McDowell Environmental Center
Science Process Strand Correlations - Mississippi 2001
THIRD GRADE

	Woods Walk	Value of a Tree	Forest Critters	Creepy Crawlies	Pond & Stream	Stream Studies	Down To Earth	Rock Query	Native Americans	Sensory Awareness	Mysterious Medley	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Invention Convention	Food For Thought
Unifying Concepts And Processes • Systems, order, and organization • Evidence, models, and explanation • Change, constancy and measurement • Evolution and equilibrium • Form and function	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X
Science As Inquiry • Abilities necessary to do scientific inquiry • Understandings about scientific inquiry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Science And Technology • Abilities of technological design • Understandings about science and technology • Abilities to distinguish between natural objects made by humans																			X	
Science In Personal And Social Perspectives • Personal Health • Characteristics and changes in populations • Types of resources • Changes in environments • Science and technology in local challenges.	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X		X
History And Nature Of Science • Science as a human endeavor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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McDowell Environmental Center
Science Competency Correlations - Mississippi 2001
THIRD GRADE

	Woods Walk	Forest Critters	Creepy Crawlies	Pond & Stream	Down To Earth	Rock Query	Native Americans	Connections	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
1. Investigate the interactions of objects and organisms. (L,E) a. Identify major causes of endangerment and extinction. b. Distinguish between harmful and helpful human actions on the environment. c. Describe methods to prevent pollution of the environment.	X	X		X	X		X	X	X	X		X	X
2. Explore the components of living systems. (L) a. Demonstrate photosynthesis. b. Show that plants grow from other parts and explain the germination of seeds. c. Label the parts and functions of a flower. d. Explain methods of pollination.	X		X										
3. Identify and describe the appearance of stars in the night sky. (E, P) a. Locate and identify constellations as imaginary patterns of stars that remain fixed in shape from night to night. b. Describe the actual nature of stars as distant suns that appear small and faint only because of their great distances.											X	X	
4. Discover how internal and external forces affect the Earth's surface. (E) a. Describe the three major layers of the Earth. b. Examine and identify rocks of different types (metamorphic, sedimentary, and igneous). c. Discuss places fossils can be found. d. Relate how internal forces affect the Earth's surface including earthquakes and volcanoes.					X	X							
6. Analyze changes in matter. (E) **a.** Label an illustration of the water cycle.				X									

7. Develop the process of measurement and related concepts. (L, E, P) * a. Choose appropriate units of measurement													**X**

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FOURTH GRADE

	Woods Walk	Forest Critters	Creepy Crawlies	Pond & Stream	Down To Earth	Rock Query	Refuge	Trail of Discovery	Connections	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
1. Investigate the ability of living things to adapt to their environment. (L) a. Compare food chains and food webs. b. Compare and contrast adaptations necessary for animals and plants to survive in different habitats.	X	X	X	X			X	X	X	X	X		X	X
2. Explore the interactions of components in living systems. (L) a. Group animals as invertebrates or vertebrates. b. Explore the four requirements necessary for photosynthesis.	X		X	X				X	X					
3. Communicate an understanding of the interaction of bodies in the solar system. (E, P) a. Explain why the apparent size of an object depends on its distance from the observer. b. Describe the interaction between the Earth, Sun, Earth's moon, and planets of the solar system. c. Describe the apparent motion of constellations in the night sky (east to west throughout the night, east to west throughout the year).												X		
4. Identify and describe the visual and telescopic appearance of planets and moons. (E, P) a. Locate and identify planets as bright, shining bodies that move in front of the background of constellations. b. Describe the physical features of the moon (craters, plains, mountains) and the planets.												X		

	Woods Walk	Forest Critters	Creepy Crawlies	Pond & Stream	Down To Earth	Rock Query	Refuge	Trail of Discovery	Connections	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
5. Discover the effects of external forces on the Earth's surface. (E) a. Describe how external forces including heat, wind and water affect the Earth's surface. b. Using maps, students identify watershed and run-off patterns of local areas. **c.** Group landform examples by the forces that may have created them.				**X**	**X**	**X**	**X**	**X**						
7. Discover how environmental concerns relate to the hydrosphere, lithosphere, and atmosphere. (E, L) a. Describe ways to protect the air we breathe. b. Recognize the need for conservation of water resources. c. Discuss the ways man can protect and manage organisms in the environment.	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**			**X**
9. Examine the different forms of energy. (E, L, P) a. Identify and explore forms of energy such as heat, sound, light, or electricity. b. Demonstrate the use of the sun as an energy source.					**X**									**X**

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Science Competency Correlations – Mississippi 2001
FIFTH GRADE

