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

	OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT
3.	Demonstrate an understanding of force, mass and acceleration	Newton's Second Law	<ul> <li>Define force, mass and acceleration</li> <li>Perform examples of calculations for force, mass and acceleration.</li> <li>Experiment 11: A Bowling Ball Meets Newton's Second Law, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>http://www.youtube.com/watch?v=UDThbykD6P0&amp;feature=related</i></li> </ul>	Lab Question answers graded
		Newton's Third Law	<ul> <li>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.</li> <li><i>http://www.pfscience.com/2010/09/newtons-laws-of-motion-fma/</i></li> <li>i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 3: Motion and Forces</li> <li>i-Pathways: <i>Science</i>—Unit 3: Physical Science—Lesson 4: Interactions of Energy and Matter</li> </ul>	Lab Question answers graded
4.	Calculate the effects of friction	Static	<ul> <li>Experiment 13: Static Friction, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>http://www.studyphysics.ca/newnotes/20/unit01_kinematicsdynamics/chp</i> 05_forces/lesson20.htm</li> <li><i>http://tristanmac_tripod_com/id13_html</i></li> </ul>	Lab Question answers graded
		Kinetic	<ul> <li>Experiment 14: Kinetic Friction, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> </ul>	Lab Question answers
5.	Record observations of air pressure	Hydrostatic Standard Mean sea level Boiling point of water	<ul> <li>Define hydrostatic, standard, and mean sea level pressure.</li> <li>Describe the effects of air pressure and boiling point.</li> <li>Experiment 15 <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>http://hydrostaticpressure.net/</i></li> <li><i>http://www.usatoday.com/weather/wbarocx.htm</i></li> </ul>	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	<ul> <li>Experiment 17: Work, Energy Transfer and Power, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/firlaw.html</i></li> <li><i>http://lyricsplayground.com/alpha/songs/f/firstandsecondlaw.shtml</i></li> </ul>	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	<ul> <li>Definition of Celsius, Kelvin, Fahrenheit</li> <li>Definition and explanation of thermodynamics</li> <li>Examples of temperature (boiling, freezing, absolute zero)</li> <li>Experiment 18: Temperature and Heating, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li>Experiment 19: Specific Heat Capacities of Various Materials, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li>Experiment 20: Heat Engines and Refrigerators, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>Experiment 20: Heat Engines and Refrigerators</i>, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li><i>http://www.science-projects.com/HeatCapacity.htm#one</i></li> </ul>	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	<ul> <li>Definition of kinetic, electromagnetic, thermal and potential energy</li> <li>Experiment 21: Energy Awareness, <i>Liberal Arts Physics</i>. (2003). A. Hobson, M. Baehr, E. Swallow. Prentice Hall.</li> <li>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.</li> </ul>	Lab Question answers graded

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