

**Correlation of
Seeds of Science/Roots of Reading
Integrated Science and Literacy Units:**

Shoreline Science
Soil Habitats
Designing Mixtures
Gravity and Magnetism
Weather & Water
Light Energy
Variation & Adaptation
Digestion & Body Systems
Aquatic Ecosystems
Plants & Moons
Models of Matter
Chemical Changes

**with the State of New Jersey
Science Standards for Grades 3-4**



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Created November 2009.

**Correlation of *Seeds of Science/Roots of Reading* units to
New Jersey State Science Standards for Grades 3-4**

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	Grades 2-3				Grades 3-4				Grades 4-5			
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5.1 Scientific Processes												
A. Habits of Mind												
1. Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation	•••	••	••	••	••	•••	••	••	••	•••	••	•••
2. Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later	•••	••	•••	••	•••	•••	••	•	•	•••	•••	•••
3. Recognize that when a science investigation is replicated, very similar results are expected.	••	••	•••	••	••	•••	•	•	•	••	••	•••
4. Know that when solving a problem it is important to plan and get ideas and help from other people.	•••	••	••	•	•••	••	••	•••	•••	••	••	•••
B. Inquiry and Problem Solving												
1. Develop strategies and skills for information-gathering and problem-solving, using appropriate tools and technologies.	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••
2. Identify the evidence used in an explanation.	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••
C. Safety												
1. Recognize that conducting science activities requires and awareness of potential hazards and the need for safe practices.	••	••	••	••	••	••	••	••	••	••	••	•••
2. Understand and practices safety procedures for conducting science investigations.	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••

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5.2 Science and Society												
A. Cultural Contributions												
1. Describe how people in different cultures have made and continue to make contributions to science and technology.	••	••	••	•	••	••	•	••	••	••	••	•
B. Historical Perspectives												
1. Hear, read, write, and talk about scientists and inventors in historical context.	•	•	•	•	••	•••	•	•••	•••	•	•••	•
5.3. Mathematical Applications												
A. Numerical Operations												
1. Determine the reasonableness of estimates, measurements and computations of quantities when doing science.	•	•	••	••	••	••			•	••	••	•
2. Recognize and comprehend the orders of magnitude associated with large and small physical quantities.	•	•		•	•				••		•	
3. Express quantities using appropriate number formats such as: integers, fractions.	••		••		••	••				••		••
B. Geometry and Measurement												
1. Select appropriate measuring instruments based on the degree of precision required.			••		•	•				•		
2. Use a variety of measuring instruments and record measured quantities using the appropriate units.	••		••	••	•••	•••				•••		••
C. Patterns and Algebra												
1. Identify patterns when observing the natural and constructed world.	••			•••	•••	•••	••		•••	••	••	
D. Data Analysis and Probability												
1. Use tables and graphs to represent and interpret data.	•••		••		•••	••				•••		•••

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5.4 Nature and Process of Technology												
A. Science and Technology												
1. Distinguish between things that occur in nature and those that have been designed to solve human problems.	••	••	•		•	•		•	••	••		•
B. Nature of Technology												
1. Demonstrate how measuring instruments are used to gather information in order to design things that work properly.			••		••	••		•	••			
C. Technological Design												
1. Describe a product or device in terms of the problem it solves or the need it meets.		•••	•••	••		••		•••	•••		•	•
2. Choose materials most suitable to make simple mechanical constructions.		••						••	••			
3. Use the design process to identify a problem, look for ideas, and develop and share solutions with others.		••	•••					•	•••			
5.5 Life Science												
A. Matter, Energy, and Organization in Living Systems												
1. Identify the roles that organisms may serve in a food chain.	•••	•••								•••		
2. Differentiate between the needs of plants and those of animals.	••	••					•••			•		
3. Recognize that plants and animals are composed of different parts performing different functions and working together for the well being of the organism.	••	•					•		••		••	
4. Describe the basic functions of the major systems of the human body including, but not limited to: digestive system, circulatory system, respiratory system, nervous system, skeletal system, muscular system, reproductive system.								•••				

