

Unit 15 Themed – Vocabulary and Equations – Impulse & Momentum + Year End

$E_i = E_f$ (conservation of energy) GPE = mgh KE = $\frac{1}{2}mv^2$ ME = KE + GPE Wt = mg W = Fd P = W/t AMA = F_o/F_i IMA = d_i/d_o Eff. = W_o/W_i Eff. = P_o/P_i $f = \mu N$ $F_{net} = ma$ $a_c = v^2/r$ $F_c = ma_c$ (circ.) $g's = a_c/9.8$ $x = \text{circumference} = 2\pi r$ $v = \sqrt{2g\Delta h} = \sqrt{19.6\Delta h}$	$v = \frac{\Delta x}{\Delta t} \quad a = \frac{\Delta v}{\Delta t}$ $\Delta x = v_0 \Delta t + \frac{1}{2} at^2$ $v_f^2 = v_i^2 + 2a \Delta x \quad v_f = v_0 + a \Delta t$ $\Delta x = v_x \Delta t$ $v_{yi} = v \sin\theta \quad v_x = v \cos\theta$ $p = mv \quad p_i = p_f$ $(m_1 v_1 + m_2 v_2)_i = (m_1 v_1 + m_2 v_2)_f$ $I = \Delta p = m\Delta v = F\Delta t$	Equation $v_{yf} = v_{yi} + at$ $\Delta y = \frac{(v_{yi} + v_{yf})}{2} t$ $\Delta y = v_{yi}t + \frac{1}{2}at^2$ $v_{yf}^2 = v_{yi}^2 + 2a\Delta y$	a \checkmark \otimes \checkmark \checkmark \checkmark	t \checkmark \checkmark \checkmark \otimes	v_{yi} \checkmark \checkmark \checkmark \checkmark	v_{yf} \checkmark \checkmark \otimes \checkmark	Δy \otimes \checkmark \checkmark \checkmark	
$1609 m = 1 mi$	$60 mph = 27 m/s$	$1 hp = 746 W$	$1 lb = 0.4536 kg$	$1 mi = 1609 m$	$1 W\cdot s = 1 J$	$1 ft = 0.3048 m$		
Symbols: p, m, v Vocabulary: momentum, impulse elastic collision		bouncy collision inelastic collision sticky collision energy of deformation conservation of kinetic energy						
Unit Objectives - Williams 1. I can compute momentum, know it's conserved and can contrast it with impulse 2. Using momentum conservation, I analyze collision problems, finding final velocities 3. I understand what impulse is and can apply it to find applied forces, contact times, etc. 4. I can use principles of impulse and momentum to understand the effects of longer collision times on forces 5. I know equal impulses don't mean equal consequences, like landing on a cushion or a semi-truck crashing into a car 6. I can analyze impulse and momentum equations from graphical information								