

Systems	Properties, Patterns, and Models	Consistency and Change
<b>5 – The student knows that changes occur within a physical system and recognizes that energy and momentum are conserved.</b>	<b>8 – The student knows the characteristics and behavior of waves.</b>	<b>4 – The student knows the laws of governing motion.</b>
<p>5A – Interpret evidence for the work-energy theorem.</p> <p>5B – Observe and describe examples of kinetic and potential energy and their transformations.</p> <p>5C – Calculate the mechanical energy and momentum in a physical system such as billiards, cars, and trains.</p> <p>5D – Demonstrate the conservation of energy and momentum.</p>	<p>8A – Examine and describe a variety of waves propagated in various types of media and describe wave characteristics.</p> <p>8B – Identify the characteristics and behaviors of sound and electromagnetic waves.</p> <p>8C – Interpret the role of wave characteristics and behaviors found in medicinal and industrial applications.</p>	<p>4A – Generate and interpret graphs describing motion.</p> <p>4B – Analyze examples of uniform and accelerated motion.</p> <p>4C – Demonstrate the effects of forces on the motion of objects.</p> <p>4D – Develop and interpret a free-body diagram for force analysis.</p> <p>4E – Identify and describe motion relative to different frames of reference.</p>
<b>6 – The student knows forces of nature.</b>		
<p>6A – Identify the influence of mass and distance on gravitational forces.</p> <p>6B – Research and describe the historical development of the concepts of gravitational, electrical, and magnetic forces.</p> <p>6C – Identify and analyze the influences of change and distance on electric forces.</p> <p>6D – Demonstrate the relationship between electricity and magnetism.</p> <p>6E – Design and analyze electric circuits.</p> <p>6F – Identify examples of electrical and magnetic forces in everyday life.</p>		
<b>7 – The student knows the laws of thermodynamics.</b>		
<p>7A – Analyze and explain everyday examples that illustrate the laws of thermodynamics.</p> <p>7B – Evaluate different methods of heat energy transfer that result in an increasing amount of disorder.</p>		
<b>9 – The student knows simple examples of quantum physics.</b>		
<p>9A – Describe the photoelectric effect.</p> <p>9B – Explain the spectra from different gas-discharge tubes.</p>		