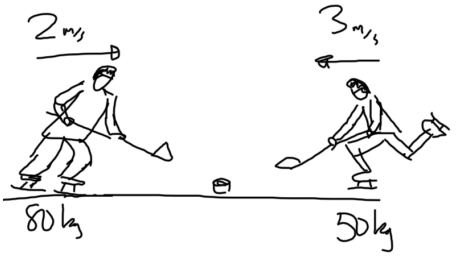
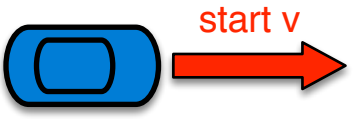
Corona Week 3

3. Conservation of Energy Problems with Heat



1. Calculate the Kinetic Energy of each player.
   a) Which one has more?
   b) Which player is harder to stop?
   b) Which player could hurt you more if they ran into you?

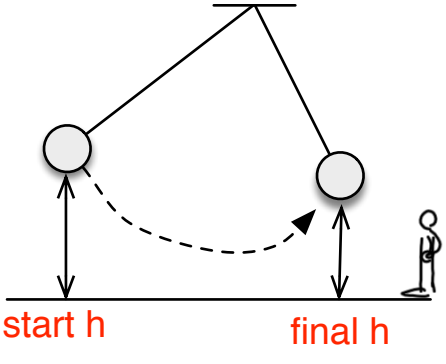


2. If the car slams on the brakes, how long will the skid be?

Choose a start velocity greater than 25 m/s. It cannot be a multiple of 5.
Choose a coefficient of friction between 0.75 and 0.95 (it must have two non-zero decimal places like 0.81, not just 0.8).

3. The large ___ kg pendulum bob starts with a height of ___ m off the ground and swings to a height of _____ m on the other side. How much energy was lost to heat?

Choose a pendulum bob mass greater than 1 kg
Choose a start height greater than 5 m with one decimal place (like 5.2)
Choose a final height less than 4 m with one decimal place.



4. The Chelyabinsk meteor that hit back on Feb 15, 2013 was about 9,000,000 kg and it was moving at about 18,000 m/s.
   a) How much Kinetic Energy did it have?
   b) When it hit the atmosphere and experienced an enormous amount of drag, what kind of energy did the KE rapidly turn into?
   c) Bombs convert Chemical PE into Heat in a very short time. How is this similar?