Conservation of Momentum U3P3a

- When two objects push on each other the force of ___ on ___ is _____ to the _____ (_____ Law).
- The time A _____ B is _____ the time _____.
- Impulse = _____ = _____. So, adding subscripts for objects A and B we see that

  _____ = _____

  Most Important Form _____ = _____

  _____=_____ ←_____ = _____

  _____ = _____
- In other words, since $I_{A \text{ on } B}$ _____ $I_{B \text{ on } A}$. The momentum lost when object A slows down in a collision _____ the momentum _____ when object ___ _____ ____.

Defining A System

- A closed system is one that mass is _____. For example, a pickup driving on a sunny day, but not _____, unless the system is _____ and _____.
- An isolated system is one for which the net force acting on the system is _____, i.e. a car driving with a constant velocity, but not _____ _____, unless the system is _____ and _____.
- Momentum and Energy are only conserved in systems that are _____ _____ (or sufficiently close to it). So, the trick to applying these laws is to make the system large enough to be _____ _____, but small enough to be _____.
- Since it takes time for small forces to cause _____ to change, all collisions (for this level of Physics) are automatically _____.

Collision Examples

- Partially inelastic (most collisions)

- Perfectly inelastic (when objects _____)

- Explosion (when objects _____)

Collision Comparison U3P3b

Elastic	Partially Inelastic	Perfectly Inelastic
Examples		
Characteristics		
Heat(sound/light/etc.)		
Equations		

Evolving Systems and E/ρ Conservation

Kinetic pendulum – A dart is thrown at a block hanging from the ceiling so that it strikes the block while traveling horizontally with a velocity of 8 m/s. To what height will the block rise after the dart sticks into it if the block's mass is 4 times greater than the dart's?