

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

with the Arkansas
Science Standards for Grade 6

Created November 2011



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The program was created by a team at the Lawrence Hall of Science at the University of California, Berkeley.

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Strand 1: Nature of Science												
Standard 1: Characteristics and Processes of Science – Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.												
Processes of Science												
NS.1.6.1 Verify accuracy of observations					● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.6.2 Apply components of <i>experimental design</i> used to produce <i>empirical evidence</i> : <ul style="list-style-type: none"> • <i>hypothesis</i> • replication • sample size • appropriate use of <i>control</i> • use of standardized <i>variables</i> • 					●	● ●			● ●	● ●	● ●	
NS.1.6.3 <ul style="list-style-type: none"> • Compare scientific data using mean, median, mode, and range using <i>SI units</i> 												
NS.1.6.4 Construct and interpret scientific data using <ul style="list-style-type: none"> • data tables/charts 					● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●

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<ul style="list-style-type: none"> bar and double bar graphs line graphs <i>stem and leaf plots</i> line graphs 												
NS.1.6.5 Communicate results and conclusions from scientific inquiry					●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
NS.1.6.6 Develop and implement strategies for long-term, accurate data collection						●●●				●●●		
Characteristics of Science												
NS.1.6.7 Distinguish between scientific fact and opinion					●●●	●●●	●●	●●	●●●	●●●	●●●	●●●
NS.1.6.8 Explain the role of prediction in the development of a theory					●●●	●●●	●	●●	●	●●●	●●●	●●●
NS.1.6.9 Define and give examples of <i>laws</i> and <i>theories</i>												
Strand 2: Life Science												
Standard 2: Living Systems: Characteristics, Structure, and Function												
Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.												
Structure and Function												
LS.2.6.1 Observe, describe, and illustrate plant and animal <i>tissues</i> : <ul style="list-style-type: none"> muscle 												

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<ul style="list-style-type: none"> • blood • skin • <i>xylem</i> • <i>phloem</i> 															
LS.2.6.2 Illustrate the hierarchical relationships of <i>cells</i> , <i>tissues</i> , and <i>organs</i>															
LS.2.6.3 Investigate the functions of <i>tissues</i>															
LS.2.6.4 Model and explain the functions of animal <i>organs</i> : <ul style="list-style-type: none"> • heart • lung • kidneys • eyes • ears • skin • teeth 															
LS.2.6.5 Model and explain the function of plant <i>organs</i> : <ul style="list-style-type: none"> • leaves • roots 						● ●									

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<ul style="list-style-type: none"> • stems • flowers 												
LS.2.6.6 Dissect <i>organs</i> , including but not limited to <ul style="list-style-type: none"> • heart • eye • lung • stem • root 												
LS.2.6.7 Describe the relationship between organ function and the following needs of cells: <ul style="list-style-type: none"> • oxygen • food • water • waste removal 												
LS.2.6.8 Investigate careers, scientists, and historical breakthroughs related to <i>tissues</i> and <i>organs</i>									•			
Standard 3: Life Cycles, Reproduction, and Heredity												

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Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.												
Heredity and Reproduction												
LS.3.6.1 Describe characteristics of plants and animals manipulated through <i>selective breeding</i>												
LS.3.6.2 Predict the outcome of <i>selective breeding</i> practices over several generations												
LS.3.6.3 Relate the development of Earth’s present-day complex <i>species</i> from earlier, distinctly different simpler <i>species</i>												
LS.3.6.4 Investigate careers, scientists, and historical breakthroughs related to <i>adaptations</i> and <i>selective breeding</i>												
Regulation and Behavior												
LS.3.6.5 Describe behavioral <i>adaptations</i> of <i>organisms</i> to the <i>environment</i> : <ul style="list-style-type: none"> • <i>hibernation</i> • <i>estivation</i> • <i>tropism</i> 						●	●			●		

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<ul style="list-style-type: none"> territorial behavior migration 												
<p>LS.3.6.6</p> <p>Differentiate between <i>innate behaviors</i>:</p> <ul style="list-style-type: none"> migration web spinning defensive posture communication imprinting <p>and <i>learned behaviors</i>:</p> <ul style="list-style-type: none"> speaking a language using tools hunting skills 							●					
<p>LS.3.6.7</p> <p>Describe the following <i>structural adaptations</i> for survival in the <i>environment</i>:</p> <ul style="list-style-type: none"> coloration mimicry odor glands beaks feet wings fur 							● ●					

