

# FOSS and DSM Correlation

Grades K-8

to the  
North Carolina  
Standards

September 2004



GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
<b>Grade K</b>		
<b>Competency Goal 1: The learner will make observations and build an understanding of similarities and differences in animals.</b>		
K	1.01 Observe and describe the similarities and differences in animals including: -Structure -Growth -Change -Movement.	<b>FOSS Animals Two by Two</b> Investigation 1, 3 and 4, pgs 10-16, 22-29; Investigation 2, Parts 1-4, pgs 9-24; Investigation 3, Parts 1-3, pgs 8-20; Investigation 4, Parts 1-3, pgs 8-19; Investigation 5, Parts 3 and 4, pgs 20-27 <b>FOSS Animals Two by Two Science Stories</b> , All Stories, pgs 3-24
K	1.02 Observe how animals interact with their surroundings.	<b>FOSS Animals Two by Two</b> Investigation 1, Part 3, pgs 22-25; Investigation 2, Part 1, pgs 9-13; Investigation 5, Part 4, pgs 25-27; <b>FOSS Animals Two by Two Science Stories</b> , "Goldfish and Guppies", pgs 4, 6, "Big and Little Worms", pg 12, "Isopods", pg 16
K	1.03 Observe the behaviors of several common animals	<b>FOSS Animals Two by Two</b> Investigation 1, Part 3, pgs 22-25 Investigation 2, Part 1, pgs 9-13 Investigation 5, Part 4, pgs 25-27 <b>FOSS Animals Two by Two Science Stories</b> , "Goldfish and Guppies", pg 6, "Land and Water Snails", pg 9, 10, "Big and Little Worms, pg 12
K	1.04 Demonstrate how to care for a variety of animals.	<b>FOSS Animals Two by Two</b> Investigation 1, Part 2, pgs 17-21 Investigation 4, Part 4, pgs 20-23 Investigation 5, Part 1, pgs 10-15
K	1.05 Observe the similarities of humans to other animals including: -Basic needs -Growth and change -Movement	<b>"Animals Two By Two"</b> book by Dr. Lowery and Reading Connections section of teacher guide, pg 14
<b>Competency Goal 2: The learner will make observations and build an understanding of weather concepts.</b>		
K	2.01 Observe and report daily weather changes throughout the year.	<b>FOSS Trees</b> Investigation 3, Part 3, pgs 15-18; Reading Connection folio, pgs 12-13; <b>FOSS Trees Science Stories</b> , "My Apple Trees", pgs 14-17; "Orange Trees", pgs 18-21; "Maple Trees", pgs 22-24. <b>DSM Weather Watching</b> Activity 1, pgs 13-20; <b>DSM Weather Watching Student Reader</b> , pgs 2-3, 8-9, 10.
K	2.02 Identify different weather features including: -Precipitation -Wind -Temperature -Cloud cover.	<b>FOSS Trees</b> Investigation 3, Part 3, pgs 15-18; Reading Connection folio, pgs 12-13; <b>FOSS Trees Science Stories</b> , "My Apple Trees", pgs 14-17; "Orange Trees", pgs 18-21; "Maple Trees", pgs 22-24. <b>DSM Weather Watching</b> Activity 2, pgs 21-28; Activity 3, pgs 29-36; Activity 4, pgs 37-44; Activity 5, pgs 45-50; Activity 6, pgs 51-60; Activity 7, pgs 61-68. <b>DSM Weather Watching Student Reader</b> , pgs 2-3, 4-5, 6-7.

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K	2.03 Identify types of precipitation, changes in wind, force, direction, and sky conditions.	<b>FOSS Trees</b> Investigation 3, Part 3, pgs 15-18; Reading Connection folio, pgs 12-13; <b>FOSS Trees Science Stories</b> , "My Apple Trees", pgs 14-17; "Orange Trees", pgs 18-21; "Maple Trees", pgs 22-24. <b>DSM Weather Watching</b> Activity 2, pgs 21-28; Activity 3, pgs 29-36; Activity 4, pgs 37-44; Activity 5, pgs 45-50; Activity 6, pgs 51-60; Activity 7, pgs 61-68. <b>DSM Weather Watching Student Reader</b> , pgs 2-3, 4-5, 6-7.
K	2.04 Observe and determine the effects of weather on human activities.	<b>DSM Weather Watching</b> Activity 1, pgs 13-20; Activity 8, pgs 69-76; Activity 9, pgs 77-86. <b>DSM Weather Watching Student Reader</b> pgs 2-3, 8-9, 10, 11, 12, 13.
K	2.05 Use common tools to measure weather.	<b>DSM Weather Watching</b> Activity 2, pgs 21-28; Activity 4, pgs 37-44; <b>DSM Weather Watching Student Reader</b> pgs 6-7.
<b>Competency Goal 3: The learner will make observations and build an understanding of the properties of common objects.</b>		
K	3.01 Observe and describe the properties of different kinds of objects (clay, wood, cloth, paper, other) and how they are used.	<b>DSM Properties</b> , Activity 1, pgs 13-18; Activity 2, pgs 19-24; Activity 5, pgs 41-46; <b>DSM Properties Student Reader</b> pgs 3, 4, 6, 7, 14.
K	3.02 Develop and use a vocabulary associated with the properties of materials -Color -Size -Shape -Texture	<b>DSM Properties</b> , Activity 3, pgs 26-32; Activity 4, pgs 33-40; Activity 5, pgs 41-46; <b>DSM Properties Student Reader</b> pgs 3, 4, 5, 7, 9, 12.
K	3.03 Describe how objects look, feel, smell, taste, and sound using their own senses.	<b>DSM Properties</b> , Activity 1, pgs 13-18; <b>DSM Properties Student Reader</b> pgs 3, 4, 6, 7, 14.
K	3.04 Observe that objects can be described and sorted by their properties	<b>DSM Properties</b> , Activity 1, pgs 13-18; Activity 2, pgs 19-24; Activity 12, pgs 87-94; <b>DSM Properties Student Reader</b> pgs 3, 4, 6, 7, 14.
K	3.05 Identify some common objects and organisms that are considered to be natural resources in our world.	<b>DSM Properties</b> , Activity 12, pgs 87-94;
<b>Competency Goal 4: The learner will use appropriate tools and measurement to increase their ability to describe their world.</b>		
K	4.01 Describe how tools can be used to make comparisons.	<b>FOSS Wood and Paper</b> Investigation 1, Parts 3-5, pgs 20-32 Investigation 3, Part 2, pgs 13-17
K	4.02 Observe and describe how tools and units of measure are useful: -Scissors -Pencils -Crayons -Paper clips -Hammers	<b>FOSS Wood and Paper</b> Investigation 1, Parts 4 and 5, pgs 24-32 Investigation 2, Part 1, pgs 8-11
K	4.03 Use nonstandard units of measure to describe and compare objects.	<b>FOSS Wood and Paper</b> Investigation 1, Parts 4 and 5, pgs 24-32

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K	4.04 Demonstrate the use of standard units of measure and compare with nonstandard units of measure. (Teacher demonstration)	<b>FOSS Wood and Paper</b> Investigation 1, Parts 4, pgs 25-27.
K	4.05 Demonstrate that standard units of measure produce more consistent results than nonstandard units allowing information to be shared. (teacher demonstration)	<b>FOSS Wood and Paper</b> Investigation 1, Parts 4, pgs 25-27.

