

# School District of Loyal

## Science

### Grade: 7

## Student Learning Targets



### Class: Science 7 (Integrated)

Students who demonstrate understanding can:

WI State Standard	Standard Description:	Student Learning Targets:
SCI.PS3.A	Kinetic energy can be distinguished from the various forms of potential energy.	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Explain the differences between kinetic energy and potential energy</li> <li>● Distinguish among the various types of both KE and PE</li> <li>● Calculate energies</li> <li>● Graph mass vs energy</li> <li>● Discuss energy transformations</li> </ul>
SCI.PS2.A	Motion and changes in motion can be qualitatively described using concepts of speed, velocity, and acceleration (including speeding up, slowing down, and/or changing direction). The role of the mass of an object must be qualitatively accounted for in any change of motion due to the application of a force (Newton's first and second law). For any pair of interacting objects, the force exerted by the first object on the second object is equal in strength to the force that the second object exerts on the first, but in the opposite direction (Newton's third law.)	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Describe motion, both qualitatively and quantitatively</li> <li>● Discuss Newton's Laws of Motion, and explain how all three are related</li> <li>● Calculate force, mass, or acceleration</li> <li>● Identify real-world examples of Newton's Laws on action</li> </ul>
SCI.PS4.A	A simple wave model has a repeating pattern with a specific wavelength, frequency, and amplitude, and mechanical waves need a medium through which they are transmitted. This model can explain many phenomena including sound and light. Waves can transmit energy.	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Distinguish between mechanical and electromagnetic waves</li> <li>● Distinguish between transverse and longitudinal waves</li> <li>● Identify which waves require a medium and which do not</li> <li>● Determine wavelength, frequency and amplitude of a wave</li> <li>● Explain the relationship between energy and waves</li> </ul>

MS-PS1-4	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Discuss how particle motion changes as energy is added to or removed from a system</li> <li>● Tell how temperature relates to kinetic energy</li> <li>● Explain how phase/state changes occur</li> </ul>
MS-PS1-1	Develop models to describe the atomic composition of simple molecules and extended structures.	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>● Distinguish between atoms, molecules, and extended structures</li> <li>● Diagram atoms, molecules, and extended structures</li> </ul>
MS-PS1-5	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Diagram chemical reactions</li> <li>● Balance chemical equations</li> <li>● Calculate various masses of substances in a chemical reaction</li> </ul>
SCI.LS3.B	In sexual reproduction, each parent contributes half of the genes acquired by the offspring resulting in variation between parent and offspring. Genetic information can be altered because of mutations, which may result in beneficial, negative, or no change to proteins in or traits of an organism.	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Discuss alleles and the part they play in genetics</li> <li>● Complete Punnett Squares to determine genetic probabilities of heredity</li> <li>● Explain what a mutation is and give both beneficial and harmful examples</li> </ul>