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5.5 Life Science												
B. Diversity and Biological Evolution												
1. Develop a simple classification scheme for grouping organisms.							•••					
2. Recognize that individuals vary within every species, including humans.							•••					
C. Reproduction and Heredity												
1. Identify different states in the lives of various organisms.	••	•					•			•••		
5.6. Physical Science—Chemistry												
A. Structure and Properties of Matter												
1. Sort materials based on physical characteristics that can be seen by using magnification.	••	•••	•••				••					
2. Observe that water can be a liquid or a solid and can change from one form to the other and the mass remains the same.					••						••	
3. Recognize that water, as an example of matter, can exist as a solid, liquid, or gas and can be transformed from one state to another by heating or cooling.					•••						•••	
4. Show that not all materials respond in the same way when exposed to similar conditions.		••	••	•••		••					••	•••
B. Chemical Reactions												
1. Combine two or more materials and show that the new material may have properties that are different from the original material.			•									•••

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5.7 Physical Science—Physics												
A. Motion and Forces												
1. Recognize that changes in the speed or direction of a moving object are caused by force and that the greater the force, the greater the change in motion will be.				•••								
2. Recognize that some forces can act at a distance.				•••								
B. Energy Transformations												
1. Identify sources of heat and demonstrate that heat can be transferred from one object to another.						•						
2. Identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others.						•••						
3. Use devices that show electricity producing heat, light, sound, and magnetic effects.						••						
4. Show that differences in sound (loud or soft, high or low) can be produced by varying the way objects vibrate.												
5.8 Earth Science												
A. Earth's Properties and Materials												
1. Observe that most rocks and soil are made of several substances or minerals.	••											
2. Observe that the properties of soil vary from place to place and will affect the soil's ability to support life.	•••											
3. Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.							•••					

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5.8 Earth Science (continued)												
B. Atmosphere and Weather												
1. Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.					•••							
2. Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water: oceans, rivers, lakes, underground sources, glaciers.		••			•••							
3. Observe weather changes and patterns by measurable quantities such as temperature, wind direction, wind speed, and amounts of precipitation.					•••							
4. Observe that when liquid water disappears, it turns into a gas (vapor) in the air and can reappear as a liquid when cooled, or as a solid if cooled below its freezing point.					•••							•••
5. Observe that rain, snow, and other forms of precipitation come from clouds, but that not all clouds produce precipitation.					•••							
6. Recognize that clouds and fog are made of tiny droplets of water and possibly tiny particles of ice.					•••							
C. Processes that Shape the Earth												
1. Recognize that some changes of the Earth's surface are due to slow processes such as erosion and weathering, and some changes are due to rapid changes such as landslides, volcanic eruptions, and earthquakes.		••										
2. Recognize that moving water, wind, and ice continually shape the Earth's surface by eroding rock and soil in some areas and depositing them in other areas.		•••										
D. How We Study the Earth												
1. Use maps to locate and identify physical features on the Earth.		••			••							

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5.9 Astronomy and Space Science												
A. Earth, Moon, Sun System												
1. Observe patterns that result from the Earth's position relative to the sun and rotation of the Earth on its axis.									•••			
2. Recognize and describe the phases of the moon.									•••			
B. Solar System												
1. Describe the Earth as one of several planets that orbit the sun and the moon as a satellite of the Earth.				•					•••			
C. Stars												
1. Observe that stars are not all the same in brightness, size, and color.									•			
D. Galaxies and Universe												
1. Recognize that images of celestial objects can be magnified and seen in greater detail when observed using binoculars and light telescopes.									••			
2. Observe and record short-term and long-term changes in the night sky.									••			
5.10 Environmental Studies												
A. Natural Systems and Interactions												
1. Differentiate between natural resources that are renewable and those that are not.		••				••						
B. Human Interactions and Impact												
1. Explain how meeting human requirements affects the environment.	••	••								••		

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