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<b>GRADE 1</b>		
<b>Competency Goal 1: The learner will conduct investigations and make observations to build an understanding of the needs of living organisms.</b>		
1	1.01 Investigate the needs of a variety of different plants: -Air -Water -Light -Space	<b>FOSS New Plants</b> Investigation 1, Part 2, pgs 13-22 Investigation 2, Part 1, pgs 8-14 Investigation 3, Part 1, pgs 8-13 <b>FOSS New Plants Science Stories</b> , "What Do Plants Need?", pgs 3-7
1	1.02 Investigate the needs of a variety of different animals: -Air -Water -Food -Shelter -Space	<b>FOSS New Plants Science Stories</b> , "Plant & Animals Around the World", pgs 22-39; "Animal Teeth", pgs 40-43
1	1.03 Observe the ways in which humans are similar to other organisms	<b>FOSS New Plants Science Stories</b> , "Animal Teeth", pgs 40-43
1	1.04 Identify local environments that support the needs of common North Carolina plants and animals.	<b>FOSS New Plants Science Stories</b> , "What Do Plants Need?", pgs 3-7; "How Seeds Travel", pgs 8-11; "Flowers & Seeds", pgs 12-15.
1	1.05 Discuss the wide variety of living things on Earth.	<b>FOSS New Plants</b> All Investigations <b>FOSS New Plants Science Stories</b> , "How Seeds Travel", pgs 8-11, "Flowers and Seeds", pgs 12-15, "Plants and Animals Around the World", pgs 22-39
<b>Competency Goal 2: The learner will make observations and use student-made rules to build an understanding of solid earth materials.</b>		
1	2.01 Describe and sort a variety of earth materials based on their properties: Color, Hardness, Shape, Size	<b>FOSS Pebbles, Sand, and Silt</b> Investigation 1, Parts 1-4, pgs 8-25; Investigation 2, Parts 1-3, pgs 8-23; Investigation 4, Part 1, pgs 8-14
1	2.02 Describe rocks and other earth materials in more than one way using student-made rules.	<b>FOSS Pebbles, Sand, and Silt</b> Investigation 1, Parts 3 and 4, pgs 18-25
1	2.03 Observe the various components that combine to make soil	<b>FOSS Pebbles, Sand, and Silt</b> Investigation 4, Part 1, pgs 8-14 <b>FOSS Pebbles, Sand, and Silt Science Stories</b> , "What is in Soil?", pgs 20-21
1	2.04 Compare the components of soil samples from different places	<b>FOSS Pebbles, Sand, and Silt</b> Investigation 4, Part 2 and 3, pgs 15-25; <b>FOSS Pebbles, Sand, and Silt Science Stories</b> , "What is in Soil?", pg 23
1	2.05 Explore where useful earth materials are found and how they are used.	<b>FOSS Pebbles, Sand, and Silt</b> Investigation 3, Parts 1, 2, 5, pgs 8-15, 24-29 <b>FOSS Pebbles, Sand, and Silt Science Stories</b> , "Making Things with Rocks", pgs 16-19

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<b>Competency Goal 3: The learner will make observations and conduct investigations to build an understanding of the properties and relationships of objects.</b>		
1	3.01 Describe the differences in the properties of solids and liquids.	<b>FOSS Solids and Liquids</b> Investigation 1, Part 1, pgs 8-16; Investigation 2, Parts 1 and 2, pgs 10-20 <b>FOSS Solids and Liquids Science Stories</b> , "Solids to Liquids and Back Again", pgs 4-13
1	3.02 Investigate several ways in which objects can be described, sorted or classified.	<b>FOSS Solids and Liquids</b> Investigation 1, Part 2, pgs 17-20 Investigation 3, Parts 2 and 4, pgs 14-18, 24-27
1	3.03 Classify solids according to their properties: -Color -Texture -Shape (ability to roll or stack) -Ability to float or sink in water (buoyancy)	<b>FOSS Solids and Liquids</b> Investigation 1, Part 2, pgs 17-20 Investigation 3, Part 2 and 4, pgs 14-19, 24-27 <b>FOSS Solids and Liquids Science Stories</b> , "Everything Matters", pg 6, "Solids and Liquids", pgs 8-9
1	3.04 Determine the properties of liquids: -Color -Ability to float or sink in water (buoyancy) -Tendency to flow	<b>FOSS Solids and Liquids</b> Investigation 2, Parts 1-3, pgs 10-27 <b>FOSS Solids and Liquids Science Stories</b> , "Solids and Liquids", pgs 11-12
1	3.05 Observe mixtures including: -Solids with solids -Liquids with liquids -Solids with liquids	<b>FOSS Solids and Liquids</b> Investigation 3, Parts 2 and 4, pgs 14-18, 24-27 Investigation 4, Parts 1 and 2, pgs 7-22 <b>FOSS Solids and Liquids Science Stories</b> , "Mix It Up!", pgs 18-21
<b>Competency Goal 4: The learner will make observations and conduct investigations to build an understanding of balance, motion and weighing of objects.</b>		
1	4.01 Describe different ways in which objects can be moved.	<b>FOSS Balance and Motion</b> Investigation 2, Parts 1-3, pgs 8-25 Investigation 3, Parts 1-3, pgs 6-25 <b>FOSS Balance and Motion Science Stories</b> , "Push or Pull?", pgs 10-13, "Tools and Machines", pgs 14-17, "Move It, But Don't Touch It", pgs 18-21, "Things That Spin", pgs 22-25, "Rolling, Rolling, Rolling!", pgs 26-31
1	4.02 Observe that movement of an object can be affected by pushing or pulling.	<b>FOSS Balance and Motion</b> Investigation 2, Parts 1-3, pgs 8-25 Investigation 3, Parts 1-3, pgs 6-25 <b>FOSS Balance and Motion Science Stories</b> , "Push or Pull?", pgs 10-13, "Tools and Machines", pgs 14-17, "Move It, But Don't Touch It", pgs 18-21
1	4.03 Investigate and observe that objects can move steadily or change direction.	<b>FOSS Balance and Motion</b> Investigation 2, Parts 1-3, pgs 8-25 Investigation 3, Parts 1-3, pgs 6-25
1	4.04 Observe and describe balance as a function of position and weight.	<b>FOSS Balance and Motion</b> Investigation 1, Parts 1-4, pgs 8-28 <b>FOSS Balance and Motion Science Stories</b> , "Make It Balance", pgs 3-9
1	4.05 Describe and observe systems that are unstable and modify them to reach equilibrium.	<b>Balance and Motion</b> Investigation 1, Parts 1-4, pgs 8-28

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<b>GRADE 2</b>		
<b>Competency Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.</b>		
2	1.01 Describe the life cycle of animals: -Birth -Developing into an adult -Reproducing -Aging and death.	<b>FOSS Insects</b> Investigation 1, Parts 1-3, pgs 8-25 Investigation 2, Parts 1-3, pgs 8-24 Investigation 3, Parts 1-3, pgs 8-26 Investigation 4, Parts 1-5, pgs 10-31 Investigation 5, Parts 1-3, pgs 10-24 <b>FOSS Insects Science Stories</b> , "Insect Life Cycles", pgs 16-21, "Life Goes Around", pgs 22-33
2	1.02 Observe that insects need food, air and space to grow.	<b>FOSS Insects</b> Investigation 1, Part 1, pgs 8-15; Investigation 2, Part 1, pgs 8-13; Investigation 3, Part 2, pgs 12-20; Investigation 4, Part 2, pgs 14-18; Investigation 5, Part 1, pgs 10-15
2	1.03 Observe the different stages of an insect life cycle.	<b>FOSS Insects</b> Investigation 1, Parts 1-3, pgs 8-25; Investigation 2, Parts 1-3, pgs 8-24; Investigation 3, Parts 1-3, pgs 8-26 Investigation 4, Parts 1-5, pgs 10-31; Investigation 5, Parts 1-3, pgs 10-24. <b>FOSS Insects Science Stories</b> , "Insect Life Cycles", pgs 16-21, "Life Goes Around", pgs 22-25
2	1.04 Compare and contrast life cycles of other animals such as mealworms, ladybugs, crickets, guppies, or frogs.	<b>FOSS Insects Science Stories</b> , "Insect Life Cycles, pgs 16-21, "Life Goes Around", pgs 22-33
<b>Competency Goal 2: The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.</b>		
2	2.01 Investigate and describe how moving air interacts with objects.	<b>FOSS Air and Weather</b> Investigation 1, Parts 1, 4-6, pgs 8-12, 21-38 Investigation 3, Parts 1, 3, 4, pgs 8-11, 17-27 <b>FOSS Air and Weather Science Stories</b> , "What Is All Around Us?", pgs 1-6
2	2.02 Observe the force of air pressure pushing on objects	<b>FOSS Air and Weather</b> Investigation 1, Parts 4 and 5, pgs 21-33
2	2.03 Describe weather using quantitative measures of: -Temperature -Wind direction -Wind speed -Precipitation	<b>FOSS Air and Weather</b> Investigation 2, Parts 1, 2, 4, pgs 8-19, 24-27 Investigation 3, Parts 2 and 4, pgs 12-16, 22-27
2	2.04 Identify and use common tools to measure weather: -Wind vane and anemometer -Thermometer -Rain gauge	<b>FOSS Air and Weather</b> Investigation 2, Parts 1, 2, 4, pgs 8-19, 24-27 Investigation 3, Parts 2 and 4, pgs 12-16, 22-27
2	2.05 Discuss and determine how energy from the sun warms the land, air, and water	<b>FOSS Air and Weather</b> Investigation 2, Part 2, pgs 14-19 <b>FOSS Air and Weather Science Stories</b> , "Seasons", pgs 20-21
2	2.06 Observe and record weather changes over time and relate to time of day and time of year	<b>FOSS Air and Weather</b> Investigation 2, Part 1, pgs 8-13 Investigation 4, Parts 1 and 2, pgs 8-18

