21st CENTURY

2nd Grade Science

CONTENT STANDARDS AND OBJECTIVES FOR WEST VIRGINIA SCHOOLS (2520.3)

The Second Grade Science objectives build upon the early stages of experimentation and maintenance of natural curiosity. Through a spiraling, inquiry-based program of study and the use of 21st century skills, all students will demonstrate scientific literacy in the fields of biology, chemistry, physics and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. Second Grade Science will provide opportunities for developmental and academic growth. The activities will introduce the concept that science and technology are interrelated. The curricular thrust will be to develop early problem-solving skills through observation, experimenting and concluding.

The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools.

All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Second Grade

Grade 2	**Science**
Standard 1:	Nature of Science
SC.S.2.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.2.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level interview people in scientific careers; design and conduct investigations using safe techniques, draw conclusions and present their findings.	Second grade students at the above mastery level relate science careers to their role in the community; design and conduct simple investigations using safe techniques and draw conclusions from collected data.	Second grade students at the mastery level identify and discuss science careers in their community; design and conduct simple investigations using safe techniques; describe trends of data and make predictions; use scientific tools.	Second grade students at the partial mastery level discuss science careers; carry out a directed investigation using safe techniques; collect and record data; classify tools.	Second grade students at the novice level list careers in science; observe simple investigations and view data collected; identify scientific tools.

Objectives	Students will
SC.O.2.1.01	interpret science as the human's search for an understanding of the world by asking questions about themselves and their world.
SC.O.2.1.02	compare the lives and discoveries of scientists of different cultures and backgrounds.
SC.O.2.1.03	identify and discuss science careers in the community.
SC.O.2.1.04	demonstrate curiosity, initiative and creativity by observing, classifying, comparing and analyzing natural objects in the environment.
SC.O.2.1.05	manipulate scientific instruments and everyday materials to investigate the natural world (e.g., hand lens, balance, thermometer, metric ruler, magnets, weather instruments, or calculators).
SC.O.2.1.06	measure the length and width of various objects using standard and non-standard units (e.g., metric ruler, paper clips, or counting bears).
SC.O.2.1.07	use safe and proper techniques for handling, manipulating, and caring for science materials (e.g., follow safety rules, maintain a clean work area, or treat living organisms humanely).
SC.O.2.1.08	design and conduct simple investigations; observe, collect and record information using a variety of classification systems; describe trends of data; and make predictions based on that data (e.g., seasonal changes and plants or temperature and weather).

Grade 2	**Second Grade Science**
Standard 2:	Content of Science
SC.S.2.2	Students will ● demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives. ● demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. ● apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.2.2

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level relate various structures and functions of different plants and animals; compare and contrast various life cycles of plant and animals; explain the differences in organisms that live in various habitats; compare and contrast the changes in states of matter; predict the properties of light, heat, and magnetism; predict motion when force is applied; design an experiment to show variable pitch; predict changes in the earth and sky; examine and classify fossils.	Second grade students at the above mastery level compare and contrast structures of plant and animals; construct diagrams to represent life cycles of various plants and animals; predict the organisms that would live in a habitat; explain the changes in each state of matter; investigate properties of light, heat, and magnetism; explain the effects of force verses motion and the changes in pitch and volume; compare and contrast the changes on earth and in the sky; describe and correlate fossils to original organisms.	Second grade students at the mastery level identify and explain various structures and functions in plants and animals; sequence illustrations of plant and animal life cycles and relate them to the human life cycle; compare and contrast habitats; identify physical properties and changes of matter; identify and demonstrate properties of light, heat, and magnetism; explore sound and compare the force and motion of objects; observe, identify and explain the changes in earth and the sky; describe and correlate fossils to original organisms.	Second grade students at the partial mastery level identify various structures of plant and animals; describe life cycles of plants and animals and different habitats; identify physical properties of matter; identify the properties of light, heat, and magnetism; explore the motion of objects; identify the changes in the earth and sky; explain how fossils form.	Second grade students at the novice level name structures of plants and animals; identify plant and animal life cycles; list habitats; name a physical property of matter; recognize properties of light, heat, and magnetism; describe an object's motion; describe daily weather changes; identify a fossil.

