

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

with the Arkansas
Science Standards for Grade 3

Created November 2011



Seeds of Science/Roots of Reading[®] 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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
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.												
Inquiry and Process Skills												
NS.1.3.1 Communicate observations orally, in writing, and in graphic organizers: <ul style="list-style-type: none"> • T-charts • pictographs • Venn diagrams • bar graphs • frequency tables 	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.3.2 Develop questions that guide scientific inquiry	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.3.3 Conduct <i>scientific investigations</i> individually and in teams: <ul style="list-style-type: none"> • <i>lab activities</i> • <i>field studies</i> 	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.3.4 Communicate the results of <i>scientific investigations</i> (e.g., age-appropriate graphs, charts, and writings)	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●

- ● ● = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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.1.3.5 Estimate and measure length, <i>mass</i> , <i>temperature</i> , and elapsed time using International System of Units (SI)	●			●	●	●				●	●	
NS.1.3.6 Collect and analyze measurable <i>empirical evidence</i> as a team and/or as individuals	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ●	● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.3.7 Make and explain predictions based on prior knowledge	● ● ●	● ●	● ● ●	● ● ●	● ● ●	● ● ●	●	● ●	●	● ● ●	● ● ●	● ● ●
Scientific Equipment and Technology												
NS.1.3.8 Use simple equipment, age appropriate tools, technology, and mathematics in <i>scientific investigations</i> (e.g., balances, hand lenses, microscopes, rulers, <i>thermometers</i> , calculators, computers)	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
NS.1.3.9 Apply lab safety rules as they relate to specific science <i>lab activities</i> (see Arkansas Lab Safety Guide)	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●
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.												
Characteristics												

- ● ● = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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
LS.2.3.1 Classify animals as vertebrates and <i>invertebrates</i> according to their structure												
Structure and Function												
LS.2.3.2 Identify major parts and functions of the following systems: <ul style="list-style-type: none"> • respiratory • muscular 							•					
Standard 3: Life Cycles, Reproduction, and Heredity Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.												
Life Cycles												
LS.3.3.3 Differentiate among <i>complete metamorphosis</i> , <i>incomplete metamorphosis</i> , and <i>embryonic development</i>												
Standard 4: Populations and Ecosystems Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.												
None												
Strand 3: Physical Science 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.												

- ● ● = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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
Physical Properties												
PS.5.3.1 Compare and contrast objects based on two or more properties	●	●●	●	●●	●●				●●●	●●	●●	
PS.5.3.2 Demonstrate physical changes in <i>matter</i>			●●			●●●					●●●	
PS.5.3.3 Determine the <i>mass</i> of solids												
States of Matter												
PS.5.3.4 Compare and contrast solids and liquids			●●			●					●●●	
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.6.3.1 Identify characteristics of wave motion: ● <i>amplitude</i> ● <i>frequency</i>												
PS.6.3.2 Investigate the relationship between sound and wave motion												
PS.6.3.3 Determine the impact of the following <i>variables</i> on pitch: ● length												

- = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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"> • mass • tension • state of <i>matter</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.												
Light												
PS.7.3.1 Classify materials as those which can <i>reflect</i> , <i>refract</i> , or absorb light					•••							
Heat												
PS.7.3.2 Calculate a change in <i>temperature</i> using the Celsius scale					•	•••						
Electricity												
PS.7.3.3 Identify methods of producing <i>electricity</i> relative to Arkansas: <ul style="list-style-type: none"> • <i>hydroelectric</i> • coal • oil • natural gas • nuclear • solar 												

- = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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"> wind 												
Magnetism												
PS.7.3.4 Differentiate between magnets and non-magnets				● ● ●								
PS.7.3.5 Describe the effect of distance on attraction and repulsion				● ● ●								
PS.7.3.6 Construct a magnet by the “Touch/Stroke” method												
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.												
Properties of the Earth												
ESS.8.3.1 Distinguish among Earth’s materials: <ul style="list-style-type: none"> rocks minerals <i>fossils</i> soils 	● ●											
ESS.8.3.2 Classify rocks by their properties, including but not limited to <ul style="list-style-type: none"> size shape 												

- ● ● = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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"> • color • texture • patterns 												
ESS.8.3.3 Identify the three categories of rocks: <ul style="list-style-type: none"> • <i>metamorphic</i> • <i>igneous</i> • <i>sedimentary</i> 												
ESS.8.3.4 Identify the <i>physical properties</i> of minerals: <ul style="list-style-type: none"> • hardness • color • luster • streak 												
ESS.8.3.5 Identify areas in Arkansas that are the main sources of the following minerals: <ul style="list-style-type: none"> • bauxite • novaculite • quartz crystal • diamond • bromine 												
ESS.8.3.6												

- ● ● = 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 – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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
Describe the layers of Earth: <ul style="list-style-type: none"> • crust • mantle • inner core • outer core 												
Natural Resources												
ESS.8.1.2 Identify common uses of rocks and minerals												
Weather												
ESS.8.3.8 Chart <i>precipitation</i> levels over time						• • •						
ESS.8.3.9 Demonstrate safety procedures related to severe weather						•						
ESS.8.3.10 Construct and read a rain gauge						• •						
Standard 9: Earth’s History: Changes in Earth and Sky Students shall demonstrate and apply knowledge of Earth’s history using appropriate safety procedures, equipment, and technology.												
Weather												
ESS.9.3.1 Analyze the effect of wind and water on Earth’s surface		• •				•						
Standard 10: Objects in the Universe Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.												
Solar 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.

Arkansas Science Standards – 3 rd Grade	2 nd - 3 rd Grade				3 rd - 4 th Grade				4 th - 5 th 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
ESS.10.3.1 Demonstrate how the planets <i>orbit</i> the sun									● ● ●			
ESS.10.3.2 Demonstrate the <i>orbit</i> of Earth and its moon around the sun									● ● ●			
ESS.10.3.3 Relate Earth’s rotation to the day/night cycle									● ● ●			

- ● ● = 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.