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<b>Competency Goal 3: The learner will observe and conduct investigations to build an understanding of changes in properties.</b>		
2	3.01 Identify three states of matter: -Solid -Liquid -Gas	<b>DSM States of Matter</b> Activity 1, pgs 13-18; Activity 2, pgs 19-26; Activity 3, pgs 27-34; <b>DSM States of Matter Student Reader</b> pgs 4, 5, 6, 8, 9, 10.
2	3.02 Observe changes in state due to heating and cooling of common materials.	<b>DSM States of Matter</b> , Activity 4, pgs 35-42; Activity 7, pgs 57-64; Activity 11, pgs 89-96 <b>DSM States of Matter Student Reader</b> , pgs 8, 9, 10
2	3.03 Explain how heat is produced and can move from one material or object to another.	<b>DSM States of Matter</b> , Activity 8, pgs 65-72 <b>DSM States of Matter Student Reader</b> , pgs 8-9
2	3.04 Show that solids, liquids, and gases can be characterized by their properties.	<b>DSM States of Matter</b> , Activity 1, pgs 13-18; Activity 2, pgs 19-26; Activity 3, pgs 27-34 <b>DSM States of Matter Student Reader</b> , pg 2
2	3.05 Investigate and observe how mixtures can be made by combining solids, liquids, or gases and how they can be separated again.	<b>DSM States of Matter</b> , Activity 8, pgs 65-72; Activity 9, pgs 73-80; Activity 10, pgs 81-88; <b>DSM States of Matter Student Reader</b> , pgs 7-11.
2	3.06 Observe that a new material is made by combining two or more materials with different properties from the original material.	<b>DSM States of Matter</b> , Activity 12, pgs 97-102; <b>DSM States of Matter Student Reader</b> , pg 12
<b>Competency Goal 4: The learner will conduct investigations and use appropriate technology to build an understanding of the concepts of sound.</b>		
2	4.01 Demonstrate how sound is produced by vibrating objects and vibrating columns of air.	<b>FOSS Physics of Sound</b> , Investigation 2; <b>FOSS Physics of Sound Science Stories</b> , "Highs & Lows, pgs 11-13; "Making Waves", pg 14; "Sound Off!", pgs 15-16; "Scoping Our Sound", pg 17. <b>DSM Sound</b> , Activity 1, pgs 13-20; Activity 2, pgs 21-28 <b>DSM Sound Student Reader</b> pgs 2-3, 6-7.
2	4.02 Show how the frequency can be changed by altering the rate of the vibration	<b>FOSS Physics of Sound</b> , Investigation 2; <b>FOSS Physics of Sound Science Stories</b> , "Highs & Lows, pgs 11-13; "Making Waves", pg 14; "Sound Off!", pgs 15-16; "Scoping Our Sound", pg 17. <b>DSM Sound</b> , Activity 8, pgs 67-72; Activity 12, pgs 99-105 <b>DSM Sound Student Reader</b> , pgs 6-7, 12-13
2	4.03 Show how the frequency can be changed by altering the size and shape of a variety of instruments.	<b>FOSS Physics of Sound</b> , Investigation 2; <b>FOSS Physics of Sound Science Stories</b> , "Highs & Lows, pgs 11-13; "Making Waves", pg 14; "Sound Off!", pgs 15-16; "Scoping Our Sound", pg 17. <b>DSM Sound</b> , Activity 8, pgs 67-72; Activity 9, pgs 73-82; Activity 10, pgs 83-90. <b>DSM Sound Student Reader</b> , pgs 6-7, 12-13
2	4.04 Show how the human ear detects sound by having a membrane that vibrates when sound reaches it.	<b>FOSS Physics of Sound</b> , Investigation 1, Part 3, pgs 25-29 <b>FOSS Physics of Sound Science Stories</b> , "Your Source & Receiver", pgs 9-10 <b>DSM Sound</b> , Activity 4, pgs 37-44 <b>DSM Sound Student Reader</b> , pgs 10-11, 14.

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2	4.05 Observe and describe how sounds are made by using a variety of instruments and other "sound makers" including the human vocal cords.	<b>FOSS Physics of Sound</b> , Investigation 2; <b>FOSS Physics of Sound Science Stories</b> , "Your Source & Receiver", pgs 9-10 <b>DSM Sound</b> , Activity 7, pgs 59-66; Activity 8, pgs 67-72 <b>DSM Sound Student Reader</b> , pgs 6-7, 9

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<b>Grade 3</b>		
<b>Competency Goal 1: The learner will conduct investigations to build an understanding of plant growth and adaptations.</b>		
3	1.01 Observe and measure how the quantities and qualities of nutrients, light, and water in the environment affect plant growth.	<b>FOSS Structures of Life</b> Investigation 2, Parts 2 and 3, pgs 8-22
3	1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment.	<b>FOSS Structures of Life</b> Investigation 2, Science Extension, pg 24
3	1.03 Investigate and describe how plants pass through distinct stages in their life cycle: -Growth -Survival -Reproduction	<b>FOSS Structures of Life</b> Investigation 2, Parts 1-3, pgs 8-22 <b>FOSS Web</b> , Activity: Life Cycles
3	1.04 Explain why the number of seeds a plant produces depends on variables such as light, water, nutrients, and degree of pollination.	<b>FOSS Structures of Life</b> Investigation 1, Parts 1-3, pgs 8-22
3	1.05 Observe and discuss how bees pollinate flowers	
3	1.06 Observe, describe and record properties of germinating seeds	<b>FOSS Structures of Life</b> Investigation 1, Parts 2 and 3, pgs 8-33 Investigation 2, Part 1, pgs 8-13
<b>Competency Goal 2: The learner will conduct investigations to build an understanding of soil properties.</b>		
3	2.01 Observe and describe the properties of soil such as color, texture, and capacity to retain water.	<b>DSM Soil Science</b> , Activity 1, pgs 15-20; Activity 2, pgs 21-28; Activity 3, pgs 29-36; Activity 4, pgs 37-44; Activity 7, pgs 59-68 <b>DSM Soil Science Student Reader</b> , pgs 2-3, 7-8
3	2.02 Investigate and observe that different soils absorb water at different rates	<b>DSM Soil Science Student Reader</b> , pgs 7-8
3	2.03 Determine the ability of soil to support the growth of many plants, including those important to our food supply.	<b>DSM Soil Science</b> , Activity 7, pgs 59-68; Activity 8, pgs 69-80; Activity 10, pgs 91-98 <b>DSM Soil Science Student Reader</b> , pgs 7-8, 10-12
3	2.04 Identify the basic components of soil: -Sand -Clay -Humus	<b>DSM Soil Science</b> , Activity 2, pgs 21-28; Activity 3, pgs 29-36; Activity 4, pgs 37-44 <b>DSM Soil Science Student Reader</b> , pgs 2-3, 7-8
3	2.05 Determine how composting can be used to recycle discarded plant and animal material	<b>DSM Soil Science Student Reader</b> , pg 12
3	2.06 Determine the relationship between heat and decaying plant matter in a compost pile	

