Correlation of
Seeds of Science/Roots of Reading®
Integrated Science and Literacy Units

with the State of NORTH DAKOTA
Science Standards
for Grade 4

Created MARCH 2010

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North Dakota Science Standards – 4th Grade	2nd- 3rd Grade				3rd- 4th Grade				4th - 5th 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
STANDARD 1: Students understand the unifying concepts and processes of science.												
MODELS												
4.1.1. Explain changes in the real world using a model (e.g., erosion, volcano, stream table, wing designs for airplanes)	●					●●●		●●	●●●	●●●	●●●	●
SYSTEMS												
No benchmark expectations at this level												
CONSTANCY AND CHANGE												
4.1.2. Identify changes <u>that</u> can be steady or irregular (e.g., floods, earthquakes, erosion, tooth decay)		●●				●●●						
STANDARD 2: Students use the process of science inquiry.												
ABILITIES NECESSARY TO DO SCIENTIFIC INQUIRY												
4.2.1. Review and ask questions about the scientific investigations of others	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●
4.2.2. Conduct simple investigations to answer questions based on observations	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●

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4.2.3. Use scientific tools (i.e., thermometers, rulers, balances) during simple investigations	●●	●●	●●	●●	●●●	●●●			●●●	●●●	●●●	●●
STANDARD 3: Students understand the basic concepts and principles of physical science.												
PROPERTIES OF MATTER												
4.3.1. Identify the forms in which water appears when heated and cooled (i.e., water vapor, liquid, solid)						●●●					●●●	
4.3.2. Explain the relationship between the mass of an object and the sum of its parts.												
4.3.3. Explain that matter is made up of parts that are too small to see without magnification											●●●	●●
FORCE AND MOTION												
4.3.4. Identify the effects forces may have when applied to objects (i.e., start, stop, change direction)				●●●								
FORMS OF ENERGY												
4.3.5. Describe how the path of light changes (i.e., reflected, absorbed, or allowed to pass through) when it encounters a variety of objects					●●●							
4.3.6. Explain how the pitch of a sound is related to the rate of vibrations.												
4.3.7. Identify ways friction or burning produces heat (e.g., magnifying glass, carpet burn, sunburn)												

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STANDARD 4: Students understand the basic concepts and principles of life science.												
STRUCTURE AND FUNCTION												
4.4.1. Classify plants and animals according to common physical characteristics	●	●					●●●			●		
4.4.2. Identify adaptations that help plants and animals survive and grow in their environment	●●	●●●					●●●			●●●		
LIFE CYCLES												
No benchmark expectations at this level												
CHARACTERISTICS OF ORGANISMS												
4.4.3. Identify behaviors of animals as instinctive or learned							●●●					
ORGANISMS AND THEIR ENVIRONMENTS												
4.4.4. Identify ways that an organism's pattern of behavior is related to the nature of the organism's environment (e.g., the availability of food, space, and resources)										●●●		
STANDARD 5: Students understand the basic concepts and principles of earth and space science.												

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WEATHER, SEASONS, AND CLIMATE												
4.5.1. Describe how as water condenses small droplets of water form clouds and fog						●●●						
EARTH'S SURFACE												
4.5.2. Identify slow and rapid processes (e.g., wind, water, waves, ice, volcano, earthquake) that are constantly changing Earth's surface		●●●										
4.5.3. Use characteristics to classify Earth's materials (i.e. rocks, soil)	●●●	●●●										
4.5.4. Compare fossil evidence to existing organisms							●●●					
SOLAR SYSTEM												
4.5.5. Identify components of our solar system (e.g., planets, moons, Sun)									●●●			
THE UNIVERSE												
4.5.6. Identify tools that are used to study the universe (e.g., telescopes, space probes, satellites, space craft)									●●●			

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STANDARD 6: Students understand relations between science and technology.												
TECHNOLOGICAL DESIGN												
4.6.1. Evaluate the effects of technology on people and the environment (e.g., new construction, oil drilling, electric cars)		●●			●●	●●			●●			
4.6.2. Explain how an invention may lead to other inventions												
STANDARD 7: Students understand relations between science and personal, social, and environmental issues.												
SCIENCE AND PERSONAL HEALTH												
No benchmark expectations at this level												
SCIENCE AND ENVIRONMENTAL ISSUES												
4.7.1. Identify consequences of natural and human-induced environmental changes (e.g., erosion, tsunami, deforestation)		●●●								●●●		
SCIENCE AND SOCIAL ISSUES												

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4.7.2. Identify ways in which science and technology have greatly improved human lives (e.g., food quality and quantity, transportation, health, sanitation, communication)					●●	●●						
STANDARD 8: Students understand the history and nature of science.												
PEOPLE IN SCIENCE												
4.8.1. Identify a variety of careers in the field of science	●	●	●		●●	●●	●	●	●●	●	●●	●
SCIENTIFIC KNOWLEDGE												
4.8.2. Identify scientific advances that changed popular beliefs (e.g., Earth was center of universe, world was flat, man was incapable of flight)					●●				●●			

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