

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

**with the State of Virginia**  
**Science Standards**  
**for Grade 6**

**Created June 2011**



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VA Science Standards – 6 <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 Changes
<b>Scientific Investigation, Reasoning, and Logic</b>												
<b>6.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which</b>												
a. observations are made involving fine discrimination between similar objects and organisms					● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
b. precise and approximate measurements are recorded					●	● ● ●				● ● ●	● ● ●	● ● ●
c. scale models are used to estimate distance, volume, and quantity									● ●		● ●	●
d. hypotheses are stated in ways that identify the independent and dependent variables												●
e. a method is devised to test the validity of predictions and inferences					● ●	● ● ●	● ●	● ●	● ●	● ● ●	● ●	● ●
f. one variable is manipulated over time, using many repeated trials					● ● ●	● ●				●	●	●

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g. data are collected, recorded, analyzed, and reported using metric measurements and tools					• • •	•			•	• •	• •	• • •
h. data are analyzed and communicated through graphical representation						• • •	• •	• •		• • •	• • •	• •
i. models and simulations are designed and used to illustrate and explain phenomena and systems					• •	• • •		• • •	• • •	• • •	• • •	• • •
j. current applications are used to reinforce science concepts					• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •
<b>Force, Motion, and Energy</b>												
<b>6.2 The student will investigate and understand basic sources of energy, their origins, transformations, and uses. Key concepts include</b>												
a. potential and kinetic energy					•							
b. the role of the sun in the formation of most energy sources on Earth					• •	• •				• •		

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c. nonrenewable energy sources					••	••				•		
d. renewable energy sources					••					•		
e. energy transformations					•••					•		•
<b>6.3 The student will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth’s surface. Key concepts include</b>												
a. the Earth’s energy budget					•	•						
b. the role of radiation and convection in the distribution of energy					•	•						
c. the motion of the atmosphere and the oceans						•						

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d. cloud formation						• • •						
e. the role of thermal energy in weather-related phenomena including thunderstorms and hurricanes						• •						
<b>Matter</b>												
<b>6.4 The student will investigate and understand that all matter is made up of atoms. Key concepts include</b>												
a. atoms consist of particles, including electrons, protons, and neutrons												
b. atoms of a particular element are alike but are different from atoms of other elements										• • •	• • •	
c. elements may be represented by chemical symbols										• • •	• • •	
d. two or more atoms interact to form new substances, which are held together by electrical forces (bonds)										• •	• • •	

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e. compounds may be represented by chemical formulas												• • •
f. chemical equations can be used to model chemical changes												• •
g. a limited number of elements comprise the largest portion of the solid Earth, living matter, the oceans, and the atmosphere												• •
<b>6.5 The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Key concepts include</b>												
a. water as the universal solvent												• •
b. the properties of water in all three phases						• • •						• • •
c. the action of water in physical and chemical weathering						•						

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d. the ability of large bodies of water to store thermal energy and moderate climate						•						
e. the origin and occurrence of water on Earth						• • •	•		•			
f. the importance of water for agriculture, power generation, and public health						•	•		•	• •		
g. the importance of protecting and maintaining water resources						•				• •		
<b>6.6 The student will investigate and understand the properties of air and the structure and dynamics of the Earth’s atmosphere. Key concepts include</b>												
a. air as a mixture of gaseous elements and compounds						• •					• •	•
b. air pressure, temperature, and humidity						• • •			•			

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c. atmospheric changes with altitude						•						
d. natural and human-caused changes to the atmosphere and the importance of protecting and maintaining air quality						••						
e. the relationship of atmospheric measures and weather conditions						•••						
f. basic information from weather maps including fronts, systems, and basic measurements						•••						
g.** basic information...NOTE....this should say: Importance of protection and maintaining water resources						••				•••		
<b>Living Systems</b>												
<b>6.7 The student will investigate and understand the natural processes and human interactions that affect watershed systems. Key concepts include</b>												
a. the health of ecosystems and the abiotic factors of a watershed						••	•				•••	

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b. the location and structure of Virginia’s regional watershed systems												
c. divides, tributaries, river systems, and river and stream processes						•						
d. wetlands										••		
e. estuaries										••		
f. major conservation, health, and safety issues associated with watersheds												
g. water monitoring and analysis using field equipment including hand-held technology												
<b>Interrelationships in Earth/Space Systems</b>												
<b>6.8 The student will investigate and understand the organization of the solar system and the interactions among the various bodies that comprise it. Key concepts include</b>												

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a. the sun, moon, Earth, other planets and their moons, dwarf planets, meteors, asteroids, and comets									● ● ●						
b. relative size of and distance between planets												● ● ●			
c. the role of gravity												● ● ●			
d. revolution and rotation												● ● ●			
e. the mechanics of day and night and the phases of the moon												● ● ●			
f. the unique properties of Earth as a planet												● ● ●			
g. the relationship of the Earth’s tilt and the seasons															
h. the cause of tides															

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i. the history and technology of space exploration									••			
<b>Earth Resources</b>												
<b>6.9 The student will investigate and understand public policy decisions relating to the environment. Key concepts include</b>												
a. management of renewable resources					•	•						
b. management of nonrenewable resources)					•							
c. the mitigation of land-use and environmental hazards through preventive measures												
d. cost/benefit tradeoffs in conservation policies												

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