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<ul style="list-style-type: none"> • ears • spines • teeth • thorns • characteristics of seeds 												
LS.3.6.8 Investigate careers, scientists, and historical breakthroughs related to learned and <i>innate behaviors</i>												
Standard 4: Populations and Ecosystems Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.												
Populations and Ecosystems												
LS.4.6.1 Identify <i>environmental</i> conditions that can affect the survival of individual <i>organisms</i> and entire <i>species</i>										• •		
LS.4.6.2 Conduct simulations demonstrating competition for resources within an <i>ecosystem</i>										• • •		
LS.4.6.3 Conduct simulations demonstrating <i>natural selection</i>										•		
LS.4.6.4 Analyze <i>natural selection</i>							•			•		
Strand 3 : Physical Science												

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Standard 5: Matter: Properties and Changes Students shall demonstrate and apply knowledge of <i>matter</i>, including properties and changes, using appropriate safety procedures, equipment, and technology.												
Properties of Matter												
PS.5.6.1 Identify common examples of <i>chemical properties</i> : <ul style="list-style-type: none"> • ability to burn • ability to produce light • ability to react with other substances 											• • •	
PS.5.6.2 Compare and contrast characteristics of physical and <i>chemical properties</i>												
PS.5.6.3 Conduct investigations using acid/base indicators												
PS.5.6.4 Apply skills of scientific investigation to determine <i>density</i> using <i>SI units</i>												
PS.5.6.5 Construct a <i>density</i> column using a minimum of four different liquids (e.g., alcohol, colored water, syrup, oil)												
PS.5.6.6 Use a <i>density</i> column to test the <i>density</i> of various solid objects (e.g., piece of candy, cork, candle, paper clip, egg)												

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PS.5.6.7 Identify characteristics of <i>chemical changes</i> : <ul style="list-style-type: none"> • burning • production of a new substance • production of light • color change • <i>endothermic</i> and <i>exothermic</i> reactions • <i>reactivity</i> 											• • •	
PS.5.6.8 Conduct investigations comparing and contrasting physical and <i>chemical changes</i>												
PS.5.6.9 Demonstrate the <i>law of the conservation of matter</i>										•	• • •	
PS.5.6.10 Investigate scientists, careers, and historical breakthroughs related to <i>chemical properties</i> and <i>chemical changes</i>												
Standard 6: Motion and Forces Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology.												
Motion and Forces												
PS.6.6.1 Compare and contrast <i>simple machines</i> and <i>compound machines</i>												
PS.6.6.2												

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Identify and analyze the simple machines that make up a compound machine												
PS.6.6.3 Conduct investigations of various forces using SI units (newton)												
PS.6.6.4 Recognize and give examples of different types of <i>forces</i> : <ul style="list-style-type: none"> • gravitational <i>forces</i> • magnetic <i>forces</i> • <i>friction</i> 								● ●				
PS.6.6.5 Understand why objects have <i>weight</i>												
PS.6.6.6 Compare and contrast <i>weight</i> and <i>mass</i>												
PS.6.6.7 Describe the effects of <i>force</i> : <ul style="list-style-type: none"> • move a stationary object • <i>speed</i> up, slow down or change the direction of motion • change the shape of objects 								●				
PS.6.6.8 Conduct investigations to demonstrate change in direction caused by <i>force</i>												

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PS.6.6.9 Conduct investigations to calculate the change in <i>speed</i> caused by applying <i>forces</i> to an object												
PS.6.6.10 Investigate careers, scientists, and historical breakthroughs related to <i>compound machines</i> and <i>forces</i>												
Standard 7: Energy and Transfer of Energy Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.												
Energy												
PS.7.6.1 Classify examples of <i>energy</i> forms: <ul style="list-style-type: none"> • chemical • <i>electromagnetic</i> • mechanical • thermal • <i>nuclear</i> 												
PS.7.6.2 Summarize the application of the law of conservation of energy in real world situations: <ul style="list-style-type: none"> • electrical <i>energy</i> into mechanical <i>energy</i> • electrical <i>energy</i> into <i>heat</i> • chemical <i>energy</i> into mechanical <i>energy</i> 					•							