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<b>Competency Goal 3: The learner will make observations and use appropriate technology to build an understanding of the earth/moon/sun system.</b>		
3	3.01 Observe that light travels in a straight line until it strikes an object and is reflected and/or absorbed	<b>FOSS Ideas and Inventions</b> Investigation 4, Parts 1-3, pgs 8-21 <b>FOSS Ideas and Inventions Science Stories</b> , "Light and Reflection", pgs 28-29
3	3.02 Observe that objects in the sky have patterns of movement including: Sun, Moon, Stars	<b>FOSS Ideas and Inventions Science Stories</b> , "Looking at the Sky", pgs 33-36
3	3.03 Using shadows, follow and record the apparent movement of the sun in the sky during the day	<b>FOSS Ideas and Inventions Science Stories</b> , "Looking at the Sky", pg 33
3	3.04 Use appropriate tools to make observations of the moon.	<b>FOSS Ideas and Inventions Science Stories</b> , "Looking at the Sky", pgs 33-38
3	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	<b>FOSS Ideas and Inventions Science Stories</b> , "Looking at The Sky", pg 37
3	3.06 Observe that patterns of stars in the sky stay the same, although they appear to move across the sky nightly	<b>FOSS Ideas and Inventions Science Stories</b> , "Looking at The Sky", pg 37
<b>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.</b>		
3	4.01 Identify the skeleton as a system of the human body.	<b>FOSS Human Body</b> Investigation 1, Parts 1 and 2, pgs 8-20 FOSSWeb, Activity: Mr. Bones <b>FOSS Human Body Science Stories</b> , "A Marvelous Machine", pgs 1-3
3	4.02 Describe several functions of bones: -Support -Protection -Locomotion	<b>FOSS Human Body</b> Investigation 1, Parts 1 and 2, pgs 8-20 <b>FOSS Human Body Science Stories</b> , "A Marvelous Machine", pgs 1-3
3	4.03 Describe the functions of different types of joints: -Hinge -Ball and socket -Gliding	<b>FOSS Human Body</b> Investigation 2, Parts 1-4, pgs 8-25 <b>FOSS Human Body Science Stories</b> , "Comparing Joints", pgs 12-13
3	4.04 Describe how different kinds of joints allow movement and compare this to the movement of mechanical devices.	<b>FOSS Human Body</b> Investigation 2, Parts 1-4, pgs 8-25 Investigation 2, Science Extension, pg 32 <b>FOSS Human Body Science Stories</b> , "Comparing Joints", pgs 12-13
3	4.05 Observe and describe how muscles cause the body to move.	<b>FOSS Human Body</b> Investigation 3, Parts 1-3, pgs 8-21 <b>FOSS Human Body Science Stories</b> , "Muscles", pgs 14-15, "Muscles and Bones: Working Together", pg 16

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<b>GRADE 4</b>		
<b>Competency Goal 1: The learner will make observations and conduct investigations to build an understanding of animal behavior and adaptation.</b>		
4	1.01 Observe and describe how all living and non-living things affect the life of a particular animal including: Other animals, Plants, Weather, Climate	<b>FOSS Environments</b> , Investigation 1 <b>FOSS Environments Science Stories</b> , "Amazon Rainforest Journal", pgs 1-8; "Terrestrial Environments Around the World", pgs 9-17
4	1.02 Observe and record how animals of the same kind differ in some of their characteristics and discuss possible advantages and disadvantages of this variation (atlas p 83)	<b>FOSS Environments</b> , Investigation 2 <b>FOSS Environments Science Stories</b> , "Beetles", pgs 18-20; "The Darkling Beetle", pg 21.
4	1.03 Observe and discuss how behaviors and body structures help animals survive in a particular habitat.	
4	1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.	<b>FOSS Environments</b> , Investigation 2, Part 2, pgs 16-21; <b>FOSS Environments Science Stories</b> , "Terrestrial Environments Around the World", pgs 9-17
4	1.05 Recognize that humans can learn about themselves better by learning about other animals. (atlas p 83)	
<b>Competency Goal 2: The learner will conduct investigations and use appropriate technology to build an understanding of the composition and uses of rocks and minerals.</b>		
4	2.01 Describe and evaluate the properties of a several minerals.	<b>FOSS Earth Materials</b> Investigation 2, Parts 1 and 2, pgs 8-21; Investigation 4, Part 1, pgs 8-13 <b>FOSS Earth Materials Science Stories</b> , "Digging It Up: Mining for Minerals", pgs 12-13, "Birthstones: A Mineral for Each Month, pgs 14-15, "Identifying Minerals", pgs 30-33
4	2.02 Recognize that minerals have a definite chemical composition and structure resulting in specific physical properties including: -Hardness -Streak color -Luster -Magnetism	<b>FOSS Earth Materials</b> Investigation 2, Parts 1 and 2, pgs 8-21; Investigation 4, Part 1, pgs 8-13 <b>FOSS Earth Materials Science Stories</b> , "Identifying Minerals", pgs 30-33
4	2.03 Explain how rocks are composed of minerals.	<b>FOSS Earth Materials</b> ; Investigation 1, Parts 2 and 3, pgs 16-29; Investigation 4, Part 1, pgs 8-13 <b>FOSS Earth Materials Science Stories</b> , "Identifying Minerals", pg 30
4	2.04 Show that different rocks have different properties.	<b>FOSS Earth Materials Science Stories</b> , "Where Do Ricks Come From?", pgs 34-37
4	2.05 Discuss and communicate the uses of rocks and minerals.	<b>FOSS Earth Materials</b> Investigation 3, Science Extension, pg 24; Investigation 4, Science Extension, pg 20 <b>FOSS Earth Materials Science Stories</b> , "Rock of Ages", pgs 24-29
4	2.06 Classify rocks and rock-forming minerals using student-made rules.	<b>FOSS Earth Materials</b> Investigation 1, Part 2, pgs 19-23

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
4	2.06 Identify and discuss different rocks and minerals in North Carolina including their role in Geologic formations and distinguishing Geologic regions	<b>FOSS Earth Materials</b> Investigation 4, Part 2, pgs 14-18 <b>FOSS Earth Materials</b> Science Stories, "Where Do Rocks Come From?", pgs 34-37.
<b>Competency Goal 3: The learner will make observations and conduct investigations to build an understanding of magnetism and electricity.</b>		
4	3.01 Observe and investigate the pull of magnets on all materials made of iron and the pushes or pulls on other magnets.	<b>FOSS Magnetism and Electricity</b> Investigation 1, Parts 1-4, pgs 8-34 <b>FOSS Magnetism and Electricity</b> Science Stories, "Magnus Gets Stuck", pgs 1-4, "Magnificent Magnetic Models", pg 5, "How Magnets Interact", pg 6, "Make a Compass", pgs 7-9
4	3.02 Describe and demonstrate how magnetism can be used to generate electricity.	<b>FOSS Magnetism and Electricity</b> Science Stories, "From Rags to Science: A Story of Michael Faraday", pg 23, "Magnets and Electricity in Your Life", pgs 30-31
4	3.03 Design and test an electrical circuit as a closed pathway including an energy source, energy conductor, and energy receiver.	<b>FOSS Magnetism and Electricity</b> Investigation 2, Parts 1-4, pgs 8-29
4	3.04 Explain how magnetism is related to electricity	<b>FOSS Magnetism and Electricity</b> Investigation 4, Parts 1-3, pgs 8-22 <b>FOSS Magnetism and Electricity</b> Science Stories, "From Rags to Science: A Story of Michael Faraday", pg 23, "How Electromagnets Stopped a War", pgs 24-27, "Magnets and Electricity in Your Life", pgs 28-32
4	3.05 Describe and explain the parts of a light bulb.	<b>FOSS Magnetism and Electricity</b> Investigation 2, Science Extension, pg 32 <b>FOSS Magnetism and Electricity</b> Science Stories, "Magnets and Electricity in Your Life", pg 32
4	3.06 Describe and identify materials that are conductors and nonconductors of electricity.	<b>FOSS Magnetism and Electricity</b> Investigation 1, Part 3, pgs 20-25
4	3.07 Observe and investigate that parallel and series circuits have different characteristics.	<b>FOSS Magnetism and Electricity</b> Investigation 3, Parts 1-3, pgs 10-26
4	3.08 Observe and investigate the ability of electric circuits to produce light, heat, sound, and magnetic effects.	<b>FOSS Magnetism and Electricity</b> Investigation 1, Parts 1 and 2, pgs 8-19 Investigation 2, Parts 1 and 2, pgs 10-21 Investigation 3, Parts 1-3, pgs 8--22 Investigation 4, Parts 1 and 2, pgs 8-21 <b>FOSS Magnetism and Electricity</b> Science Stories, "Magnets and Electricity in Your Life", pgs 32-33
4	3.09 Recognize lightning as an electrical discharge and show proper safety behavior when lightning occurs	<b>FOSS Magnetism and Electricity</b> Science Stories, "Making Static", pg 11, "A Fictional Interview with Benjamin Franklin", pgs 12-13
<b>Competency Goal 4: The learner will conduct investigations and use appropriate technology to build an understanding of how food provides energy and materials for growth and repair of the body.</b>		
4	4.01 Explain why organisms require energy to live and grow	<b>FOSS Food and Nutrition</b> Investigation 1 <b>FOSS Food and Nutrition</b> Science Stories, "Face the Facts", pgs 1-5

