Physics Course Review by Unit / Topics

		Check √ If studied
1. Motion	- displacement, velocity, acceleration - vector vs. scalar ie: speed vs. velocity - graphic analysis: d/t, v/t and a/t graphs - getting velocity from d/t graph, accel. From v/t graph and displacement from v/t graph. - vector addition (collinear and non-collinear) - problem solving - Newton's universal Law of Gravity - free fall (acceleration due to gravity)	
2. Dynamics (motion + forces)	- Newton's 3 laws – state, use to explain motion - Newton's 3 laws – problem solving - Friction – when it's useful (traction) and when we want to minimize - μ (mu) values – what it is and how to calculate - Ff = μFn - FBD's - be able to draw and analyze - Fnet = ma	
3. Work, Energy & Society	- Work → W = Fd and W = FcosΘd - 3 conditions for work - +W and –W examples - kinds of energy – mostly Ek, Eg and rest mass E - Ek = ½ mv^2 problem solving - Eg = mgh problem solving - E = mc^2 problem solving (mass defect) - Q = mΔTc (heat energy) problem solving - how a nuclear power plant works - conservation of energy - know examples of energy transformation	
4. Electromagnetism	~~- charge (Q), current (I) and voltage (V) and what these are (definitions)~~ ~~- a coulomb, elementary charge~~ ~~- formulas Q= Ne, I = Q/t and V = E/Q~~ - magnetism – dipoles, magnetic field lines, bar magnets - RHR # 1, 2, 3 – be able to apply to diagrams - what affects strength of electromagnet? Simple math here - applications of RHR #2 (circuits) ~~- applications of RHR # 3 (15.3)~~ - motor and generator – label, understand basics of how they work (energy conversions)	

5. Waves	- period (T), frequency (f). amplitude (A), equilibrium and cycle – define - formulas $T = \Delta t/N$, $f = N/\Delta t$ and $T = 1/f$ - what affects frequency of transverse swing (pendulum) and longitudinal motion (spring from ceiling) - resonance – define and give examples of - universal wave equation – solve problems - Doppler effect (application of waves) - constructive and destructive interference – solve graphic problems - beat formation (ie: music) - how temperature affects speed of sound of air - mediums – have they affect speed of sound - standing waves – sound – calculations - free /fixed ends	

<u>You can have the following for the exam:</u>

- reference sheet – anything you want on it (make sure you have formulas!) on ONE side of 8 x 11 sheet
- calculator