Correlation of
Seeds of Science/Roots of Reading
2nd and 3rd Grade Integrated Science and Literacy Units:

Shoreline Science
Soil Habitats
Designing Mixtures
Gravity and Magnetism

with the State of North Carolina
Science Standards for Grades 2-3

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	Shoreline Science	Soil Habitats	Designing Mixtures	Gravity & Magnetism
SECOND GRADE				
Strands				
Nature of Science The Nature of Science Strand is designed to help students develop an understanding of the human dimensions of science, the nature of scientific thought, and the enterprise of science in society. Teachers should emphasize experiences of investigating and thinking about explanations. Students using a cooperative learning approach can conduct simple investigations and present their findings to their classmates. They discover that humans have learned much about processes in nature but much more remains to be understood. They learn that our knowledge of science is constantly growing and will never be complete.	• • •	• • •	• • •	• • •
Science as Inquiry Teaching science as inquiry provides teachers the opportunity to develop students' abilities and to enrich student understanding of how things change. As students focus on the study of life cycles, changes in weather, changes in properties, and changing sounds, they develop the ability to ask scientific questions, investigate aspects of the world around them, and use their findings to construct reasonable explanations for the questions posed. Inquiry involves asking a simple question, conducting an investigation, recording and analyzing results, answering the question, and communicating the results to others. By engaging in such activities, students begin to develop the physical and intellectual abilities of scientific inquiry.	• • •	• • •	• • •	• • •
Science and Technology Students develop the ability to explain a problem in their own words, identify a specific task, and conduct an appropriate investigation. Students develop abilities to work individually and collaboratively to use suitable tools and measurements as appropriate. Tools help students make better observations and measurements in their investigations. They help students see, measure, and do things that they could not otherwise observe, measure, and do. Student abilities gained include oral, written, and pictorial communication of designs, processes, and products. The science/technology connection is one way of answering questions and explaining changes in the natural world.	• •	• •	• • •	• •
Personal and Social Perspectives Second grade students have a variety of experiences that provide initial understandings of personal safety and which enable them to take responsibility for their own safety. They identify and follow simple safety rules while in school and at home. Students' understandings should include the idea that some environmental changes occur slowly and others occur rapidly. Students should discover the different consequences of environments changing in small increments over long periods as compared with environments changing in large increments over short periods.	• • •	• • •	• •	• •

	Shoreline Science	Soil Habitats	Designing Mixtures	Gravity & Magnetism
SECOND GRADE				
Strands *continued*				
Science - Grade 2 The focus for second grade students is on analyzing collected data over a period of time to make predictions and understand changes. Changes vary in rate, scale, and pattern, including trends and cycles. Changes in systems can be measured. Guide student learning to continue to emphasize the unifying concepts previously introduced, including evidence, explanation, measurement, order, and organization as well as the introduction at grade two of change. The strands provide a context for teaching the content goals.	• •	• • •	• •	• •
Competency Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.				
1.01 Describe the life cycle of animals including birth, developing into an adult, reproducing, aging and death.		• •		
1.02 Observe that insects need food, air and space to grow.		• • •		
1.03 Observe the different stages of an insect life cycle.		• •		
1.04 Compare and contrast life cycles of other animals such as mealworms, ladybugs, crickets, guppies or frogs.		• •		
Competency Goal 2: The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.				
2.01 Investigate and describe how moving air interacts with objects.				
2.02 Observe the force of air pressure pushing on objects.				
2.03 Describe weather using quantitative measures of temperature, wind direction, wind speed, precipitation.				
2.04 Identify and use common tools to measure weather: wind vane, anemometer, thermometer, rain gauge.				
2.05 Discuss and determine how energy from the sun warms the land, air and water.				
2.06 Observe and record weather changes over time and relate to time of day and time of year.				

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Competency Goal 3: The learner will observe and conduct investigations to build an understanding of changes in properties.				
3.01 Identify three states of matter: solid, liquid, and gas.			• •	
3.02 Observe changes in state due to heating and cooling of common materials.				
3.03 Explain how heat is produced and can move from one material or object to another.				
3.04 Show that solids, liquids and gases can be characterized by their properties.			• • •	
3.05 Investigate and observe how mixtures can be made by combining solids, liquids or gases and how they can be separated again.			• •	
3.06 Observe that a new material is made by combining two or more materials with properties different from the original material.			• • •	
Competency Goal 4: The learner will conduct investigations and use appropriate technology to build an understanding of the concepts of sound.				
4.01 Demonstrate how sound is produced by vibrating objects and vibrating columns of air.				
4.02 Show how the frequency can be changed by altering the rate of the vibration				
4.03 Show how the frequency can be changed by altering the size and shape of a variety of instruments.				
4.04 Show how the human ear detects sound by having a membrane that vibrates when sound reaches it.				
4.05 Observe and describe how sounds are made by using a variety of instruments and other "sound makers" including the human vocal cords.				

