**Name:**

**Date:**

**School:**

**Facilitator:**

6.06 Momentum Note-taking Guide

**Watch the video Momentum (29:24) and complete the following.**

**Momentum**

1. Momentum
   1. Symbol:
   2. Equation:
   3. Unit:

**Problem Set #1**

1. Calculate the momentum of a 2500 kg truck moving at 18 m/c:

1. Calculate the momentum of a 2500 kg truck parked in a driveway:

1. A 0.13 kg baseball moves at 36 m/s.
   1. What is its momentum?

* 1. How fast would a 7.3 kg bowling ball have to move to have the same momentum?

**Impulse**

1. Impulse Equation:       =
   1. Ft =
   2. mv =
2. An       is required to change the momentum of an object.
3. A change in       creates an impulse.
4. A golfer follows through on a swing to increase the ball’s       and make it travel farther.

F t = m Δv

1. Following through keeps the club head on the ball for a longer period of      .
2. Since time and velocity are       proportional, increasing time of contact       velocity.
3. Why does a batter stop the bat when bunting?
4. Indicate which scenario would do more damage or less damage:
   1. Stopping a truck moving at 60 mi/h by running into a brick wall?
   2. Stopping a truck moving at 60 mi/h by running into a haystack?

F t = m Δv F t = m Δv

1. The       and change in       of the truck are held constant. To decrease force, the       it takes the truck to stop must be      .
2. more examples of extending time to decrease force:

**Physics Challenge:**

1. Which is more likely to break a window: a rubber ball, a clay ball, or neither?

1. Use the impulse equation to explain the Law of Conservation of Momentum:

* 1. system:
  2. closed system:
  3. isolated system:

**Collision**

1. Elastic collisions:
2. Inelastic collisions:
3. is conserved in all types of collisions.