OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
 Create and interpret graphs 	Plotting X,Y coordinates	 Experiment 1: Two-Dimensional Graphing, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. http://www.whitecraneeducation.com/reference/algebra/index.php?id1=10 	Teacher assessment of student created graphs.
		 http://www.whiteeraneeducation.com/reference/algebra/index.php?id1=10 http://www.teacherschoice.com.au/maths_library/coordinates/plotting_ord ered _pairs.htm 	Lab Question answers graded.
	Interpreting Graphs	 Experiment 1: Two-Dimensional Graphing, Liberal Arts Physics. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. 	
		 http://www.payscale.com/research/US/Job=Computer_Numerically_Contr olled_%28CNC%29_Machinist/Vacation_Weeks 	
		 i-Pathways: <i>Mathematics</i>—Unit 2: Measurement and Data Analysis— Lesson 4: Tables and Charts 	
		 i-Pathways: <i>Mathematics</i>—Unit 2: Measurement and Data Analysis— Lesson 5: Graphs 	
2. Apply common metric	Metric system	 Introduction to the metric system of measurement. Metric units of length, mass, time and temperature. Conversion factors. 	Lab Question answers graded
measurement units	Working with and converting between common units of measurement	 Experiment 2: Units, Estimates, Errors, Liberal Arts Physics. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. 	
		http://math.pppst.com/metrics.html	

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
3. Demonstrate an understanding of force, mass and acceleration	Newton's Second Law	 Define force, mass and acceleration Perform examples of calculations for force, mass and acceleration. Experiment 11: A Bowling Ball Meets Newton's Second Law, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://www.youtube.com/watch?v=UDThbykD6P0&feature=related</i> 	Lab Question answers graded
	Newton's Third Law	 Experiment 12: Newton's Third Law: The Law of Force Pairs, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://www.pfscience.com/2010/09/newtons-laws-of-motion-fma/</i> i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 3: Motion and Forces i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 4: Interactions of Energy and Matter 	Lab Question answers graded
 Calculate the effects of friction 	Static Kinetic	 Experiment 13: Static Friction, Liberal Arts Physics. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. http://www.studyphysics.ca/newnotes/20/unit01_kinematicsdynamics/chp 05_forces/lesson20.htm http://tristanmac.tripod.com/id13.html 	Lab Question answers graded
 Record observations of air pressure 	Hydrostatic Standard Mean sea level Boiling point of water	 Experiment 14: Kinetic Friction, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Define hydrostatic, standard, and mean sea level pressure. Describe the effects of air pressure and boiling point. Experiment 15 <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://hydrostaticpressure.net/</i> <i>http://www.usatoday.com/weather/wbarocx.htm</i> 	Lab Question answers graded Lab Question answers graded

	OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
6	Define work and compute common equations for measuring work	Work First Law of Thermodynamics Work-energy Joule	 Experiment 17: Work, Energy Transfer and Power, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/firlaw.html</i> <i>http://lyricsplayground.com/alpha/songs/f/firstandsecondlaw.shtml</i> 	Lab Question answers graded
7	Graph temperature transfer as a function of time and calculate the specific heat capacity of materials	Temperature Scales and measurements Thermodynamics Examples of Temperature Heat Capacities of various materials Heat Engines and Refrigerators	 Definition of Celsius, Kelvin, Fahrenheit Definition and explanation of thermodynamics Examples of temperature (boiling, freezing, absolute zero) Experiment 18: Temperature and Heating, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Experiment 19: Specific Heat Capacities of Various Materials, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Experiment 20: Heat Engines and Refrigerators, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>Experiment 20: Heat Engines and Refrigerators</i>, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://www.science-projects.com/HeatCapacity.htm#one</i> 	Lab Question answers graded Lab Question answers graded Lab Question answers graded
8	Demonstrate energy awareness and calculate conservation of energy	Kinetic Electromagnetic Thermal Potential Energy uses Conservation of energy	 Definition of kinetic, electromagnetic, thermal and potential energy Experiment 21: Energy Awareness, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Experiment 22: How Much Energy is Saved by Turning Down the Thermostat?, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. 	Lab Question answers graded

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
8. (Continued)		 http://www.uwsp.edu/cnr/wcee/keep/Mod1/Rules/EnConversion.htm i-Pathways: Science—Unit 3: Physical Science—Lesson 3: Motion and Forces i-Pathways: Science—Unit 3: Physical Science—Lesson 4: Interactions of Energy and Matter 	Lab Question answers graded
9. Plot Wave Characteristics	Amplitude Period Wavelength Frequency Speed	 Definition of amplitude, period, wavelength, frequency speed Experiment 24: Waves and Wave Characteristics, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://www.colorado.edu/physics/phys1140/phys1140_fa01/Experiments/M2/M2.html</i> i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 3: Motion and Forces i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 4: Interactions of Energy and Matter 	Lab Question answers graded
10. Calculate and measure volts, ohms and amperes in series and parallel circuits	Current Potential Resistance Ohm's law Series Circuits Parallel Circuits	 Define current, resistance, and potential difference. Demonstrate calculations for Ohm's law for series circuits Experiment 26: Series Electrical Circuits, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Demonstrate calculations for Ohm's law for parallel circuits Experiment 27: Parallel Electrical Circuits, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. Demonstrate calculations for Ohm's law for parallel circuits Experiment 27: Parallel Electrical Circuits, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall. <i>http://www.allaboutcircuits.com/vol_1/chpt_5/1.html#</i> i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 3: Motion and Forces i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 4: Interactions of Energy and Matter 	Lab Question answers graded Lab Question answers graded