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
4	4.02 Show how calories can be used to compare the chemical energy of different foods	<b>FOSS Food and Nutrition</b> Investigation 4 <b>FOSS Food and Nutrition Science Stories</b> , "Food Labels", pgs 27-29
4	4.03 Discuss how foods provide both energy and nutrients for living organisms	<b>FOSS Food and Nutrition</b> Investigations 1-4 <b>FOSS Food and Nutrition Science Stories</b> , "Healthy Kids", pgs 37-40
4	4.04 Identify starches and sugars as carbohydrates	<b>FOSS Food and Nutrition</b> Investigation 2 <b>FOSS Food and Nutrition Science Stories</b> , "Food Labels", pgs 27-29
4	4.05 Determine that foods are made up of a variety of components: carbohydrates, fats, proteins, water, vitamins, minerals	<b>FOSS Food and Nutrition</b> Investigations 1-4 <b>FOSS Food and Nutrition Science Stories</b> , "Vitamins", pgs 21-23

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
<b>Grade 5</b>		
<b>Competency Goal 1: The learner will conduct investigations to build an understanding of the interdependence of plants and animals.</b>		
5	1.01 Describe and compare several common ecosystems (communities of organisms and their interaction with the environment).	<b>FOSS Environments</b> , Investigation 4 <b>FOSS Environments Science Stories</b> , "Terrestrial Environments around the World", pgs 9-17, "Aquatic Environments around the World", pgs 27-35, "What is an Ecosystem?", pgs 38-41, "What Happens When Ecosystems Change?", pgs 49-52
5	1.02 Identify and analyze the functions of organisms within the population of the ecosystem: producers, consumers, and decomposers.	<b>FOSS Environments</b> , Investigation 4 <b>FOSS Environments Science Stories</b> , "What is an Ecosystem?", pgs 38-41, "The Mono Lake Story", pgs 43-45
5	1.03 Explain why an ecosystem can support a variety of organisms.	<b>FOSS Environments</b> , Investigation 4 <b>FOSS Environments Science Stories</b> , "What is an Ecosystem?", pgs 38-41; "The Mono Lake Story", pgs 43-45; "Aquatic Environments Around the World", pgs 27-35.
5	1.04 Discuss and determine the role of light, temperature, and soil composition in an ecosystem's capacity to support life.	<b>FOSS Environments Science Stories</b> , "What is an Ecosystem?", pgs 38-41
5	1.05 Determine the interaction of organisms within an ecosystem.	<b>FOSS Environments</b> Investigation 4, Parts 1-3, pgs 8-22 <b>FOSS Environments Science Stories</b> , "What is an Ecosystem?" pgs 38-41, "The Mono Lake Story", pgs 43-45, "How Organisms Depend on Each Other", pgs 53-55
5	1.06 Explain and evaluate some ways that humans effect an ecosystem: habitat reduction due to development, pollutants, increased nutrients	<b>FOSS Environments Science Stories</b> , "Water Pollution: The Lake Erie Story", pgs 36, "Sources of Water Pollution, pg 37, "The Mono Lake Story", pgs 43-45, "What Happens When Ecosystems Change?", pgs 51-52
5	1.07 Determine how materials are recycled in nature	<b>FOSS Environments</b> FOSSWeb, Pictures: Oxygen Cycle, Nitrogen Cycle, Carbon Cycle, Water Cycle <b>FOSS Environments Science Stories</b> , "What is an Ecosystem?", pgs 39-41
<b>Competency Goal 2: The learner will make observations and conduct investigations to build an understanding of landforms.</b>		
5	2.01 Identify and analyze forces that cause change in landforms over time. -Water and ice -Wind -Gravity	<b>FOSS Landforms</b> Investigation 2, Parts 1 and 2, pgs 8-22 Investigation 3, Parts 1-3, pgs 8-24 FOSSWeb, Movie: Grand Canyon Rapids <b>FOSS Landforms Science Stories</b> , "Rivers and Controlling the Flow", pgs 15-17, "Shapes of the Earth", pgs 25-29
5	2.02 Investigate and discuss the role of the water cycle and how movement of water over and through the landscape helps shape land forms	<b>FOSS Landforms</b> Investigation 2, Parts 1 and 2, pgs 8-22 Investigation 3, Parts 1-3, pgs 8-24 FOSSWeb, Movie: Grand Canyon Rapids <b>FOSS Landforms Science Stories</b> , "Rivers and Controlling the Flow", pgs 15-17
5	2.03 Discuss and consider the wearing away and movement of rock and soil in erosion and its importance in forming: canyons, valleys, meanders, tributaries	<b>FOSS Landforms</b> Investigation 2, Parts 1 and 2, pgs 8-22 FOSSWeb, Movie: Grand Canyon Rapids <b>FOSS Landforms Science Stories</b> , "Rivers and Controlling the Flow", pgs 15-17

