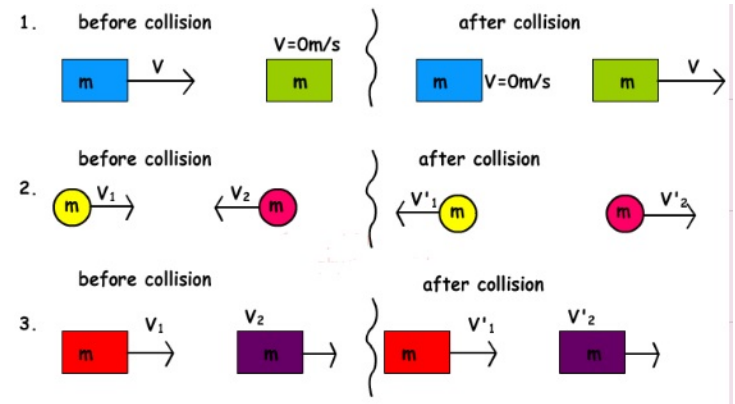


PHYSICS 2204
UNIT 2:DYNAMICS
STUDY GUIDE 2



<p>Momentum</p>	<p>is defined as the product of an object's mass and velocity.</p> $\vec{P} = m \vec{v}$ <p>p= momentum (kg •m/s) m= mass (kg) v= velocity (m/s)</p> <p>vector quantity, therefore you need magnitude and direction</p>
<p>Impulse</p>	<p>is defined as the product of the unbalanced or net force and the time that the force is acting.</p> $\vec{J} = \vec{F} \bullet t$ <p>J = Impulse (N•s) F = Force (N) t= time</p> <p>Unit is N s</p> <ul style="list-style-type: none"> - It is a vector quantity - The area under a force versus time graph represents impulse. <p>It turns out that having a net force is not enough to cause a change in the motion of an object. A net force must actually be present for some instant of time. A huge force acting for zero seconds accomplishes nothing. In fact, a small force acting for a long time can be as effective as a huge force acting for a short time.</p>
<p>Impulse Momentum Theorem</p>	<p>The Impulse Momentum Theorem states that the impulse applied by the net force on a system is equal to the change in momentum on the system. This theorem can be written numerous ways</p> $\vec{J} = \Delta \vec{p}$ $\vec{F} \bullet t = \vec{p}_2 - \vec{p}_1$ $\vec{F} \bullet t = m \vec{v}_2 - m \vec{v}_1$ $\vec{F} \bullet t = m \left(\vec{v}_2 - \vec{v}_1 \right)$ <p>Note that a N •s = Kg •m/s</p>

<p>Conservation of Momentum</p>	<p>The Law of conservation states that the total momentum of all parts of a system before an interaction equals the total momentum after, if no external unbalanced force acts on the system.</p> $p_T = p_T'$ $p_1 + p_2 = p_1' + p_2'$ $m_1v_1 + m_2v_2 = m_1v_1' + m_2v_2'$
<p>Types of Collisions</p>	<p>Type 1: Elastic Collision is one in which the objects rebound after the collision</p>  <p>Inelastic Collision is one in which the objects stick together after the collision</p> 