

Kindergarten

Medina County Schools'

Course of Study

For

Science

June, 2009

STANDARD 1: EARTH AND SPACE SCIENCES

Students demonstrate an understanding about how Earth systems and processes interact in the geosphere resulting in the habitability of Earth. This includes demonstrating an understanding of the composition of the universe, the solar system and Earth. In addition, it includes understanding the properties and the interconnected nature of Earth's systems, processes that shape Earth and Earth's history. Students also demonstrate an understanding of how the concepts and principles of energy, matter, motion and forces explain Earth systems, the solar system and the universe. Finally, they grasp an understanding of the historical perspectives, scientific approaches and emerging scientific issues associated with Earth and space sciences.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Observe constant and changing patterns of objects in the day and night sky.	SC.1.A.K.1 <i>The Universe</i>	1. Observe that the sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day.	Vocabulary
B. Explain that living things cause changes on Earth.	SC.1.B.K.2 <i>Processes That Shape Earth</i>	2. Explore that animals and plants cause changes to their surroundings.	
C. Observe, describe and measure changes in the weather, both long term and short term.	SC.1.C.K.3 <i>Processes That Shape Earth</i>	3. Explore that sometimes change is too fast to see and sometimes change is too slow to see.	Assessments
	SC.1.C.K.4	4. Observe and describe day-to-day weather changes (e.g., today is hot, yesterday we had rain).	
	SC.1.C.K.5	5. Observe and describe seasonal changes in weather.	Resources/Remediation/ Enrichment

STANDARD 1: EARTH AND SPACE SCIENCES (Cont.)

Students demonstrate an understanding about how Earth systems and processes interact in the geosphere resulting in the habitability of Earth. This includes demonstrating an understanding of the composition of the universe, the solar system and Earth. In addition, it includes understanding the properties and the interconnected nature of Earth's systems, processes that shape Earth and Earth's history. Students also demonstrate an understanding of how the concepts and principles of energy, matter, motion and forces explain Earth systems, the solar system and the universe. Finally, they grasp an understanding of the historical perspectives, scientific approaches and emerging scientific issues associated with Earth and space sciences.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
D. Describe what resources are and recognize some are limited but can be extended through recycling or decreased use.	See Grade 1 Page 29	No indicators present for this benchmark.	Vocabulary
			Assessments
			Resources/Remediation/ Enrichment

STANDARD 2: LIFE SCIENCES

Students demonstrate an understanding of how living systems function and how they interact with the physical environment. This includes an understanding of the cycling of matter and flow of energy in living systems. An understanding of the characteristics, structure and function of cells, organisms and living systems will be developed. Students will also develop a deeper understanding of the principles of heredity, biological evolution, and the diversity and interdependence of life. Students demonstrate an understanding of different historical perspectives, scientific approaches and emerging scientific issues associated with the life sciences.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Discover that there are living things, non-living things and pretend things, and describe the basic needs of living things (organisms).	SC.2.A.K.1 <i>Characteristics and Structure of Life</i>	1. Explore differences between living and non-living things (e.g., plant-rock).	Vocabulary
	SC.2.A.K.2	2. Discover that stories (e.g., cartoons, movies, comics) sometimes give plants and animals characteristics they really do not have (e.g., talking flowers).	
B. Explain how organisms function and interact with their physical environment.	SC.2.B.K.5 <i>Diversity and Interdependence of Life</i>	5. Investigate observable features of plants and animals that help them live in different kinds of places.	Assessments
	SC.2.B.K.6	6. Investigate the habitats of many different kinds of local plants and animals and some of the ways in which animals depend on plants and each other in our community.	
			Resources/Remediation/ Enrichment

STANDARD 2: LIFE SCIENCES (Cont.)

Students demonstrate an understanding of how living systems function and how they interact with the physical environment. This includes an understanding of the cycling of matter and flow of energy in living systems. An understanding of the characteristics, structure and function of cells, organisms and living systems will be developed. Students will also develop a deeper understanding of the principles of heredity, biological evolution, and the diversity and interdependence of life. Students demonstrate an understanding of different historical perspectives, scientific approaches and emerging scientific issues associated with the life sciences.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
C. Describe similarities and differences that exist among individuals of the same kind of plants and animals.	SC.2.C.K.3 <i>Heredity</i>	3. Describe how plants and animals usually resemble their parents.	Vocabulary
	SC.2.C.K.4	4. Investigate variations that exist among individuals of the same kind of plant or animal.	Assessments

STANDARD 3: PHYSICAL SCIENCES

Students demonstrate an understanding of the composition of physical systems and the concepts and principles that describe and predict physical interactions and events in the natural world. This includes demonstrating an understanding of the structure and properties of matter, the properties of materials and objects, chemical reactions and the conservation of matter. In addition, it includes understanding the nature, transfer and conservation of energy; motion and the forces affecting motion; and the nature of waves and interactions of matter and energy. Students demonstrate an understanding of the historical perspectives, scientific approaches and emerging scientific issues associated with the physical sciences.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Discover that many objects are made of parts that have different characteristics. Describe these characteristics and recognize ways an object may change.	SC.3.A.K.1 <i>Nature of Matter</i> SC.3.A.K.2 SC.3.A.K.3	1. Demonstrate that objects are made of parts (e.g., toys, chairs). 2. Examine and describe objects according to the materials that make up the object (e.g., wood, metal, plastic and cloth). 3. Describe and sort objects by one or more properties (e.g., size, color and shape).	Vocabulary
B. Recognize that light, sound and objects move in different ways.	SC.3.B.K.4 <i>Forces and Motion</i> SC.3.B.K.5	4. Explore that things can be made to move in many different ways such as straight, zigzag, up and down, round and round, back and forth, or fast and slow. 5. Investigate ways to change how something is moving (e.g., push, pull).	Assessments
C. Recognize sources of energy and their uses.	See Grade 1 Page 33	No indicators present for this benchmark.	Resources/Remediation/ Enrichment

