

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

with the State of NORTH DAKOTA  
Science Standards  
for Grade 5

Created MARCH 2010



*Seeds of Science/Roots of Reading*<sup>®</sup> was created with partial support from the National Science Foundation under grant numbers ESI-0242733 and ESI-0628272. The program was created by a team at the Lawrence Hall of Science at the University of California, Berkeley.

North Dakota Science Standards – 5 <sup>th</sup> 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
<b>STANDARD 1: Students understand the unifying concepts and processes of science.</b>												
<b>MODELS</b>												
5.1.1. Use an appropriate model (e.g., drawing, equation, computer program, diagram, or 3-D device) to convey scientific information	● ●	● ●			● ● ●	● ● ●		● ● ●	● ● ●	● ● ●	● ● ●	● ●
<b>SYSTEMS</b>												
<i>No benchmark expectations at this level</i>												
<b>CONSTANCY AND CHANGE</b>												
5.1.2. Explain how changes alter the balance within a system (e.g., the effects of limited resources on populations, global climate change, flood, drought)	● ●	● ●		●		● ●	●	● ● ●		● ● ●		
<b>FORM AND FUNCTION</b>												
5.1.3. Identify details of an object’s form which determine its function (e.g., webbed feet for use in water, human feet for walking, shovel for scooping dirt, a rake for collecting leaves, tape measure and ruler to measure distance)	● ● ●	● ●	● ● ●		● ●		● ● ●	● ● ●	● ● ●	● ● ●		
<b>STANDARD 2: Students use the process of science inquiry.</b>												

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

North Dakota Science Standards – 5 <sup>th</sup> 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
<b>ABILITIES NECESSARY TO DO SCIENTIFIC INQUIRY</b>												
5.2.1. Communicate scientific procedures (e.g. visual display, graph, journal, oral presentation) that enable others to repeat the investigation	●	●	●●●		●●	●●			●	●●●	●●	●●
5.2.2. Formulate an explanation supported by data	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●
<b>STANDARD 3: Students understand the basic concepts and principles of physical science.</b>												
<b>PROPERTIES OF MATTER</b>												
5.3.1. Identify physical properties of substances before and after they are combined			●●●								●●●	●●
5.3.2. Identify new substances formed in a chemical change (i.e., rusting, burning)												●●
5.3.3. Compare and contrast properties of solids, liquids, and gases						●●●					●●●	
<b>FORCE AND MOTION</b>												
5.3.4. Identify the effects force and mass have on the motion of an object				●								

- = Addressed completely with explicit instruction and repeated learning opportunities.
- = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

North Dakota Science Standards – 5 <sup>th</sup> 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
5.3.5. Explain why gravity is called an attracting force.				● ● ●					● ● ●			
<b>FORMS OF ENERGY</b>												
5.3.6. Demonstrate a simple electrical circuit by completing a continuous loop (i.e., battery, light, wire)												
5.3.7. Identify materials that are good conductors of heat												
<b>STANDARD 4: Students understand the basic concepts and principles of life science.</b>												
<b>STRUCTURE AND FUNCTION</b>												
5.4.1. Identify components of a human organ system (e.g., digestive system, respiratory system, circulatory system, muscular system, skeletal system)								● ● ●				
5.4.2. Explain the function of a human organ system (e.g., digestive system, respiratory system, circulatory system, muscular system, skeletal system)								● ● ●				

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

North Dakota Science Standards – 5 <sup>th</sup> 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
<b>ORGANISMS AND THEIR ENVIRONMENTS</b>												
5.4.3. Identify the producers, consumers, and decomposers in a food web.										● ● ●		
<b>STANDARD 5: Students understand the basic concepts and principles of earth and space science.</b>												
<b>WEATHER, SEASONS, AND CLIMATE</b>												
5.5.1. Measure weather conditions (i.e., temperature, wind direction and speed, and precipitation)						● ● ●						
5.5.2. Identify characteristics of different clouds (i.e., cumulus, stratus, cirrus)						● ● ●						
<b>EARTH’S SURFACE</b>												
5.5.3. Identify how the components of soil (e.g., plant roots, bacteria, weathered rock) influence the properties of soil (e.g., texture, fertility, capacity to hold water)	● ●											
<b>THE UNIVERSE</b>												
5.5.4. Identify the characteristics of the Earth (i.e., spherical in shape, orbits the Sun, rotates on tilted axis)									● ● ●			

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

North Dakota Science Standards – 5 <sup>th</sup> 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
5.5.5. Identify the objects in the sky that have predictable patterns of movement (e.g., sun, planets, moons, stars)									● ● ●			
<b>STANDARD 6: Students understand relations between science and technology.</b>												
TECHNOLOGICAL DESIGN												
5.6.1. Use technology to design a solution to a problem			● ● ●						● ● ●			
5.6.2. Evaluate a product or design using established criteria			● ● ●						● ● ●			
<b>STANDARD 7: Students understand relations between science and personal, social, and environmental issues.</b>												
SCIENCE AND PERSONAL HEALTH												
5.7.1. Identify risks or benefits of personal health choices (e.g., tobacco, alcohol, prescription and illegal drugs, fast foods)												
SCIENCE AND ENVIRONMENTAL ISSUES												
5.7.2. Explain ways humans benefit from Earth’s resources (e.g., air, water, soil, food, fuel, building materials)		● ●			● ●	● ●				● ●		

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

North Dakota Science Standards – 5 <sup>th</sup> 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
SCIENCE AND SOCIAL ISSUES												
<i>No benchmark expectations at this level</i>												
<b>STANDARD 8: Students understand the history and nature of science.</b>												
PEOPLE IN SCIENCE												
<i>No benchmark expectations at this level</i>												
SCIENTIFIC KNOWLEDGE												
5.8.1. Explain why results of similar scientific investigations may turn out differently (i.e., inconsistencies in methods, materials, and observations)	● ●	● ●			● ● ●	● ●			● ●	●	●	●

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.