

21st CENTURY

3rd Grade Science

CONTENT STANDARDS AND OBJECTIVES FOR WEST VIRGINIA SCHOOLS (2520.3)

The Third Grade Science objectives build upon problem-solving and experimentation and move into a more in-depth study of science. Through a spiraling, inquiry-based program of study, 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. Third Grade Science highlights science-related careers. The study of geology and astronomy expands in Third Grade Science. Collecting materials, testing the materials, recording data and developing concepts related to physics and chemistry are introduced to expand investigative abilities that lead to logical conclusions.

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.

Third Grade

Grade 3	Science
Standard 1:	Nature of Science
SC.S.3.1	Students will <ul style="list-style-type: none">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.3.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level research scientists from different cultures and backgrounds and present their findings using technology; design and conduct an investigation using safe techniques; interpret, predict, and present data, control variables and conduct multiple trials.	Third grade students at the above mastery level compare and contrast the lives and discoveries of scientists from different cultures and backgrounds and identify their discoveries; plan and conduct investigations using safe techniques; interpret and present data and control variables.	Second grade students at the mastery level study scientists from different cultures and backgrounds and identify their discoveries; recognize that scientific explanations lead to new discoveries; plan and conduct simple investigations using safe techniques; interpret and present data; control variables, and explore science careers in the community.	Second grade students at the partial mastery level name scientists from different cultures and backgrounds and recall their discoveries; conduct investigations using safe techniques; identify variables, and record data.	Second grade students at the novice level name a scientist from a different culture and background; and observe and participate in investigations using safe techniques.
Objectives	Students will			
SC.O.3.1.01	recognize that scientific explanations may lead to new discoveries (e.g., new knowledge leads to new questions).			
SC.O.3.1.02	study the lives and discoveries of scientists of different cultures and backgrounds.			
SC.O.3.1.03	explore science careers in the community.			
SC.O.3.1.04	demonstrate curiosity, initiative and creativity by planning and conducting simple investigations.			
SC.O.3.1.05	recognize that developing solutions to problems takes time, patience and persistence through individual and cooperative ventures.			
SC.O.3.1.06	support statements with facts found through research from various sources, including technology.			
SC.O.3.1.07	use scientific instruments, technology, and everyday materials to investigate the natural world.			
SC.O.3.1.08	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.3.1.09	apply mathematical skills and use metric units in measurements.			
SC.O.3.1.10	interpret data presented in a table, graph, map or diagram and use it to answer questions and make predictions and inferences based on patterns of evidence.			
SC.O.3.1.11	Identify and control variables.			

Grade 3	Science			
Standard 2:	Content of Science			
SC.S.3.2	<p>Students will</p> <ul style="list-style-type: none"> 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.3.2				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
<p>Third grade students at the distinguished level construct and use classification systems based on the structure and physical characteristics of living things and propose how adverse factors affect the interrelationships of organisms; investigate and describe various properties of matter including states of matter, physical and chemical properties/changes; design an experiment to test the reflection, refraction, and absorption of light by objects; measure and record changes in the direction of an object when forces have been applied; demonstrate the relationships between speed, distance, and time; evaluate the consequences of earthquakes and volcanic eruptions and explore how technologies are used to help predict the impact of future occurrences; explain the effects of the alignment of earth, moon, and sun on the earth; compare and contrast rocks and minerals and factors that affect their formation; infer how natural processes and human behavior affect geographical features.</p>	<p>Third grade students at the above mastery level classify a variety of organisms according to specific physical characteristics and explain the importance of plants and animals adapting to their environment; describe physical and chemical properties of matter and recognize change in temperature to state of matter; demonstrate that light can be reflected and refracted; explain the relationship between speed, distance, and time when forces have been applied; compare changes in the Earth's surface that are due to erosion, volcanic eruptions, and earthquakes; explain how fossils provide evidence about prehistoric life; compare and contrast the planets and their movement; differentiate between types of rocks and their formation; construct and interpret models that illustrate the geographical features and layers of the earth.</p>	<p>Third grade students at the mastery level compare the physical characteristics, structures, and behaviors of living things and explain how they function, change and adapt to their environment; identify physical and chemical properties of matter including density and changes in states of matter; investigate the properties of light energy; recognize the principles of force and motion and identify examples of potential and kinetic energy; examine the relationship between speed, distance and time; explore and describe how erosion, volcanoes, and earthquakes change Earth's surface; identify fossils as a record of time; describe the relative movement of the earth and moon in relation to the sun; describe the planets; identify the composition of rocks and explain how they are formed; compare and contrast layers of the Earth; identify geographical features using a model or map.</p>	<p>Third grade students at the partial mastery level list ways living things function, change, and interact with each other and their environment; identify physical properties of matter; relate the color of an object to reflection; demonstrate the principles of force and motion; describe how erosion, volcanoes, and earthquakes change Earth's surface; describe how fossils are formed; name the planets; describe the motion of Earth and moon in relation to the sun; name the three types of rocks; describe geographical features and identify layers of the Earth.</p>	<p>Third grade students at the novice level list the physical characteristics of living things; name the three states of matter; recognize that light can be reflected; give an example of energy of motion; list erosion, earthquakes, and volcanoes as changes that affect Earth's surface; match a fossil to its original organism; draw a model of the earth and moon in relation to the sun; list physical characteristics of rocks, name geographical features of the Earth.</p>

