Second Grade

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 2	Instructional Organization	Grade Level Indicators	Notes
A. Observe constant and changing patterns of objects in the day and night sky.	SC.1.A.2.1 *The Universe*	1. Recognize that there are more stars in the sky than anyone can easily count.	Vocabulary
	SC.1.A.2.2	2. Observe and describe how the sun, moon and stars all appear to move slowly across the sky.	
	SC.1.A.2.3	3. Observe and describe how the moon appears a little different every day but looks nearly the same again about every four weeks.	Assessments
B. Explain that living things cause changes on Earth.	See Grade 1 Page 28	No indicators present for this benchmark.	
C. Observe, describe and measure changes in the weather, both long term and short term.	SC.1.C.2.4 *Earth Systems*	4. Observe and describe that some weather changes occur throughout the day and some changes occur in a repeating seasonal pattern. 5. Describe weather by measurable quantities such as temperature and precipitation.	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 2	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 2	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.2.1 *Characteristics and Structure of Life* SC.2.A.2.5 *Diversity and Interdependence of Life*	1. Explain that animals, including people, need air, water, food, living space and shelter; plants need air, water, nutrients (e.g., minerals), living space and light to survive. 5. Explain that food is a basic need of plants and animals (e.g., plants need sunlight to make food and to grow, animals eat plants and/or other animals for food, food chain) and is important because it is a source of energy (e.g., energy used to play, ride bicycles, read, etc.).	Vocabulary Assessments 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 2	Instructional Organization	Grade Level Indicators	Notes
B. Explain how organisms function and interact with their physical environment.	SC.2.B.2.2 *Characteristics and Structure of Life*	2. Identify that there are many distinct environments that support different kinds of organisms.	Vocabulary
	SC.2.B.2.3	3. Explain why organisms can survive only in environments that meet their needs (e.g., organisms that once lived on Earth have disappeared for different reasons such as natural forces or human-caused effects).	
	SC.2.B.2.6	6. Investigate the different structures of plants and animals that help them live in different environments (e.g., lungs, gills, leaves and roots).	Assessments
	SC.2.B.2.7	7. Compare the habitats of many different kinds of Ohio plants and animals and some of the ways animals depend on plants and each other.	
	SC.2.B.2.8	8. Compare the activities of Ohio's common animals (e.g., squirrels, chipmunks, deer, butterflies, bees, ants, bats and frogs) during the different seasons by describing changes in their behaviors and body covering.	Resources/Remediation/ Enrichment
		9. Compare Ohio plants during the different seasons by describing changes in their appearance.	

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 2	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.2.4 *Heredity*	4. Compare similarities and differences among individuals of the same kind of plants and animals, including people.	Vocabulary Assessments Resources/Remediation/ Enrichment

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 2	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.	See Grade 1 Page 32	No indicators present for this benchmark.	Vocabulary
B. Recognize that light, sound and objects move in different ways.	SC.3.B.2.1 *Forces and Motion*	1. Explore how things make sound (e.g., rubber bands, tuning fork and strings).	Assessments
	SC.3.B.2.3	3. Explore with flashlights and shadows that light travels in a straight line until it strikes an object.	
C. Recognize sources of energy and their uses.	SC.3.C.2.2 *Forces and Motion*	2. Explore and describe sounds (e.g., high, low, soft and loud) produced by vibrating objects.	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 2	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.2.1 *Understanding Technology*	1. Explain that developing and using technology involves benefits and risks.	Vocabulary
	SC.4.A.2.2	2. Investigate why people make new products or invent new ways to meet their individual wants and needs.	
	SC.4.A.2.3	3. Predict how building or trying something new might affect other people and the environment.	Assessments
B. Explain that to construct something requires planning, communication, problem solving and tools.	SC.4.B.2.4 *Abilities To Do Technological Design*	4. Communicate orally, pictorially, or in written form the design process used to make something.	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 2	Instructional Organization	Grade Level Indicators	Notes
A. Ask a testable question.	SC.5.A.2.1 *Doing Scientific Inquiry*	1. Ask "how can I/we" questions.	Vocabulary
	SC.5.A.2.2	2. Ask "how do you know" questions (not "why" questions) in appropriate situations and attempt to give reasonable answers when others ask questions.	
	SC.5.A.2.3	3. Explore and pursue student-generated "how" questions.	Assessments
B. Design and conduct a simple investigation to explore a question.	SC.5.B.2.4 *Doing Scientific Inquiry*	4. Use appropriate safety procedures when completing scientific investigations.	
	SC.5.B.2.7	7. Use appropriate tools and simple equipment/instruments to safely gather scientific data (e.g., magnifiers, non-breakable thermometers, timers, rulers, balances and calculators and other appropriate tools).	Resources/Remediation/ Enrichment
	SC.5.B.2.8	8. Measure properties of objects using tools such as rulers, balances and thermometers.	

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 2	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.2.5 *Doing Scientific Inquiry* SC.5.C.2.6 SC.5.C.2.9 SC.5.C.2.10	5. Use evidence to develop explanations of scientific investigations. (What do you think? How do you know?) 6. Recognize that explanations are generated in response to observations, events and phenomena. 9. Use whole numbers to order, count, identify, measure and describe things and experiences. 10. Share explanations with others to provide opportunities to ask questions, examine evidence and suggest alternative explanations.	Vocabulary 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 2	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.2.1 *Nature of Science*	1. Describe that scientific investigations generally work the same way under the same conditions.	Vocabulary
B. Recognize the importance of respect for all living things.	SC.6.B.2.3 *Ethical Practices*	3. Describe ways in which using the solution to a problem might affect other people and the environment.	Assessments
C. Recognize that diverse groups of people contribute to our understanding of the natural world.	SC.6.C.2.2 *Nature of Science*	2. Explain why scientists review and ask questions about the results of other scientists' work.	
	SC.6.C.2.4 *Science and Society*	4. Demonstrate that in science it is helpful to work with a team and share findings with others.	Resources/Remediation/ Enrichment