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
5	2.04 Describe the deposition of eroded material and its importance in establishing landforms including: deltas, flood plains	<b>FOSS Landforms</b> Investigation 2, Parts 1 and 2, pgs 8-22 FOSSWeb, Movie: Grand Canyon Rapids <b>FOSS Landforms Science Stories</b> , "Rivers and Controlling the Flow", pgs 15-16, 18
5	2.05 Discuss how the flow of water and the slope of the land affect erosion.	<b>FOSS Landforms</b> Investigation 3, Part 1, pgs 8-14
5	2.06 Identify and use models, maps and aerial photographs as ways of representing landforms.	<b>FOSS Landforms</b> Investigation 1, Parts 1-3, pgs 8-24 Investigation 4, Parts 1-3, pgs 8-24 Investigation 5, Parts 1-3, pgs 8-26 <b>FOSS Landforms Science Stories</b> , "Maps and How They Are Made", pgs 1-6, "Topographic Maps", pgs 33-34
5	2.07 Discuss and analyze how humans influence erosion and deposition in local communities, including school grounds, as a result of: clearing land, planting vegetation, building dams	<b>FOSS Landforms Science Stories</b> , "Real People in the Grand Canyon", pgs 13-14, "Rivers and Controlling the Flow", pgs 19-21, "The Eye of the Needle", pgs 43-44
<b>Competency Goal 3: The learner will conduct investigations and use appropriate technology to build an understanding of weather and climate.</b>		
5	3.01 Investigate the water cycle including processes of: -Evaporation -Condensation -Precipitation -run-off	<b>DSM Weather Forecasting Student Reader</b> , pg 4
	3.02 Discuss and determine how the following are affected by predictable patterns of weather: temperature, wind direction and speed, precipitation, cloud cover, air pressure	<b>DSM Weather Forecasting</b> , Activity 3, pgs 25-32; Activity 4, pgs 33-40; Activity 5, pgs 41-48; Activity 9, pgs 69-74 <b>DSM Weather Forecasting Student Reader</b> , pgs 3-5, 7, 11, 14
5	3.03 Describe and analyze the formation of various types of clouds and discuss their relation to weather systems.	<b>DSM Weather Forecasting</b> , Activity 9, pgs 69-74; Activity 10, pgs 75-80 <b>DSM Weather Forecasting Student Reader</b> , pg 7
5	3.04 Explain how global atmospheric movement patterns affect local weather.	<b>DSM Weather Forecasting</b> , Activity 1, pgs 13-18; Activity 2, pgs 19-24; Activity 6, pgs 49-54; Activity 7, pgs 55-62; Activity 8, pgs 63-68 <b>DSM Weather Forecasting Student Reader</b> , pg 5
5	3.05 Compile and use weather data to establish a climate record and reveal any trends.	<b>DSM Weather Forecasting</b> , Activity 3, pgs 25-32; Activity 4, pgs 33-40; Activity 5, pgs 41-48 <b>DSM Weather Forecasting Student Reader</b> , pgs 3-5, 7, 11, 14
5	3.06 Discuss and determine the influence of geography on weather and climate: mountains, sea breezes, water bodies	<b>DSM Weather Forecasting</b> , Activity 7, Science Challenge
<b>Competency Goal 4: The learner will conduct investigations and use appropriate technologies to build an understanding of forces and motion in technological designs.</b>		
5	4.01 Determine the motion of an object by following and measuring its position over time	<b>FOSS Models and Designs</b> Investigation 3, Parts 2 and 3, pgs 13-23
	4.02 Evaluate how pushing or pulling forces can change the position and motion of an object	<b>FOSS Models and Designs</b> Investigation 3, Parts 1-3, pgs 8-23 Investigation 4, Parts 1 and 2, pgs 6-15

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
5	4.03 Explain how energy is needed to make machines move: moving air, gravity	<b>FOSS Models and Designs</b> Investigation 3, Parts 1-3, pgs 8-23 Investigation 4, Parts 1 and 2, pgs 6-15
5	4.04 Determine that an unbalanced force is needed to move an object or change its direction	<b>FOSS Models and Designs</b> Investigation 3, Parts 2-3, pgs 13-23 Investigation 4, Parts 1 and 2, pgs 6-15
5	4.05 Determine factors that affect motion including: force, friction, inertia, momentum	<b>FOSS Models and Designs</b> Investigation 3, Part 2, pgs 13-19 Investigation 4, Parts 1 and 2, pgs 6-15
5	4.06 Build and use a model to solve a mechanical design problem. Devise a test for the model. Evaluate the results of the test.	<b>FOSS Models and Designs</b> Investigation 2, Parts 1 and 2, pgs 8-21 Investigation 3, Parts 1-3, pgs 8-20
5	4.07 Determine how people use simple machines to solve problems	<b>FOSS Models and Designs</b> Investigation 2, Parts 1 and 2, pgs 8-21 <b>FOSS Models and Designs</b> Science Stories, "The Path to Invention", pgs 21-24.

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
<b>Grade 6</b>		
<b><i>Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of</i></b>		
6	1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<b>All FOSS modules/courses</b>
6	1.02 Develop appropriate experimental procedures for: -Given questions -Student driven questions	<b>All FOSS modules/courses</b>
6	1.03 Apply safety procedures in the laboratory and in field studies. -Recognize potential hazards -Safely manipulate materials and equipment	<b>All FOSS modules/courses</b>
6	1.04 Analyze variables in scientific investigations: -Identify dependent and independent -Use of a control -Manipulate -Describe relationships between -Operationally define	<b>FOSS Variables</b>
6	1.05 Analyze evidence to: Explain observations -Make inferences and predictions -Develop the relationship between evidence and explanation	<b>All FOSS modules/courses</b>
6	1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: -Measurement -Analysis of data -Graphing -Prediction models	<b>All FOSS modules/courses</b>
6	1.07 Prepare models and/or computer simulations to: -Test hypotheses -Evaluate how data fits	<b>All FOSS modules/courses</b>
6	1.08 Use oral and written language to: -Communicate findings -Defend conclusions of scientific investigations	<b>All FOSS modules/courses</b>
6	1.09 Use technologies and information systems to: -Research -Gather and analyze data -Visualize data -Disseminate findings to others	<b>All FOSS Middle School courses</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
6	1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: -Scientific text -Articles -Events in the popular press	All FOSS Middle School courses
<b>Competency Goal 2: The learner will develop technological solutions to demonstrate an understanding of</b>		
6	2.01 Explore evidence that "technology" has many definitions. -Artifact or hardware -Methodology or technique -System of production -Social-technical system	
6	2.02 Use information systems to: -Identify scientific needs, human needs, or problems that are subject to technological solution -Locate resources to obtain and test ideas	FOSS Electronics
6	2.03 Evaluate technological designs for: -Application of scientific principles -Risks and benefits -Constraints of design -Consistent testing protocols	FOSS Electronics
6	2.04 Apply tenets of technological design to make informed consumer decisions about: -Products -Processes -Systems	FOSS Electronics
<b>Competency Goal 3: The learner will build an understanding of the geological cycles, forces, processes, and agents,</b>		
6	3.01 Evaluate the forces that shape the lithosphere including: -Crustal plate movement -Folding and faulting -Deposition -Volcanic activity -Earthquakes	
6	3.02 Examine earthquake and volcano patterns.	
6	3.03 Explain the model for the interior of the earth.	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
6	3.04 Analyze soil properties that can be observed and measured to predict soil quality: -Horizon profile -Infiltration -Soil temperature -Structure -Consistency -Texture -Particle size -Soil pH -Fertility -Soil moisture	
6	3.05 Evaluate ways in which human activities have affected Earth's pedosphere and the measures taken to control the impact: -Vegetative cover -Agriculture -Land use -Nutrient balance -Soil as a vector	
6	3.06 Assess the use of technology and information systems in monitoring lithospheric phenomenon.	
6	3.07 Conclude that the good health of environments and organisms requires: -Monitoring of the pedosphere -Taking steps to maintain soil quality -Stewardship	
<b>Competency Goal 4: The learner will investigate energy flow and the cycling of matter.</b>		
6	4.01 Explain the flow of energy and matter through food chains and food webs: -Energy flows through ecosystems in one direction, from the sun through producers to consumers, and then to decomposers -Matter is transferred from one organism to another and between organisms and their environment	<b>FOSS Environments</b> <b>FOSS Populations and Ecosystems</b>
6	4.02 Evaluate examples of substances cycled between the living and nonliving environment including: -Water -Nitrogen -Carbon dioxide -Oxygen	<b>FOSS Environments</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
6	4.03 Examine evidence that green plants make food: -Photosynthesis is a process carried on by green plants and other organisms containing chlorophyll -During photosynthesis, light energy is converted into stored energy, which the plant in turn, uses to carry out its life processes -The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight	FOSS Environments
6	4.04 Evaluate the significance of photosynthesis to other organisms: -The major source of atmospheric oxygen is photosynthesis -Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis -Green plants are producers of food that is used directly or indirectly by consumers	FOSS Environments
<b>Competency Goal 5: The learner will build an understanding of the Solar System.</b>		
6	5.01 Analyze the components, and cycles of the solar system: -Planets and moons -Asteroids and meteors -Comets -Phases -Seasons -Day/year	<u>FOSS Solar Energy Science Stories</u> "Living with a Star" <u>FOSS Planetary Science</u>
6	5.02 Compare and contrast the Earth to other planets in terms of: -Size -Composition -Relative distance from the sun -Ability to support life	<u>FOSS Solar Energy Science Stories</u> "Living with a Star"
6	5.03 Relate the influence of the sun and the moon's orbit to the gravitational effects produced on Earth. -Solar storms -Tides	<u>FOSS Solar Energy Science Stories</u> "Living with a Star"
6	5.04 Identify technologies used to explore space. -Historic timeline of events -Apollo mission to the moon -Space shuttle	FOSS Planetary Science

