

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

**with the Arkansas**  
**Science Standards for Grade 2**

Created November 2011



*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.

- ● ● = 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.

Arkansas Science Standards – 2nd 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>Strand 1: Nature of Science</b>												
<b>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.</b>												
<b>Inquiry and Process Skills</b>												
NS.1.2.1 Communicate observations orally, in writing, and in graphic organizers: <ul style="list-style-type: none"> <li>T-charts</li> <li>pictographs</li> <li>Venn diagrams</li> <li>bar graphs</li> </ul>	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●				
NS.1.2.2 Develop questions that guide scientific inquiry	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●				
NS.1.2.3 Conduct <i>scientific investigations</i> individually and in teams: <ul style="list-style-type: none"> <li>lab activities</li> <li>field studies</li> </ul>	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●				
NS.1.2.4 Estimate and measure length and <i>temperature</i> using International System of Units (SI)	●			●	●	●						

- ● ● = 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.

Arkansas Science Standards – 2nd 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
NS.1.2.5 Collect measurable <i>empirical evidence</i> in teams and as individuals	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ●	● ●				
NS.1.2.6 Make predictions in teams and as individuals based upon <i>empirical evidence</i>	● ● ●	● ●	● ● ●	● ● ●	● ● ●	● ● ●	●	● ●				
<b>Scientific Equipment and Technology</b>												
NS.1.2.7 Use age appropriate equipment and tools in <i>scientific investigations</i> (e.g., balances, hand lenses, rulers, and <i>thermometers</i> )	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●				
NS.1.2.8 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●				
<b>Strand 2: Life Science</b>												
<b>Standard 2: Living Systems: Characteristics, Structure, and Function</b>												
<b>Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.</b>												
<b>Characteristics</b>												
LS.2.2.1 Classify animals into major groups according to their structure: ● mammals ● birds		●					●					

- ● ● = 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.

Arkansas Science Standards – 2nd 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
<ul style="list-style-type: none"> <li>fish</li> </ul>												
LS.2.2.2 Differentiate among <i>herbivores</i> , <i>carnivores</i> , and omnivores												
LS.2.2.3 Identify basic needs of most plants: <ul style="list-style-type: none"> <li><i>nutrients</i></li> <li>water</li> <li>light</li> <li>air</li> <li><i>temperature</i></li> <li>space</li> </ul>	● ● ●					● ● ●						
LS.2.2.4 Compare different types of flowering plants and <i>conifers</i>												
<b>Structure and Function</b>												
LS.2.2.5 Identify the major parts and functions of the skeletal system							●					
LS.2.2.6 Describe the function of the following plant parts: <ul style="list-style-type: none"> <li>leaves</li> <li>stems</li> <li>flowers</li> </ul>	● ●					● ●						

- ● ● = 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.

Arkansas Science Standards – 2nd 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
• roots												
<b>Standard 3: Life Cycles, Reproduction, and Heredity</b> <b>Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.</b>												
<b>Life Cycles</b>												
LS.3.2.1 Illustrate embryonic development (e.g., chicken)												
LS.3.2.2 Compare and contrast embryonic development and <i>incomplete metamorphosis</i>												
<b>Standard 4: Populations and Ecosystems</b> <b>Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.</b>												
LS.4.2.1 Compare and contrast living and <i>extinct species</i>							••					
LS.4.2.2 Describe characteristics of various <i>habitats</i>	••					•						
<b>Strand 3 : Physical Science</b>												
<b>Standard 5: Matter: Properties and Changes</b> <b>Students shall demonstrate and apply knowledge of <i>matter</i>, including properties and changes, using appropriate safety procedures, equipment, and technology.</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.

Arkansas Science Standards – 2nd 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>Physical Properties</b>												
PS.5.2.1 Classify objects based on two or more properties	•	••	•	••								
PS.5.2.2 Investigate the effect of physical phenomena on various materials (e.g., heat absorption by different colored materials)	•	••	•••	••	•••			•				
<b>Standard 6: Motion and Forces</b> Students shall demonstrate and apply knowledge of motion and forces using appropriate safety procedures, equipment, and technology.												
<b>Motion and Forces</b>												
PS.6.2.1 Investigate the relationship between <i>force</i> and motion				••								
<b>Standard 7: Energy and Transfer of Energy</b> Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.												
<b>Light</b>												
PS.7.2.1 Classify materials as <i>transparent</i> , <i>translucent</i> , or <i>opaque</i> (e.g., plastic wrap, wax paper, and aluminum foil)					•••							
<b>Heat</b>												
PS.7.2.2 Compare <i>temperatures</i> using the Celsius scale					•	•••						
<b>Electricity</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.

Arkansas Science Standards – 2nd 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
PS.7.2.3 Demonstrate methods of using <i>electricity</i> to produce light, <i>heat</i> , and sound.					● ●							
<b>Strand 4: Earth and Space Science</b>												
<b>Standard 8: Earth Systems: Structure and Properties</b>												
Students shall demonstrate and apply knowledge of Earth’s structure and properties using appropriate safety procedures, equipment and technology.												
<b>Properties of the Earth</b>												
ESS.8.2.1 Conduct investigations to distinguish among the following components of soil: ● <i>clay</i> ● <i>sand</i> ● <i>silt</i> ● <i>humus</i>	● ● ●											
ESS.8.2.2 Recognize and discuss the different properties of soil: ● color ● texture ● ability to retain water ● ability to support plant growth	● ● ●											
ESS.8.2.3												

- ● ● = 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.

Arkansas Science Standards – 2nd 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
Conduct investigations to determine which soil best supports bean plant growth												
<b>Natural Resources</b>												
ESS.8.2.4 Identify products derived from <i>natural resources</i>		•										
<b>Weather</b>												
ESS.8.2.5 Chart weather conditions every day						•••						
ESS.8.2.6 Demonstrate safety procedures related to severe weather						•						
ESS.8.2.7 Describe characteristics of <i>cumulus</i> , <i>stratus</i> , and <i>cirrus</i> clouds						•••						
ESS.8.2.8 Predict weather based on cloud type												
ESS.8.2.9 Read a Celsius <i>thermometer</i>					••	•••						
<b>Standard 9: Earth’s History: Changes in Earth and Sky</b> Students shall demonstrate and apply knowledge of Earth’s history using appropriate safety procedures, equipment, and technology.												
None												
<b>Standard 10: Objects in the Universe</b> Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.												
<b>Solar System</b>												
ESS.10.2.1												

- = 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.

Arkansas Science Standards – 2nd 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
Illustrate four <i>moon phases</i> : <ul style="list-style-type: none"> <li>• full</li> <li>• half</li> <li>• crescent</li> <li>• new</li> </ul>												
ESS.10.2.2 Model the movement of Earth and its moon												
ESS.10.2.3 Contrast the visibility of the sun and moon												

- ● ● = 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.