Objectives	Students will
SC.O.2.2.01	identify that plants and animals have different structures.
SC.O.2.2.02	identify the structures of living things including their systems, and explain their functions (e.g., wings for flying, fins for swimming, or roots for support and obtaining water).
SC.O.2.2.03	sequence pictures of events to illustrate the changes in the life cycle of plants and animals.
SC.O.2.2.04	relate observations of the butterfly's life cycle to student's own growth and change.
SC.O.2.2.05	compare and contrast simple models of different kinds of habitats, including a forest and a stream.
SC.O.2.2.06	identify materials as a solid, a liquid or a gas and recognize that matter takes up space, and can change from one state to another.
SC.O.2.2.07	demonstrate that a magnet can attract or repel objects.
SC.O.2.2.08	identify which materials and colors conduct heat better than others.
SC.O.2.2.09	demonstrate that a shadow is cast when an object blocks light.
SC.O.2.2.10	compare the effects of force on the motion of an object.
SC.O.2.2.11	explore how sound can change in pitch and volume.
SC.O.2.2.12	identify and examine changes in the earth's surface (e.g., weathering, or erosion).
SC.O.2.2.13	identify the effects of wind movement.
SC.O.2.2.14	observe and describe different types of precipitation.
SC.O.2.2.15	describe daily and seasonal weather changes.
SC.O.2.2.16	explain how the rotation of the Earth on its axis causes day and night.
SC.O.2.2.17	understand that the moon has phases.
SC.O.2.2.18	describe how fossils are formed, and match a fossil, or a picture of a fossil, to its original organism.

Grade 2	**Second Grade Science**
Standard 3:	Application of Science
SC.S.2.3	Students will • identify how the parts of a system interact. • recognize and use models as representations of real things. • observe that changes occur gradually, repetitively, or randomly within the environment. • recognize that common objects and events incorporate science to solve human problems and enhance the quality of life. • demonstrate the ability to listen to, be tolerant of, and evaluate the impact of different points of view on health, population, resources and environmental practices while working in collaborative groups.

Performance Descriptors SC.PD.2.3				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level describe and identify how parts of a system interact; construct and describe a model; observe and identify patterns of change, consistency or regularity within the environment; use technology to gather and communicate data; demonstrate tolerance of different points of view; engage and involve the community in conservation practices**.**	Second grade students at the above mastery level describe and identify how parts of a system interact; construct a model as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; use technology to gather data; demonstrate tolerance of different points of view; engage in conservation practices.	Second grade students at the mastery level identify how parts of a system interact; recognize and use models as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; recognize that science is incorporated into solving problems and enhancing daily life; demonstrate tolerance of different points of view; engage in conservation practices.	Second grade students at the partial mastery level list parts of a system; recognize and use models; name patterns of change within the environment; give examples of science and technology in daily events work in collaborative groups; list conservation practices.	Second grade students at the novice level name a system; recognize models; list an environmental change; name an example of technology in daily events; name a conservation practice.

Objectives	Students will
SC.O.2.3.01	identify parts of systems and identify how they interact with one another.
SC.O.2.3.02	use models as representations of real things.
SC.O.2.3.03	observe that changes occur gradually, repetitively, or randomly within the environment.
SC.O.2.3.04	recognize that common objects and events incorporate science (e.g., CD players, Velcro, or weather) to solve human problems and enhance the quality of life.
SC.O.2.3.05	listen to and be tolerant of different viewpoints while working in collaborative groups.
SC.O.2.3.06	develop respect and responsibility for the environment by engaging in conservation practices (e.g., recycling, trash clean-up, or power consumption reduction).