	Woods Walk	Forest Critters	Creepy Crawlies	Pond & Stream	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
1. Identify and describe structures and functions in living systems. (L, E) a. Investigate levels of organization in organisms including cells, tissues, organs, organ systems, whole organisms, and ecosystems. b. Explore ecosystems and biomes.	X	X	X	X	X	X	X	X	X	X	X		X	
3. Determine the factors that influence the regulation and behavior of organisms. (L, E) a. Identify and describe resources needed to grow, reproduce, maintain, and survive in a changing environment. b. Investigate ways organisms adapt to their environment.	X	X	X	X	X	X	X	X	X	X	X		X	X
4. Examine the physical factors of populations as they relate to the formation of an ecosystem. (L, E) a. Identify, describe, and illustrate the roles among producers, consumers, and decomposers in a food web. b. Investigate resources and other factors (living and nonliving) that promote and limit growth of populations in an ecosystem.	X	X	X	X	X	X	X	X	X	X	X			
5. Explore the diversity and adaptations of organisms. (L, E) a. Classify organisms by their similarities. b. Explore and explain biological adaptations in a particular environment. c. Research and investigate environmental changes and the inability of a species to adapt.	X	X	X	X	X		X	X	X					

	Woods Walk	Forest Critters	Creepy Crawlies	Pond & Stream	Down To Earth	Rock Query	Native American	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
6. Investigate the structure of the Earth. (E) a. Investigate the structure of the atmosphere (gas-air), hydrosphere (liquidwater), and lithosphere (solid-land). b. Examine how organisms affect the composition of the Earth and it's atmosphere. c. Analyze processes that cause changes on Earth. d. Explore fossils as indicators of how life and environmental conditions have changed.	**X**			**X**	**X**	**X**		**X**	**X**	**X**					**X**
7. Investigate the Earth as a part of the solar system. (E, P) a. Explore how the Earth's motion defines the day and the year and influences the phases of the moon and eclipses. b. Explain and illustrate how the tilt of the Earth's axis and Earth's revolution around the Sun create the seasons.													**X**		

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Science Competency Correlations – Mississippi 2001
SIXTH GRADE

	Woods Walk	Value of a Tree	Pond & Stream	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
1. Investigate structure and functions in living systems. (L, E) a. Identify, compare, and contrast levels of organization including cells, tissues, organs, organ systems, and organisms. b. Compare and contrast patterns and interactions of ecosystems and biomes.	X	X	X	X	X	X	X	X	X					
3. Explore how changing resources will influence the regulation and behavior of organisms. (L, E) a. Evaluate the significance of resources required by organisms. b. Investigate, compare/contrast ways organisms adapt to their environment.	X	X	X	X	X	X	X	X	X	X	X		X	X
4. Explore how different populations determine the formation of an ecosystem. (L, E) a. Compare/contrast the roles among producers, consumers, and decomposers in a food web. b. Manipulate resources and other factors (living and nonliving) that promote and limit growth of populations in an ecosystem.	X	X	X	X	X	X	X	X	X	X	X			X
5. Explore the unique characteristics and adaptations of organisms. (L, E) a. Evaluate and chart the similarities of organisms. b. Propose and relate environmental changes and the adaptive characteristics that influence the extinction of a species.	X	X	X	X	X	X	X	X	X	X	X			X

	Woods Walk	Value of a Tree	Pond & Stream	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
6. Model the structure of the Earth system past and present. (E) **a.** Construct and explain the structure of the atmosphere (gas-air), hydrosphere (liquid-water), lithosphere (solid-land), and changes that occur within**.** b. Examine the changes and processes that alter the Earth's system. c. Analyze fossils as indicators of how life and environmental conditions have changed.	X	X	X	X	X	X	X	X	X					X
7. Investigate the Earth in relation to the solar system. (E, P) a. Demonstrate how the Earth's motion influences the day, year, phases of b. the moon, and eclipses. c. Explore how gravity influences the motion of all celestial bodies. d. Demonstrate how the tilt of the Earth's axis and Earth's revolution around the sun create the seasons.												X		
8. Investigate structure, properties, and changes of matter. (E, P) a. Analyze properties such as density, boiling point, and solubility of a substance. b. differentiate between common elements that combine chemically to produce compounds.				X										
10. Examine the transfer of energy in many different forms. (E, L, P) a. Investigate forms of energy such as heat, sound, light, or electricity. b. Recognize the sun as a major source of energy.	X	X			X									X

McDowell Environmental Center
Science Competency Correlations – Mississippi 2001
SEVENTH GRADE