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<ul style="list-style-type: none"> chemical <i>energy</i> into light 												
PS.7.6.3 Conduct investigations demonstrating how <i>energy</i> can be converted from one form to another					● ● ●							
PS.7.6.4 Investigate the transfer of <i>energy</i> in real world situations: <ul style="list-style-type: none"> <i>conduction</i> <i>convection</i> <i>radiation</i> 												
PS.7.6.5 Investigate careers, scientists, and historical breakthroughs related to <i>energy</i> forms and conversions												
Strand 4: Earth and Space Science												
Standard 8: Earth Systems: Structure and Properties												
Students shall demonstrate and apply knowledge of Earth’s structure and properties using appropriate safety procedures, equipment and technology.												
Structure and Properties												
ESS.8.6.1 Identify and diagram the layers of the Earth: <ul style="list-style-type: none"> crust mantle inner and outer core 												
ESS.8.6.2												

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Model the layers of the Earth												
ESS.8.6.3 Model how <i>convection</i> currents in the mantle affect lithosphere movement												
ESS.8.6.4 Conduct investigations to identify the <i>variables</i> within volcanoes that cause different types of eruptions												
ESS.8.6.5 Diagram and explain how volcanoes work												
ESS.8.6.6 Explain how volcanic activity relates to mountain formation												
ESS.8.6.7 Connect short-term changes in <i>climate</i> with volcanic activity												
ESS.8.6.8 Compare and contrast the different land forms caused by Earth's <i>internal forces</i> : <ul style="list-style-type: none"> • mountains • plateaus • trenches • islands 												
ESS.8.6.9 Research local, regional, and state landforms created by												

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internal <i>forces</i> in the earth: <ul style="list-style-type: none"> • Ozark Plateau • Crater of Diamonds • Ouachita Mountains • New Madrid Fault 												
ESS.8.6.10 Identify the effects of <i>earthquakes</i> on Earth’s surface: <ul style="list-style-type: none"> • tsunamis • floods • changes in natural and man-made structures 												
ESS.8.6.11 Investigate and map patterns of <i>earthquake</i> and volcanic activity												
ESS.8.6.12 Locate <i>earthquake</i> belts on Earth: <ul style="list-style-type: none"> • Mediterranean-Trans-Asiatic • Circum-Pacific (Ring of Fire) 												
ESS.8.6.13 Analyze how <i>earthquake</i> occurrences are recorded (<i>seismograph</i>) and measured (<i>Richter scale</i>)												
ESS.8.6.14 Model the effect of major geological events on land and ocean features:												

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<ul style="list-style-type: none"> mountain building ocean trenches island formation mid-ocean ridges 												
ESS.8.6.15 Investigate careers, scientists, and historical breakthroughs related to internal <i>forces</i> that change the Earth												
Standard 9: Earth’s History Students shall demonstrate and apply knowledge of Earth’s history using appropriate safety procedures, equipment, and technology.												
Earth’s History												
ESS.9.6.1 Research methods of determining geologic time: <ul style="list-style-type: none"> <i>fossil</i> records mountain building rock sequencing 							●					
ESS.9.6.2 Model rock layer sequencing based on characteristics of <i>fossils</i>												
ESS.9.6.3 Analyze evidence that supports the theory of plate tectonics: <ul style="list-style-type: none"> matching coastlines similar rock types fossil record 												

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Standard 10: Objects in the Universe Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology												
<i>Solar system: Sun, Earth, Moons, Planets, Galaxies</i>												
ESS.10.6.1 Explain how planets seem to wander against the background of the stars									● ●			
ESS.10.6.2 Compare the distance of the following: <ul style="list-style-type: none"> from the sun to Earth (<i>light minutes</i>) from the next nearest star to Earth (<i>light years</i>) 												
ESS.10.6.3 Describe how astronomers measure distance to stars												
ESS.10.6.4 Calculate the rate at which we would have to travel to other stars and planets in our <i>solar system</i> using current technology												
ESS.10.6.5 Explain the effect of the sun on <i>comets</i>									●			
ESS.10.6.6 Compare and contrast <i>comets</i> , <i>meteors</i> , and <i>asteroids</i> by									●			

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<ul style="list-style-type: none"> • size • <i>orbits</i> • <i>nucleus</i> • <i>mass</i> 												
ESS.10.6.7 Model moon phases demonstrating the position of Earth, moon, and sun									● ● ●			
ESS.10.6.8 Compare and contrast <i>solar eclipse</i> and <i>lunar eclipse</i>												
ESS.10.6.9 Investigate careers, scientists, and historical breakthroughs related to the sun and space travel									● ●			

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