Classical Magnet School

Course ____Honors Physics 11th Grade_____

	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
Textbook Chapters	Ch.4: Motion & Force Dynamics	Ch.2 and 3: Describing Motion: Kinematics in One/Two Dimension(s)	Ch.5:Circular Motion Ch.7:Linear Momentum Ch.8: Rotational Motion & energy	Ch.14: Heat Ch.15: Laws of Thermodynamics	Ch.22: Waves Ch.24: Wave Nature of Light	Ch.11: Vibrations and Waves	Ch.16 Electrical Charge Ch.17:Electiric Potential &Electrical Energy	Ch.18: Electrical Currents Ch.19: DC Circuits	Ch.20: Magnetism	Summative Course Analysis, Evaluation and Synthesis
Essential Questions	How is motion measured?	How are vertical and horizontal motion related?	Why do rotating objects always accelerate?	Can an ice cube heat something up?	How are light and sound similar?	How do waves transfer energy?	Why do insulators carry charge better than conductors?	What do we buy from the power company?	How are magnetism and electricity related?	Why is mathematics the language of physics?
Standards	*Understand that when forces are balanced, acceleration does not occur; an object continues to move at a s	*Calculate kinetic energy by using the formula K$E=(1/2)mv^2$. *Calculate momentum using the formula mv. *Calculate changes in gravitational potential energy by using the mgh formula. *Describe how the principles of conservation of momentum and energy can be used to solve elastic and inelastic collision problems.	*Explain why applying force to an object perpendicular to the direction of its motion causes the object to change direction. *Describe how circular motion requires the application of a constant force directed toward the center of the circle *Describe why momentum is a separately conserved quantity different from energy.. *Demonstrate how and why an unbalanced force on an object produces a change in momentum.	*Describe heat flow and work as two forms of energy transfer between systems. *Understand that work done by a working heat engine is the difference between heat flow into engine at a high temperature and the heat flow out a low temperature. *Describe how the internal energy of an object includes energy of random motion. *Explain how most processes tend to decrease the order of a system over time, resulting in more evenly distributed energy levels.	*Describe how waves carry energy from one place to another. *Describe how wavelength, frequency and wave speed are related. *Understand that radio waves, light and X-rays have different wavelength bands in the spectrum.	*Describe how transverse and longitudinal waves exist in mechanical media, such as springs, ropes and seismic waves. *Describe how sounds' speed depends on the properties of the medium in which it propagates. *Define the characteristic behaviors of waves: interference, diffraction, refraction and polarization.	*Describe how the voltage or current (in a simple direct current) can be predicted using Ohm's laws.	*Describe how a resistive element in a DC circuit heats up a resistor by dissipating energy. *Calculate power in a resistive circuit element using the formula Power=I2R. Explain how plasmas, the fourth state of matter, contain ions, or free electrons, or both and conduct electricity.	*Describe how/why charged particles are sources of electric fields and are subject to the forces of electric field from other charges *Explain how magnetic materials and electric currents are sources of magnetic fields and are subject to forces arising from the magnetic fields of other sources.	Standards Review and Synthesis
Major Skills	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform	Describe Demonstrate Analyze Evaluate Determine Know Perform

Classical Magnet School

	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply	Classify Identify Use Apply
Themes/ Topics	Kinematics Graphing Calculator Intro. Linear Motion	Kinematics Non-Linear Motion Acceleration Gravity	Kinematics 2D Motion Forces Kepler's Law	Conservation Laws: Mass Momentum Energy Angular Momentum	Work and Energy	Thermodynamics Introduction to Heat Temperature Heat Capacity	Electricity Electro-Statics Current Electricity Power	Magnetism Physics Day	Waves Electrostatics Physics Day	Course Concept Review and Synthesis
Field Trips / Guest Speakers									Lake Compounce Amusement Park for ride based lab experiments	
Coached Projects, Labs and Seminars	Summer Lab Walk This Way Way to Go Drifting Down	On A Roll Falling Down Dropping Objects Kinematic Relationships Bomb the Cup	May the Force Be with You Friction Physics	Around and Around She Goes Spring Physics Projectile Physics Science Fair Project (Mandatory)	Mass Before and After Collision Physics Collision Physics II Science Fair Project (Mandatory)	Ice Water Steam: Water in 3 Phases It's Hot, It's Cold Science Fair Project (Mandatory)	Time to Chill	Power to the People Science Fair Project (Mandatory)	Amusement Park Physics I've Got the Power	Speed of Sound Up on a Wave
Other										