

Third 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 3	Instructional Organization	Grade Level Indicators	Notes
A. Explain the characteristics, cycles and patterns involving Earth and its place in the solar system.	See Grade 5 Page 86	No indicators present for this benchmark.	Vocabulary
B. Summarize the processes that shape Earth’s surface and describe evidence of those processes.	See Grade 4 Page 72	No indicators present for this benchmark.	Assessments
			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 3	Instructional Organization	Grade Level Indicators	Notes
C. Describe Earth's resources including rocks, soil, water, air, animals and plants and the ways in which they can be conserved.	SC.1.C.3.1 <i>Earth Systems</i>	1. Compare distinct properties of rocks (e.g., color, layering and texture).	Vocabulary
	SC.1.C.3.2	2. Observe and investigate that rocks are often found in layers.	
	SC.1.C.3.3	3. Describe that smaller rocks come from the breakdown of larger rocks through the actions of plants and weather.	
	SC.1.C.3.4	4. Observe and describe the composition of soil (e.g., small pieces of rock and decomposed pieces of plants and animals, and products of plants and animals).	Assessments
	SC.1.C.3.5	5. Investigate the properties of soil (e.g., color, texture, capacity to retain water, ability to support plant growth).	
	SC.1.C.3.6	6. Investigate that soils are often found in layers and can be different from place to place.	Resources/Remediation/ Enrichment
D. Analyze weather and changes that occur over a period of time.	See Grade 4 Page 74	No indicators present for this benchmark.	

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 3	Instructional Organization	Grade Level Indicators	Notes
A. Differentiate between the life cycles of different plants and animals.	SC.2.A.3.1 <i>Heredity</i>	1. Compare the life cycles of different animals including birth to adulthood, reproduction and death (e.g., egg-tadpole-frog, egg-caterpillar-chrysalis-butterfly).	Vocabulary
B. Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.	SC.2.B.3.2 <i>Diversity and Interdependence of Life</i>	2. Relate animal structures to their specific survival functions (e.g., obtaining food, escaping or hiding from enemies).	
C. Compare changes in an organism's ecosystem/habitat that affect its survival.	SC.2.B.3.3	3. Classify animals according to their characteristics (e.g., body coverings and body structure).	Assessments
	SC.2.C.3.4 <i>Diversity and Interdependence of Life</i>	4. Use examples to explain that extinct organisms may resemble organisms that are alive today.	
	SC.2.C.3.5	5. Observe and explore how fossils provide evidence about animals that lived long ago and the nature of the environment at that time.	Resources/Remediation/ Enrichment
	SC.2.C.3.6	6. Describe how changes in an organism's habitat are sometimes beneficial and sometimes harmful.	

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 3	Instructional Organization	Grade Level Indicators	Notes
A. Compare the characteristics of simple physical and chemical changes.	See Grade 4 Page 76	No indicators present for this benchmark.	Vocabulary
B. Identify and describe the physical properties of matter in its various states.	See Grade 4 Page 76	No indicators present for this benchmark.	
C. Describe the forces that directly affect objects and their motion.	SC.3.C.3.1 <i>Forces and Motion</i>	1. Describe an objects position by locating it relative to another object or the background.	Assessments
	SC.3.C.3.2	2. Describe an objects motion by tracing and measuring its position over time.	
	SC.3.C.3.3	3. Identify contact/noncontact forces that affect motion of an object (e.g., gravity, magnetism and collision).	
	SC.3.C.3.4	4. Predict the changes when an object experiences a force (e.g., a push or pull, weight and friction).	Resources/Remediation/ Enrichment
D. Summarize the way changes in temperature can be produced and thermal energy transferred.	See Grade 4 Page 77	No indicators present for this benchmark.	

STANDARD 3: PHYSICAL SCIENCES (Cont.)

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 3	Instructional Organization	Grade Level Indicators	Notes
E. Trace how electrical energy flows through a simple electrical circuit and describe how the electrical energy can produce thermal energy, light, sound and magnetic forces.	See Grade 5 Page 91	No indicators present for this benchmark.	Vocabulary
F. Describe the properties of light and sound energy.	See Grade 5 Page 91	No indicators present for this benchmark.	Assessments
			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 3	Instructional Organization	Grade Level Indicators	Notes
A. Describe how technology affects human life.	SC.4.A.3.1 <i>Understanding Technology</i>	1. Describe how technology can extend human abilities (e.g., to move things and to extend senses).	Vocabulary
	SC.4.A.3.2	2. Describe ways that using technology can have helpful and/or harmful results.	
	SC.4.A.3.3	3. Investigate ways that the results of technology may affect the individual, family and community.	
B. Describe and illustrate the design process.	SC.4.B.3.4 <i>Abilities To Do Technological Design</i>	4. Use a simple design process to solve a problem (e.g., identify a problem, identify possible solutions and design a solution).	Assessments
	SC.4.B.3.5	5. Describe possible solutions to a design problem (e.g., how to hold down paper in the wind).	
			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 3	Instructional Organization	Grade Level Indicators	Notes
A. Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.	SC.5.A.3.1 <i>Doing Scientific Inquiry</i>	1. Select the appropriate tools and use relevant safety procedures to measure and record length and weight in metric and English units.	Vocabulary
B. Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.	SC.5.B.3.2 <i>Doing Scientific Inquiry</i>	2. Discuss observations and measurements made by other people.	
C. Develop, design and safely conduct scientific investigations and communicate the results.	SC.5.B.3.3	3. Read and interpret simple tables and graphs produced by self/others.	Assessments
	SC.5.B.3.5	5. Record and organize observations (e.g., journals, charts and tables).	
	SC.5.C.3.4 <i>Doing Scientific Inquiry</i>	4. Identify and apply science safety procedures.	Resources/Remediation/ Enrichment
	SC.5.C.3.6	6. Communicate scientific findings to others through a variety of methods (e.g., pictures, written, oral and recorded observations).	

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 3	Instructional Organization	Grade Level Indicators	Notes
A. Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.	See Grade 4 Page 80	No indicators present for this benchmark.	Vocabulary
B. Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.	SC.6.B.3.1 <i>Nature of Science</i>	1. Describe different kinds of investigations that scientists use depending on the questions they are trying to answer.	Assessments
C. Explain the importance of keeping records of observations and investigations that are accurate and understandable.	SC.6.C.3.2 <i>Ethical Practices</i>	2. Keep records of investigations and observations and do not change the records that are different from someone else's work.	Resources/Remediation/ Enrichment

**STANDARD 6: SCIENTIFIC WAYS OF KNOWING
(Cont.)**

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 3	Instructional Organization	Grade Level Indicators	Notes
D. Explain that men and women of diverse countries and cultures participate in careers in all fields of science.	SC.6.D.3.3 <i>Science and Society</i>	3. Explore through stories how men and women have contributed to the development of science. 4. Identify various careers in science. 5. Discuss how both men and women find science rewarding as a career and in their everyday lives.	Vocabulary
	SC.6.D.3.4 SC.6.D.3.5		Assessments
			Resources/Remediation/ Enrichment