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
6	5.06 Analyze the spin-off benefits generated by space exploration technology. -Medical -Materials -Transportation -Processes	
<b>Competency Goal 6: The learner will conduct investigations, and examine models and devices to build an</b>		
6	6.01 Determine how convection and radiation transfer energy.	<b>FOSS Weather and Water</b>
6	6.02 Analyze heat flow through materials or across space from warm objects to cooler objects until both objects are at equilibrium.	<b>FOSS Weather and Water</b>
6	6.03 Conclude that vibrating materials generate waves that transfer energy.	
6	6.04 Evaluate data for qualitative and quantitative relationships associated with energy transfer and/or transformation.	<b>FOSS Weather and Water</b>
6	6.05 Analyze the physical interactions of light and matter: -Absorption -Scattering -Color perception -Form and function of the human eye	<b>FOSS Weather and Water</b> <b>FOSS Human Brain and Senses</b>
6	6.06 Analyze response to heat to determine the suitability of materials for use in technological design: -Conduction -Expansion -Contraction	
6	6.07 Examine the Law of Conservation of Energy: -Conclude that energy cannot be created or destroyed, but only changed from one form to another -Conclude that the amount of energy stays the same, although within the process some energy is always converted to heat -Some systems transform energy with less loss of heat than others	
<b>Competency Goal 7: The learner will build an understanding of population dynamics.</b>		
6	7.01 Evaluate data related to population growth, along with problems and solutions: -Waste disposal -Food supplies -Disease control -Resource availability -Transportation	
6	7.02 Conclude that some ecosystem resources are finite.	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
6	7.03 Explain how changes in habitat may affect organisms.	<b>FOSS Environments</b>
6	7.04 Analyze practices that affect the use, availability, and management of natural resources: -Land use -Urban growth -Manufacturing	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
<b>Grade 7</b>		
<b><i>Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of</i></b>		
7	1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<b>All FOSS Middle School courses</b>
7	1.02 Develop appropriate experimental procedures for: -Given questions -Student driven questions	<b>All FOSS Middle School courses</b>
7	1.03 Apply safety procedures in the laboratory and in field studies. -Recognize potential hazards -Safely manipulate materials and equipment	<b>All FOSS Middle School courses</b>
7	1.04 Analyze variables in scientific investigations: -Identify dependent and independent -Use of a control -Manipulate -Describe relationships between -Operationally define	<b>FOSS Variables</b>
7	1.05 Analyze evidence to: -Explain observations -Make inferences and predictions -Develop the relationship between evidence and explanation	<b>All FOSS Middle School courses</b>
7	1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: -Measurement -Analysis of data -Graphing -Prediction models	<b>All FOSS Middle School courses</b>
7	1.07 Prepare models and/or computer simulations to: -Test hypotheses -Evaluate how data fits	<b>All FOSS Middle School courses</b>
7	1.08 Use oral and written language to: -Communicate findings -Defend conclusions of scientific investigations	<b>All FOSS Middle School courses</b>
7	1.09 Use technologies and information systems to: -Research -Gather and analyze data -Visualize data -Disseminate findings to others	<b>All FOSS Middle School courses</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
7	1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: -Scientific text -Articles -Events in the popular press	All FOSS Middle School courses
<b>Competency Goal 2: The learner will develop technological solutions to demonstrate an understanding of</b>		
7	2.01 Explore evidence that "technology" has many definitions. -Artifact or hardware -Methodology or technique -System of production -Social-technical system	
7	2.02 Use information systems to: -Identify scientific needs, human needs, or problems that are subject to technological solution -Locate resources to obtain and test ideas	FOSS Electronics
7	2.03 Evaluate technological designs for: -Application of scientific principles -Risks and benefits -Constraints of design -Consistent testing protocols	FOSS Electronics
7	2.04 Apply tenets of technological design to make informed consumer decisions about: -Products -Processes -Systems	FOSS Electronics
<b>Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information</b>		
7	3.01 Explain the composition, properties, and structure of the atmosphere: -Mixture of gases -Stratified layers -Each layer has distinct properties -As altitude increases, air pressure decreases	FOSS Weather and Water
7	3.02 Analyze properties that can be observed and measured to predict air quality: -Particulate matter -Ozone	
7	3.03 Conclude that the good health of environments and organisms requires: -The monitoring of air quality -Taking steps to maintain healthy air quality -Stewardship	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
7	3.04 Evaluate human impact on the atmosphere: -Air quality standards -Point and nonpoint sources of air pollution in North Carolina -Financial and economic trade-offs	
7	3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards: -Humidity -Temperature -Wind speed and direction -Air pressure -Precipitation -Tornadoes -Hurricanes -Floods -Storms	FOSS Weather and Water
7	3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards: -Satellites -Weather maps -Predicting -Recording -Communicating information about conditions	FOSS Weather and Water
7	3.07 Conclude that the atmosphere is constantly seeking equilibrium.	FOSS Weather and Water
<b>Competency Goal 4: The learner will conduct investigations, use models, simulations, and appropriate technologies</b>		
7	4.01 Analyze how human body systems interact to provide for the needs of the organism: -Cardiovascular -Endocrine and nervous -Digestive and circulatory -Excretory -Reproductive -Respiratory -Immune -Nervous system	
7	4.02 Conclude that each system within the human body is defined by the functions that it performs.	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
7	4.03 Investigate how the structure of an organ is adapted to perform specific functions within one or more systems. -Liver -Heart -Lung -Brain -Stomach -Kidney	FOSS Human Brain and Senses
7	4.04 Evaluate how systems in the human body help regulate the internal environment.	
7	4.05 Analyze how an imbalance in homeostasis may result in a disruption in any human system.	
7	4.06 Apply understandings of how the human body works to help make decisions about health.	
<b>Competency Goal 5: The learner will conduct investigations, use models, simulations, and appropriate technologies</b>		
7	5.01 Demonstrate ways that simple machines can change force.	FOSS Force and Motion
7	5.02 Analyze simple machines for mechanical advantage and efficiency.	FOSS Force and Motion
7	5.03 Evaluate evidence that: The force of friction retards motion -For every action there is an equal and opposite reaction -The greater the force, the greater the change in motion -An object's motion is the result of the combined effect of all forces acting on the object -A moving object is not subjected to a force will continue to move at a constant speed in a straight line -An object at rest will remain at rest	FOSS Force and Motion
7	5.04 Analyze that an object's motion is always judged relative to some other object or point.	FOSS Force and Motion
7	5.05 Describe and measure quantities that characterize moving objects and their interactions within a system: -Time -Distance -Mass -Force -Velocity -Center of mass -Acceleration	FOSS Force and Motion

