## Physics Test (Part I):

## Vocabulary:

* Scalar
* Vector
* Position
* Distance
* Displacement
* Speed
* Velocity
* Acceleration

## Outcomes:

* Describe the difference between a scalar measurement and a vector measurement, giving examples of each
* Compare & contrast position, distance & displacement and apply these concepts to solve problems
* Compare & contrast speed & velocity and apply these concepts to solve problems
* Solve problems involving acceleration
* Describe the motion of falling objects
* Data Tables:
	+ Distance vs. time
	+ Speed vs. time
	+ Position vs. time
	+ Velocity vs. time
* Graphing:
	+ Position vs. Time
	+ Velocity vs. Time
* Describe the motion of objects from data tables and diagrams
* Describe the motion of objects when given a graph
* Solve motion problems using the formulas below:
	+ $∆t= t\_{2}- t\_{1}$
	+ $\rightharpoonaccent{Δd}= \rightharpoonaccent{d\_{2}}- \rightharpoonaccent{d\_{1}}$
	+ $Speed=∆distance/∆t$
	+ $ \rightharpoonaccent{v\_{avg}}= ^{\rightharpoonaccent{∆d}}/\_{∆t}$
	+ $\rightharpoonaccent{v\_{avg}}= \frac{v\_{1}+ v\_{2}}{2} (if constant acceleration)$
	+ $d=(\frac{v\_{1}+ v\_{2}}{2}) ∆t$
	+ $\rightharpoonaccent{v\_{avg}}= ^{\rightharpoonaccent{∆d}}/\_{∆t}$
	+ $\rightharpoonaccent{a\_{avg}}= ^{\rightharpoonaccent{∆v}}/\_{∆t}$

## Physics Test (Part II):

## Vocabulary:

* Inertia
* Mass
* Force
* Acceleration
* Newton’s Laws
* Gravity
* Weight
* Friction
* Momentum
* Impulse

## Outcomes:

* Newton’s 1st Law (Inertia)
	+ Restate the law & explain
	+ Explain examples of the law and apply the law to understand new examples
* Newton’s 2nd Law (Acceleration)
	+ Restate the law & explain
	+ Explain examples of the law and apply the law to understand new examples
	+ Solve problems using the formula $F\_{net}=ma$
* Newton’s 3rd Law (Interaction)
	+ Restate the law & explain
	+ Explain examples of the law and apply the law to understand new examples
* Use force diagrams to solve word problems
* Understand how Newtons laws can describe motion in real life examples: Billiards, skydiving, ect…
* Understand how impulse and change in momentum are important in describing the dangers faced by passengers in a car crash. How can these dangers be reduced?
* Understand the factors that affect stopping distance (braking distance and reaction time)
* Problem solving using the formulas below:
	+ $F\_{net}=ma$
	+ $p=mv$
	+ $I=F∆t$
	+ $∆p=I$