Objectives	Students will
SC.O.3.2.01	identify the structures of living things, including their systems and explain their functions.
SC.O.3.2.02	observe, measure and record changes in living things (e.g., growth and development, or variations within species).
SC.O.3.2.03	compare physical characteristics and behaviors of living organisms and explain how they are adapted to a specific environment (e.g., beaks and feet in birds, seed dispersal, camouflage, or different types of flowers).
SC.O.3.2.04	observe and describe relationships among organisms and predict the effect of adverse factors.
SC.O.3.2.05	relate the buoyancy of an object to its density.
SC.O.3.2.06	identify physical and chemical properties.
SC.O.3.2.07	relate changes in states of matter to changes in temperature.
SC.O.3.2.08	investigate the dissolving of solids in liquids.
SC.O.3.2.09	investigate the reflection and refraction of light by objects.
SC.O.3.2.10	relate how the color of an object is based upon the reflection of light.
SC.O.3.2.11	recognize that it takes work to move objects over a distance.
SC.O.3.2.12	examine the relationships between speed, distance, and time.
SC.O.3.2.13	recognize that the greater a force is exerted on an object, the greater the change of its motion.
SC.O.3.2.14	identify examples of potential and kinetic energy.
SC.O.3.2.15	identify fossils as a record of time.
SC.O.3.2.16	explore erosion of different materials by water and wind (e.g., sand, soil, or rocks).
SC.O.3.2.17	describe how volcanoes and earthquakes affect the Earth.
SC.O.3.2.18	recognize the relative movement of the Earth and moon in relation to the sun.
SC.O.3.2.19	describe the similarities and differences among the planets.
SC.O.3.2.20	identify properties of minerals and recognize that rocks are composed of different minerals.
SC.O.3.2.21	explain how igneous, sedimentary and metamorphic rocks are formed.
SC.O.3.2.22	identify geographical features using a model or map.
SC.O.3.2.23	compare and contrast the layers of the Earth and their various features.

Grade 3	Science
Standard 3:	Application of Science
SC.S.3.3	<ul style="list-style-type: none"> Students will identify how the 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. demonstrate the ability to utilize technology to gather and organize data to communicate designs, results and conclusions. identify that a solution to a problem often creates new problems. 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.3.3				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Third grade students at the distinguished level explain how parts of a system interact; construct and explain a model that represents an abstract idea; predict patterns of change within the environment; apply technology to solve problems, gather and communicate data; demonstrate tolerance of different points of view and the willingness to modify ideas when new and valid information is presented.	Third grade students at the above mastery level describe and identify how parts of a system interact; construct 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.	Third 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; cite examples of science and technology in daily events; demonstrate tolerance of different points of view.	Third grade students at the partial mastery level list parts of a system; recognize and use models; name patterns of change within the environment; cite examples of science and technology in daily events; work in collaborative groups.	Third grade students at the novice level name a system; recognize models; name an environmental change, cite examples of science and technology in daily events.
Objectives	Students will			
SC.O.3.3.01	identify that systems are made of parts that interact with one another.			
SC.O.3.3.02	use models as representations of real things.			
SC.O.3.3.03	observe that changes occur gradually, repetitively, or randomly within the environment and question causes of changes.			
SC.O.3.3.04	given a set of objects, group or order the objects according to an established scheme.			
SC.O.3.3.05	given a set of events, objects, shapes, designs, or numbers, formulate patterns of constancy or regularity.			
SC.O.3.3.06	cite examples of the uses of science and technology in common daily events and in the community.			
SC.O.3.3.07	explain a simple problem and identify a specific solution describing the use of tools and/or materials to solve the problem or to complete the task.			
SC.O.3.3.08	recognize that a solution to one scientific problem often creates new problems (e.g., recycling, pollution, conservation, or waste disposal).			
SC.O.3.3.09	listen to and be tolerant of different viewpoints by engaging in collaborative activities and be willing to modify ideas when new and valid information is presented.			
SC.O.3.3.10	develop respect and responsibility for the environment by engaging in conservation practices.			
SC.O.3.3.11	describe how modern tools and appliances have positively and/or negatively impacted their daily lives.			