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
7	5.06 Investigate and analyze the real world interactions of balanced and unbalanced forces: -Sports and recreation -Transportation -The human body	FOSS Force and Motion
<b>Competency Goal 6: The learner will conduct investigations and utilize appropriate technologies and information</b>		
7	6.01 Explain the significance of chromosomes and genes, and their relationship to inherited characteristics: -Genes are the units of information for inherited traits that parents transmit to their offspring -Some medical conditions and diseases are genetic -In some cases, the presence of a genetic condition can be established by genetic testing	FOSS Populations and Ecosystems
7	6.02 Analyze the role of probability in the study of heredity: -Which allele is transferred from parents to the offspring is a statistically random process -Analysis of pedigrees provides evidence for inheritance patterns of human conditions -Some traits do not follow the pattern of complete dominance vs. recessive -Construct and analyze Punnett Squares	FOSS Populations and Ecosystems
7	6.03 Explain how, during reproduction, the sorting and recombination of parents' genetic material produces potential variation among offspring.	FOSS Populations and Ecosystems
7	6.04 Evaluate evidence that a human organism is a product of inherited traits, environmental factors, and lifestyle choices.	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
<b>Grade 8</b>		
<b><i>Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of</i></b>		
8	1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<b>All FOSS Middle School courses</b>
8	1.02 Develop appropriate experimental procedures for: -Given questions -Student driven questions	<b>All FOSS Middle School courses</b>
8	1.03 Apply safety procedures in the laboratory and in field studies. -Recognize potential hazards -Safely manipulate materials and equipment	<b>All FOSS Middle School courses</b>
8	1.04 Analyze variables in scientific investigations: -Identify dependent and independent -Use of a control -Manipulate -Describe relationships between -Operationally define	<b>FOSS Variables</b>
8	1.05 Analyze evidence to: -Explain observations -Make inferences and predictions -Develop the relationship between evidence and explanation	<b>All FOSS Middle School courses</b>
8	1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: -Measurement -Analysis of data -Graphing -Prediction models	<b>All FOSS Middle School courses</b>
8	1.07 Prepare models and/or computer simulations to: -Test hypotheses -Evaluate how data fits	<b>All FOSS Middle School courses</b>
8	1.08 Use oral and written language to: -Communicate findings -Defend conclusions of scientific investigations	<b>All FOSS Middle School courses</b>
8	1.09 Use technologies and information systems to: -Research -Gather and analyze data -Visualize data -Disseminate findings to others	<b>All FOSS Middle School courses</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
8	1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: -Scientific text -Articles -Events in the popular press	All FOSS Middle School courses
<b>Competency Goal 2: The learner will develop technological solutions to demonstrate an understanding of</b>		
8	2.01 Explore evidence that "technology" has many definitions. -Artifact or hardware -Methodology or technique -System of production -Social-technical system	
8	2.02 Use information systems to: -Identify scientific needs, human needs, or problems that are subject to technological solution -Locate resources to obtain and test ideas	FOSS Electronics
8	2.03 Evaluate technological designs for: -Application of scientific principles -Risks and benefits -Constraints of design -Consistent testing protocols	FOSS Electronics
8	2.04 Apply tenets of technological design to make informed consumer decisions about: -Products -Processes -Systems	FOSS Electronics
<b>Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information</b>		
8	3.01 Analyze the unique properties of water: -Cohesion and adhesion -Polarity -Universal solvent -Density and buoyancy -Specific heat	
8	3.02 Explain the structure of the hydrosphere: -How water is distributed to the earth -Analyze local watershed	
8	3.03 Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms: -Estuaries -Marine ecosystems -Upwelling -Behavior of gases in the marine environment -Value and sustainability of marine resources -Deep ocean technology and new discoveries	

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
8	3.04 Analyze the interconnected terrestrial and aquatic global food webs.	<b>FOSS Environments</b> <b>FOSS Populations and Ecosystems</b>
8	3.05 Analyze hydrospheric data over time to predict the health of a water system: -Temperature -Dissolved oxygen -pH -Alkalinity -Nitrates -Turbidity -Bio-indicators	
8	3.06 Evaluate technologies and information systems used to monitor the hydrosphere.	
8	3.07 Examine how humans affect the water quality: -Water quality standards -Methods of water treatment -Point and nonpoint sources of pollution in North Carolina -Possible effects of excess nutrients in North Carolina waters -Financial and economic trade-offs -Local water issues	<b>FOSS Weather and Water</b>
8	3.08 Conclude that the good health of environments and organisms requires: -Monitoring of the hydrosphere -Taking steps to maintain safe water quality -Stewardship	
<b>Competency Goal 4: The learner will conduct investigations and utilize appropriate technologies, models, and</b>		
8	4.01 Evaluate evidence that elements combine in a multitude of ways to produce compounds that account for all living and nonliving substances.	<b>FOSS Chemical Interactions</b>
8	4.02 Understand that both naturally occurring and synthetic substances are chemicals.	<b>FOSS Chemical Interactions</b>
8	4.03 Analyze the periodic table as a model for: -Classifying elements based on their properties -Identifying the properties of groups of elements	<b>FOSS Chemical Interactions</b>
8	4.04 Analyze the suitability of materials for use in technological design: -Electrical conductivity -Density -Magnetism -Solubility -Flexibility	<b>FOSS Chemical Interactions</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
8	4.05 Classify substances based on characteristic physical properties: -Density -Boiling/melting points -Solubility -Chemical reactivity -Specific heat	FOSS Chemical Interactions
8	4.06 Describe and measure quantities related to chemical/physical changes within a system: -Temperature -Volume -Mass -Precipitate -Gas production	FOSS Chemical Interactions
8	4.07 Investigate the properties and composition of solutions: -Concentration -Acid/base	FOSS Chemical Interactions
8	4.08 Evaluate evidence to support the law of conservation of matter. -During an ordinary chemical reaction matter cannot be created or destroyed -In chemical reactions, the total mass of the reactants equals the total mass of the products	FOSS Chemical Interactions
8	4.09 Examine evidence of effects chemicals have on organisms and the determining factors for the effects including: -Triggers of health conditions -Dose and concentration -Exposure	FOSS Chemical Interactions
8	4.10 Propose possible means to eliminate or reduce exposure to environmental toxic agents.	FOSS Chemical Interactions
8	4.11 Evaluate trade-offs for the benefits from chemicals.	FOSS Chemical Interactions
<b>Competency Goal 5: The learner will conduct investigations and utilize appropriate technologies and information</b>		
8	5.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including: -Geologic Time Scale -Index fossils -Law of Superposition -Unconformity -Evidence of climate change -Extinction of species -Catastrophic events	FOSS Earth History

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
8	5.02 Correlate evolutionary theories and processes: -Biological -Geological -Technological	<b>FOSS Earth History</b> <b>FOSS Populations and Ecosystems</b> <b>FOSS Diversity of Life</b>
8	5.03 Examine evidence that the geological evolution has had significant global impact including: -Distribution of living things -Major geological events -Mechanical and chemical weathering	<b>FOSS Earth History</b>
8	5.04 Analyze satellite images, information, and technologies used to monitor Earth from space: -Electromagnetic spectrum -Reflectance curves	
8	5.05 Use maps, ground truthing, and remote sensing to analyze information and make predictions about: -Changes over time -Land use -Urban sprawl -Resource location -Resource management	<b>FOSS Earth History</b>
<b>Competency Goal 6: The learner will conduct investigations, use models, simulations, and appropriate technologies</b>		
8	6.01 Analyze cell theory to realize that: -Living things are composed of cells -Cells provide structure and carry on major functions to sustain life -Cells are usually microscopic in size -Some organisms are single cell; other organisms, including humans, are multicellular -Cell function is similar in all living things -Cells grow and divide to produce more cells -Cells take in the nutrients to make the: 1. energy for the work of cells 2. materials that a cell or an organism needs -Cell organization by levels for function of a multi-cellular organism include cell, tissue, organs, systems.	<b>FOSS Diversity of Life</b>

GRADE LEVEL	NORTH CAROLINA STANDARDS	GRADE APPROPRIATE FOSS and/or DSM MODULE
8	6.02 Analyze structures, functions, and processes within animal cells: -Capture and release energy -Feedback information -Dispose of wastes -Reproduction -Enable movement -Specialized	FOSS Diversity of Life
8	6.03 Compare life functions of protists: -Euglena -Amoeba -Paramecium -Volvox	FOSS Diversity of Life FOSS Populations and Ecosystems
8	6.04 Conclude that cells carry on complex chemical processes to balance the needs of the organism.	FOSS Diversity of Life
<b>Competency Goal 7: The learner will conduct investigations, use model simulations, and appropriate technologies</b>		
8	7.01 Compare and contrast microbes: -Size, shape, and structure -Whether they are cells -The presence or absence of a nucleus -Viruses are not considered to be alive -Calculate reproductive potential of bacteria	
8	7.02 Relate disease to biological hazards: -Allergens -Viruses -Bacteria -Parasites -Contagions	
8	7.03 Analyze data to determine trends or patterns to determine how an infectious disease may spread including: -Carriers -Vectors -Conditions conducive to disease	
8	7.04 Conclude that disease is caused by: -Infectious agents -Genetic transmission -Environmental factors -Lifestyle -Combination of factors	
8	7.05 Evaluate the human attempt to reduce the risk of and treatments for microbial infections including: -Use of solutions with antimicrobial properties -Antibiotic treatment -Mutagens -Research	