	Value of a Tree	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
3. Determine how organisms co-exist in their environment. (L) a. Demonstrate that cells interact with their environment. b. Investigate homeostasis as it relates to plants and animals.	X	X			X							
4. Explore how environmental factors of population influence the formation of an ecosystem. (L,E) a. Describe the process of photosynthesis and the use of its products. b. Design an experiment in plant behavior to include responses to water, gravity, and light. c. Investigate and research environmental concerns of the land, water, and air. d. Analyze the importance of biological diversity in communities and ecosystems.	X	X	X	X	X	X	X	X	X		X	X
5. Examine survival strategies of organisms over many generations. (L) a. Apply concepts of adaptation by analyzing how organisms are classified into groups and subgroups. b. Research animal adaptations and behaviors as related to survival strategies. c. Explain how natural and man-made pressures cause extinction.	X	X	X	X	X	X	X	X	X		X	X

	Value of a Tree	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Food For Thought
6. Explore the composition and changes of the Earth system. (E,P) a. Research and explain how crustal movements result in earthquakes, volcanoes, mountain formation, etc. b. Distinguish between chemical and physical weathering. c. Identify how forces such as erosion and deposition create landforms. d. Research landforms and fossils specific to Mississippi. e. Compare properties and composition of salt water, fresh water, and brackish water.		**X**	**X**	**X**	**X**	**X**	**X**					
7. Explain the causes of lunar phases, eclipses, and Earth's seasons. (E) a. Distinguish between radiating objects (the sun and the stars) and reflecting objects (the planets and their moons). b. Characterize lunar phases in terms of their appearance, their visibility at a given time of day or night, and their progression through time. c. Illustrate the relationship between lunar phases and the phase angle between the sun and the moon as seen from Earth. d. Illustrate the alignments of the Earth, the moon, and the sun, which give rise to solar and lunar eclipses and explain why these eclipses do not occur every month. e. Explain how the position of the earth in relation to the sun has an effect on seasonal weather changes.										**X**		
8. Investigate chemical and physical properties of matter. (P) a. Determine and measure experimentally: boiling point, melting point, density, and solubility. b. Demonstrate understanding that chemical and physical properties determine a substance's identity. c. Recognize elements that will combine to form compounds.		**X**		**X**								
10. Investigate the sources of energy. (P, E) a. Investigate the sun as a major source of energy. b. Research one or more of the sources of energy (nuclear, solar, wind, geothermal, hydro).	**X**	**X**										**X**

McDowell Environmental Center
Science Competency Correlations – Mississippi 2001
EIGHTH GRADE

	Value of a Tree	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Invention Convention	Food For Thought
1. Analyze and relate structure and function in living systems. (L) a. Analyze body systems and their functions. b. Relate interactions among body systems.	X	X			X			X	X				
3. Determine the economic factors that influence the regulation and behavior of organisms. (L,E) a. Appraise the economic factors associated with regulations and protection of the environment. b. Explain environmental degradation to include overpopulation, biodiversity, sea-level rise, and enhanced greenhouse effect.	X	X	X	X	X	X	X	X	X		X		X
4. Examine the physical factors of populations as they relate to the formation of ecosystems. (L, E) a. Analyze the adaptation of representative organisms to aquatic or terrestrial environments. b. Evaluate the effects of urbanization on aquatic or terrestrial ecosystems. c. Analyze how predation and food webs help structure communities.	X	X			X	X	X	X	X		X		X
5. Investigate atmospheric movements that affect the Earth's system. a. Analyze the cycles including nitrogen, water, carbon dioxide, and oxygen cycle.	X	X	X		X	X	X						X
6. Investigate the Earth's geological past. (E, L) a. Identify the components/stages of a geological timetable and discuss how the environment (including animals and landforms) has changed in each period. b. Describe methods and tools used in dating rocks and fossils. **c.** Discuss Mississippi's geological areas.			X	X									

	Value of a Tree	Stream Studies	Down To Earth	Rock Query	Connections	Refuge	Trail of Discovery	Feathers In Focus	Alabama Neighbors	Big Screen	Night Hike	Invention Convention	Food For Thought
7. Describe the appearance and nature of our galaxy and the universe. (E) a. Explain the relationship between distance and light-travel time (light year). b. Identify and describe deep-sky objects visible from Earth (diffuse nebulae, galactic and globular clusters, planetary nebulae, supernova remnants, "spiral nebulae"). c. Identify and describe the Milky Way as the galaxy to which we belong. d. Identify and describe our galaxy in terms of its components (core of older stars, spiral arms of gas and dust with younger stars, halo, "dark matter") and our location within it. e. Identify and describe "spiral nebulae" as distant galaxies. **f.** Identify and describe different types of galaxies in terms of their shape (spiral,barred spiral, elliptical, irregular) and level of activity									**X**			
8. Analyze the properties of matter. (P) a. Determine experimentally physical and chemical properties including density, conductivity, and reactions with water, acids, and bases. b. Write simple formulas for compounds. c. Distinguish among atoms, ions, and molecules. d. Determine experimentally how acidic or basic a substance is using a pH scale indicator.		**X**											
9. Explore the application of simple and complex machines. (P) a. Design and construct simple and complex machines.												**X**	