

**Correlation of**  
***Seeds of Science/Roots of Reading***<sup>®</sup>  
**Integrated Science and Literacy Units**

**Light Energy**  
**Weather and Water**  
**Variation and Adaptation**  
**Digestion and Body Systems**  
**Planets & Moons**  
**Aquatic Ecosystems**  
**Models of Matter**  
**Chemical Changes**

**with the State of Minnesota**  
**Science Standards**  
**for Grade 6**  
**Created June 2010**



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Minnesota Science Standards – 6th Grade

Minnesota Science Standards – 6th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
<b>THE NATURE OF SCIENCE AND ENGINEERING</b>												
<b>2. The Practice of Engineering</b>												
Identify a common engineered system and evaluate its impact on the daily life of humans.					● ●							
Recognize that there is no perfect design and that new technologies have consequences that may increase some risks and decrease others.									● ●			
Describe the trade-offs in using manufactured products in terms of features, performance, durability and cost.												
Explain the importance of learning from past failures, in order to inform future designs of similar products or systems.									● ● ●			
Apply and document an engineering design process that includes identifying criteria and constraints, making representations, testing and evaluation, and refining the design as needed to construct a product or system that solves a problem.									● ● ●			
<b>3. Interactions Among Science, Technology Engineering, Mathematics, and Society</b>												
Describe a system in terms of its subsystems and parts, as well as its inputs, processes and outputs.							● ●					
Distinguish between open and closed systems.												
Determine and use appropriate safe procedures, tools, measurements, graphs and mathematical analyses to describe and investigate natural and designed systems in a physical science context.												
Demonstrate the conversion of units within the Systeme												

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Internationale (SI, or metric) and estimate the magnitude of common objects and quantities using metric units.												
<b>PHYSICAL SCIENCE</b>												
<b>1. Matter</b>												
Explain density, dissolving, compression, diffusion and thermal expansion using the particle model of matter.												
Identify evidence of physical changes, including changing phase or shape, and dissolving in other materials.						● ●					● ●	● ●
Describe how mass is conserved during a physical change in a closed system.											●	●
Use the relationship between heat and the motion and arrangement of particles in solids, liquids and gases to explain melting, freezing, boiling and evaporation.						● ● ●					● ● ●	
<b>2. Motion</b>												
Measure and calculate the speed of an object that is traveling in a straight line.												
Graph an object's position as a function of time and an object's speed as a function of time for an object traveling in a straight line and use the graphs to describe the object's motion.												
Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.												
Identify the forces acting on an object and describe how the sum of the forces affects the motion of the object.												

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Recognize that some forces between objects act when the objects are in direct contact and others, such as magnetic, electrical and gravitational forces can act from a distance.												
Distinguish between mass and weight.												
<b>3. Energy</b>												
Describe properties of waves, including speed, wavelength, frequency and amplitude.												
Explain how the vibration of particles in air and other materials results in the transfer of energy through sound waves.												
Use wave properties of light to explain reflection, refraction and the color spectrum.					● ●							
Differentiate between kinetic and potential energy and analyze situations where kinetic energy is converted to potential energy and vice versa.												
Trace the changes of energy forms, including thermal, electrical, chemical, mechanical or others as energy is used in devices.					● ● ●							
Describe how energy is transferred in conduction, convection and radiation.												

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