STANDARD 4: SCIENCE AND TECHNOLOGY

Students recognize that science and technology are interconnected and that using technology involves assessment of the benefits, risks and costs. Students should build scientific and technological knowledge, as well as the skill required to design and construct devices. In addition, they should develop the processes to solve problems and understand that problems may be solved in several ways.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Explain why people, when building or making something, need to determine what it will be made of, how it will affect other people and the environment.	SC.4.A.K.1 <i>Understanding Technology</i>	1. Explore that objects can be sorted as “natural” or “man-made”.	Vocabulary
B. Explain that to construct something requires planning, communication, problem solving and tools.	SC.4.A.K.2	2. Explore that some materials can be used over and over again (e.g., plastic or glass containers, cardboard boxes and tubes).	Assessments
	SC.4.B.K.3 <i>Abilities To Do Technological Design</i>	3. Explore that each kind of tool has an intended use, which can be helpful or harmful (e.g., scissors can be used to cut paper but they can also hurt you).	Resources/Remediation/ Enrichment

STANDARD 5: SCIENTIFIC INQUIRY

Students develop scientific habits of mind as they use the processes of scientific inquiry to ask valid questions and to gather and analyze information. They understand how to develop hypotheses and make predictions. They are able to reflect on scientific practices as they develop plans of action to create and evaluate a variety of conclusions. Students are also able to demonstrate the ability to communicate their findings to others.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Ask a testable question.	SC.5.A.K.1 <i>Doing Scientific Inquiry</i>	1. Ask “what if” questions.	Vocabulary
	SC.5.A.K.2	2. Explore and pursue student-generated “what if” questions.	
B. Design and conduct a simple investigation to explore a question.	SC.5.B.K.3 <i>Doing Scientific Inquiry</i>	3. Use appropriate safety procedures when completing scientific investigations.	Assessments
	SC.5.B.K.4	4. Use the five senses to make observations about the natural world.	
	SC.5.B.K.7	7. Use appropriate tools and simple equipment/instruments to safely gather scientific data (e.g., magnifiers and other appropriate tools).	
	SC.5.B.K.10	10. Make new observations when people give different descriptions for the same thing.	Resources/Remediation/ Enrichment

STANDARD 5: SCIENTIFIC INQUIRY (Cont.)

Students develop scientific habits of mind as they use the processes of scientific inquiry to ask valid questions and to gather and analyze information. They understand how to develop hypotheses and make predictions. They are able to reflect on scientific practices as they develop plans of action to create and evaluate a variety of conclusions. Students are also able to demonstrate the ability to communicate their findings to others.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
C. Gather and communicate information from careful observations and simple investigation through a variety of methods.	SC.5.C.K.5 <i>Doing Scientific Inquiry</i>	5. Draw pictures that correctly portray features of the item being described.	Vocabulary
	SC.5.C.K.6	6. Recognize that numbers can be used to count a collection of things.	
	SC.5.C.K.8	8. Measure the lengths of objects using non-standard methods of measurement (e.g., teddy bear counters and pennies).	
	SC.5.C.K.9	9. Make pictographs and use them to describe observations and draw conclusions.	Assessments
			Resources/Remediation/ Enrichment

STANDARD 6: SCIENTIFIC WAYS OF KNOWING

Students realize that the current body of scientific knowledge must be based on evidence, be predictive, logical, subject to modification and limited to the natural world. This includes demonstrating an understanding that scientific knowledge grows and advances as new evidence is discovered to support or modify existing theories, as well as to encourage the development of new theories. Students are able to reflect on ethical scientific practices and demonstrate an understanding of how the current body of scientific knowledge reflects the historical and cultural contributions of women and men who provide us with a more reliable and comprehensive understanding of the natural world.

Ohio Benchmarks Grade K	Instructional Organization	Grade Level Indicators	Notes
A. Recognize that there are different ways to carry out scientific investigations. Realize that investigations can be repeated under the same conditions with similar results and may have different explanations.	SC.6.A.K.1 <i>Nature of Science</i>	1. Recognize that scientific investigations involve asking open-ended questions. (How? What if?)	Vocabulary
	SC.6.A.K.2	2. Recognize that people are more likely to accept your ideas if you can give good reasons for them.	
B. Recognize the importance of respect for all living things.	SC.6.B.K.3 <i>Ethical Practices</i>	3. Interact with living things and the environment in ways that promote respect.	Assessments
C. Recognize that diverse groups of people contribute to our understanding of the natural world.	SC.6.C.K.4 <i>Science and Society</i>	4. Demonstrate ways science is practiced by people everyday (children and adults).	
			Resources/Remediation/ Enrichment