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THIRD GRADE				
Strands				
Nature of Science The Nature of Science Strand helps students understand the human dimensions of science, the nature of scientific thought, and science's role in society. Students develop an understanding of patterns in systems, which in later grades allows them to understand basic laws and theories that explain how things work in the world. Teachers build on students' natural inclination to ask questions and investigate their world. Cooperative groups of students conduct investigations that begin with a question and progress toward finding and communicating an answer. Stories, films, videos, and multimedia resources introduce women and men from diverse groups who have contributed to science. These examples highlight how scientists work, showing how they pose and answer questions, the procedures they use, and their contributions to science, technology, and society.	• • •	• • •	• • •	• • •
Science as Inquiry Students experience science in a way that engages them in active building of ideas and explanations, and gives them more opportunities to develop the ability to do science. Teaching science as inquiry requires a learning environment that engages students in hands-on activities and investigations. For example, if students ask each other how plants can survive in a particular environment, they might want to identify and compare the various environments where plants naturally occur. To develop the ability to do scientific inquiry, students plan and conduct a simple investigation, use simple equipment and tools to gather data, use data to construct reasonable explanations, and communicate evidence and explanations to others.	• • •	• • •	• • •	• • •
Science and Technology Students become interested in technology as they design projects, use tools well, measure things carefully, make reasonable estimations, calculate accurately, and communicate clearly. They should begin to enjoy opportunities to clarify a problem, generate criteria for an acceptable solution, suggest possible solutions, try one out, and then make adjustments or start over with a new proposed solution. It is important for students to find out that there is more than one way to design a product or solve a problem. They also learn that some designs and solutions are better than others. To accomplish this, several groups of students can be asked to design and solve the same problem and then discuss the advantages and disadvantages of each solution with other students. Students see that solving one problem may lead to other problems. They are introduced to the balance between constraints and social impact.	• •	• •	• • •	• •

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THIRD GRADE				
Strands				
Personal and Social Perspectives A variety of experiences give students an initial understanding of various science-related personal and societal challenges. The National Science Education Standards (page 138) state "Central ideas related to health, populations, resources, and environments provide the foundations for students' eventual understandings and actions as citizens." Students learn that resources are the things that we get from the living and nonliving environment to meet human needs and wants. For example, they also learn that natural resources are limited and should be respected and used wisely. When students investigate making soil through composting, they learn that resources can be extended through recycling and wise use.	• • •	• • •	•	•
Science - Grade 3 The focus for third grade students is on identifying systems and patterns in systems. Systems are the units of investigations. A system is an interrelated group of objects or components that form a functioning unit. Students learn to identify portions of a system to facilitate investigation. Systems have boundaries, components, resources, flow and feedback. Guide student learning to continue to emphasize the unifying concepts previously introduced including evidence, explanation, measurement, order, organization, and change as well as the introduction at grade three of systems. The strands provide a context for teaching the content goals.	• •	• •	• •	• •
Competency Goal 1: The learner will conduct investigations and build an understanding of plant growth and adaptations.				
1.01 Observe and measure how the quantities and qualities of nutrients, light, and water in the environment affect plant growth.		•		
1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment.		•		
1.03 Investigate and describe how plants pass through distinct stages in their life cycle including growth, survival, and reproduction.				
1.04 Explain why the number of seeds a plant produces depends on variables such as light, water, nutrients, and pollination.				
1.05 Observe and discuss how bees pollinate flowers.				
1.06 Observe, describe and record properties of germinating seeds.		•		
Competency Goal 2: The learner will conduct investigations to build understanding of soil properties.				
2.01 Observe and describe the properties of soil: color, texture, and capacity to hold water.		• • •		
2.02 Investigate & observe different soils absorb water at different rates.		• • •		
2.03 Determine the ability of soil to support the growth of many plants, including those important to our food supply.		•		
2.04 Identify the basic components of soil: sand, clay and humus.		• • •		
2.05 Determine how composting can be used to recycle discarded plant and animal material.		• • •		
2.06 Determine the relationship between heat and decaying plant matter in a compost pile.		•		

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THIRD GRADE				
Competency Goal 3: The learner will make observations and use appropriate technology to build an understanding of the earth/moon/sun system.				
3.01 Observe that light travels in a straight line until it strikes an object and is reflected and/or absorbed.				
3.02 Observe that objects in the sky have patterns of movement including Sun, moon, and stars.				
3.03 Using shadows, follow and record the apparent movement of the sun in the sky during the day.				
3.04 Use appropriate tools to make observations of the moon.				
3.05 Observe and record the change in the apparent shape of the moon from day to day over several months and describe the pattern of changes.				
3.06 Observe that patterns of stars in the sky stay the same, although they appear to move across the sky nightly.				
Competency Goal 4: The learner will conduct investigations and use appropriate technology to build an understanding of the form and function of the skeletal and muscle systems of the human body.				
4.01 Identify the skeleton as a system of the human body.				
4.02 Describe several functions of bones: support, protection, locomotion.				
4.03 Describe the functions of different types of joints: hinge, ball and socket, gliding.				
4.04 Describe how different kinds of joints allow movement and compare this to the movement of mechanical devices.				
4.05 Observe and describe how muscles cause the body to move.				