

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

with the State of Ohio
Science Standards
for Grade 6

Created June 2011



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OH Science Standards – 6 th 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
Earth and Space Science												
Rocks, Minerals and Soil: This topic focuses on the study of rocks, minerals and soil which make up the lithosphere. By classifying and identifying different types of rocks, minerals and soil, the past environment in which they formed can be decoded.												
1. Minerals have specific, quantifiable properties.												
a. Minerals are naturally occurring, inorganic solids that have a defined chemical composition.												
b. Minerals have properties that can be observed and measured.												
c. Minerals form in specific environments.												
2. Igneous, metamorphic and sedimentary rocks have unique characteristics that can be used for identification and/or classification.												
a. Most rocks are composed of one or more minerals, but there are a few types of sedimentary rocks that contain organic material, such as coal.												
b. The composition of the rock, types of mineral present, mineral arrangement, and/or mineral shape and size can be used to identify the rock and to interpret its history of formation, breakdown (weathering) and transport (erosion).												
3. Igneous, metamorphic and sedimentary rocks form in different ways.												

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a. Magma or lava cools and crystallizes to form igneous rocks.												
b. Heat and pressure applied to existing rock forms metamorphic rocks.												
c. Sedimentary rock forms as existing rock weathers chemically and/or physically and the weathered materials is compressed and then lithifies.												
d. Each rock type can provide information about the environment in which it was formed.												
4. Soil is unconsolidated material that contains nutrient matter and weathered rock.												
a. Soil formation occurs at different rates and is based on environmental conditions, type of existing bedrock and rates of weathering.												
b. Soil forms in layers known as horizons.												
c. Soil horizons can be distinguished from one another based on properties that can be measured.												
5. Rocks, minerals and soils have common and practical uses.												
a. Nearly all manufactured material requires some kind of geologic resource.												

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b. Most geologic resources are considered nonrenewable.					••							
c. Rocks, minerals and soil are examples of geologic resources that are nonrenewable.												
Physical Science												
Matter and Motion: This topic focuses on the study of foundational concepts of the particulate nature of matter, linear motion, and kinetic and potential energy.												
1. All matter is made up of small particles called atoms.											•••	•••
a. Each atom takes up space, has mass and is in constant motion.											•••	••
b. Mass is the amount of matter in an object.											•	•
c. Elements are a class of substances composed of a single kind of atom.											••	••

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d. Molecules are the combination of two or more atoms that are joined together chemically.											• • •	• • •		
e. Compounds are composed of two or more different elements.													•	•
f. Each element and compound has properties, which are independent of the amount of the sample.													• •	• •
2. Changes of state are explained by a model of matter composed of atoms and/or molecules that are in motion.													• • •	•
a. When substances undergo changes of state, neither atoms nor molecules themselves are changed in structure.									•				• • •	•
b. Thermal energy is a measure of the motion of the atoms and molecules in a substance.													• •	•
c. Mass is conserved when substances undergo changes of state.													• •	
3. There are two categories of energy: kinetic and														

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potential.												
a. Objects and substances in motion have kinetic energy.												
b. Objects and substances can have energy as a result of their position (potential energy).												
4. An object’s motion can be described by its speed and the direction in which it is moving.												
a. An object’s position and speed can be measured and graphed as a function of time.												
Life Science												
Cellular to Multicellular: This topic focuses on the study of the basics of Modern Cell Theory. All organisms are composed of cells, which are the fundamental unit of life. Cells carry on the many processes that sustain life. All cells come from pre-existing cells.												
1. Cells are the fundamental unit of life.												
a. All living things are composed of cells.							• •					
b. Different body tissues and organs are made of different kinds of cells.												
c. The ways cells function are similar in all living organisms.												
2. All cells come from pre-existing cells.												

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a. Cells repeatedly divide resulting in more cells and growth and repair in multicellular organisms.												
3. Cells carry on specific functions that sustain life.												
a. Many basic functions of organisms occur in cells.												
b. Cells take in nutrients and energy to perform work, like making various molecules required by that cell or an organism.												
c. Every cell is covered by a membrane that controls what can enter and leave the cell.												
d. Within the cell are specialized parts for the transport of materials, energy capture and release, protein building, waste disposal, information feedback and movement.												
4. Living systems at all levels of organization demonstrate the complementary nature of structure and function.							• • •	• • •		• •		
a. Level of organization within organisms includes cells, tissues, organs, organ systems and whole organisms.												
b. Whether the organism is single-celled or multicellular, all of its parts function as a whole to perform the tasks necessary for the survival of the							• •					

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organism.												
c. Organisms have diverse body plans, symmetry and internal structures that contribute to their being able to survive in their environments.						•	• • •	•		• •		

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