Unit 4 Plan: ***Newton's Laws***
Physics1 @ PalmHarborUniversityHigh

Day	Date	Topic	Assignments Due / Schedule
1		Read Section 4.1, pages 87-89 **CW#1**: problems 1-5 (p. 89)	Finish reading section 4.1
2		Notes: 4.1 *(bonus: note sheet)* **CW#2**: problems 6-14 (p. 93-95)	Finish class work
3		Review Section 4.1 Video: Law of Inertia	Read Section 4.2, pages 96-101 **HW#1**: Ch 4 problems # 15-18
4		Using Newton's Laws *(bonus: note sheet)* Ch 4.2 Notes: Mass vs. Weight	**HW#2**: Ch 4 problem # 19
5		Friction Notes (**Ch 5.2**) **CW#3**:Friction Problems *(print out from web)*	Read **Section 5.2**, **pages 126-130** **HW#3**: **Chapter 5: #17,19,23**
6		Friction Mini-Lab	
7		Terminal Velocity	Read **Section 4.3, pages 102-107** **HW#4**: Practice Problems 28-31
8		Newton' s 3rd Law Worksheet	
9		Newton's Law Mechanical Universe Video	**HW#5**: p.**112**: 41,43,46,47,48,52,53,56 p. **140**: 56,61,75
10		Review	**Bonus Problems** p. **113**: 60,61,64,71,72 p. **142**: 90,91
11		Unit 4 Test	**Newton Scrapbook Due** ?

Note: *Homework is due on the day following the assignment, unless otherwise noted.*

Objectives / **Essential Learnings**: (key terms in **bold**)

1. Define ***force*** and be able to identify the ***four basic forces***
2. Differentiate between ***contact forces*** and ***field forces***.
3. Understand and draw ***free-body diagrams***.
2. State ***Newton's three laws of motion*** and display an understanding of their applications.
3. Be able to determine a ***net force*** that causes acceleration.
4. Distinguish between ***weight*** and ***mass*** and use Newton's second law to relate them.
5. Differentiate between ***actual weight*** and ***apparent weight***.
6. Define ***friction*** and be able to use the ***coefficient of friction*** to solve problems.
7. Demonstrate an understanding of the meaning of ***net force*** and be able to calculate the acceleration that results.
8. State the requirements for ***equilibrium***.
9. Understand the definition of ***free fall*** and the causes of ***air resistance*** and ***terminal velocity***.
10. Identify an ***action-reaction pair*** of forces and its role in a body's acceleration

(weight) $F_g = mg$ (force of friction) $F_f = \mu F_N$

Equilibrium: $\sum F = 0$ or $F_{net} = 0$ **Newton's 2nd Law**: $\sum F = ma$ or $F_{net} = ma$ or $a = \frac{F_{net}}{m}$