



**WEST VIRGINIA
SECRETARY OF STATE**

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ADMINISTRATIVE LAW DIVISION

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OFFICE OF
WEST VIRGINIA SECRETARY OF STATE

**FORM 5 -- NOTICE OF AGENCY ADOPTION OF A PROCEDURAL OR INTERPRETIVE RULE OR
A LEGISLATIVE RULE EXEMPT FROM LEGISLATIVE REVIEW**

AGENCY **Education**

RULE TYPE **Legislative Exempt** **AMENDMENT TO EXISTING RULE** **Yes** **TITLE-SERIES** **126-**

RULE NAME **Alternate Academic Achievement Standards for Science in West Virginia Schools (2520.044P)**

CITE AUTHORITY **W. Va. Code §§29A-3B-1, et seq.; W. Va. Board of Education v. Hechler, 180 W. Va. 451; 376 S.E.2d 839 (1988)**

RULE IS LEGISLATIVE EXEMPT

Yes

CITE STATUTE(S) GRANTING EXEMPTION FROM LEGISLATIVE REVIEW

W. Va. Code §§29A-3B-1, et seq.; W. Va. Board of Education v. Hechler, 180 W. Va. 451; 376 S.E.2d 839 (1988)

**THE ABOVE RULE IS HEREBY ADOPTED AND FILED WITH THE SECRETARY OF STATE, THE
EFFECTIVE DATE OF THIS RULE IS**

Monday, July 01, 2013

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENTS ARE TRUE AND CORRECT.

Yes

**Charles K Heinlein -- By my signature, I certify that I am the person authorized to file legislative rules, in
accordance with West Virginia Code §29A-3-11 and §39A-3-2.**



Title-Series: 126-044P



Rule Id: 8900



Document: 24509

126CSR44P

**TITLE 126
LEGISLATIVE RULE
BOARD OF EDUCATION**

**SERIES 44P
ALTERNATE ACADEMIC ACHIEVEMENT STANDARDS
IN SCIENCE FOR WEST VIRGINIA SCHOOLS (2520.16)**

§126-44P-1. General.

1.1. Scope. West Virginia Board of Education 126CSR42, Policy 2510, *Assuring the Quality of Education: Regulations for Education Programs* (hereinafter Policy 2510), provides a definition of a delivery system for, and an assessment and accountability system for, a thorough and efficient education for West Virginia public school students. Policy 2520.16 defines the alternate academic achievement standards for science across grades 3 – 8 and 10 and 11 for students with the most significant cognitive disabilities and is inclusive of existing content standards, extended standards, and performance descriptors as required by Policy 2510.

1.2. Authority. W. Va. Constitution, Article XII, §2, W. Va. Code §18-2-5 and §18-9A-22.

1.3. Filing Date. - January 11, 2013

1.4. Effective Date. - July 1, 2013

1.5. Repeal of former rule. This legislative rule repeals and replaces W. Va. 126CSR44P, West Virginia Board Policy 2520.16, *Alternate Academic Achievement Standards for West Virginia Schools* filed March 19, 2007 and effective April 18, 2007.

§126-44P-2. Purpose.

2.1. This policy defines the alternate academic achievement standards for the program of study required by Policy 2510 for students with the most significant cognitive disabilities, i.e., those who are typically assessed with the West Virginia Alternate Assessment.

§126-44P-3. Incorporation by Reference.

3.1. *The West Virginia Extended Academic Content Standards and Performance Descriptors* in science across grades 3 – 8 and 10 and 11 is attached and incorporated by reference into this policy. Copies may be obtained in the Office of the Secretary of State and in the West Virginia Department of Education.

3.2. Summary (of Alternate Academic Achievement Standards.) The West Virginia Board of Education has the responsibility for establishing high quality educational standards for all education programs (W.Va. Code §18-9A-22). The alternate academic achievement standards provide a framework for teachers of students with the most significant cognitive disabilities to teach skills and competencies essential for independent living, employment, and postsecondary education. Policy 2520.16 links the existing content standards in reading/language arts, in math and in science with the extended standards and includes performance descriptors that are aligned with the extended standards. These performance descriptors are the basis for cut scores for the Alternate Assessment. The extended standards and performance descriptors included in Policy 2520.16 are applicable for students with the most significant cognitive disabilities, i.e., students who are assessed with the West Virginia Alternate Performance Task Assessment

§126-44P-4. Severability.

4.1. If any provision of this rule or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this rule.

***West Virginia Extended Academic Content Standards
and Performance Descriptors***

for

Students with the Most Significant Cognitive Disabilities

Incorporating

Science

Grades 3 – 8 and 10 and 11

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For Students with the Most Significant Cognitive Disabilities

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Explanation of Terms

Alternate Academic Achievement Standards encompass the essence of State Content Standards, their linked extended standards, performance levels, performance descriptors aligned with the extended standards, and cut scores based on these extended standards and performance descriptors. As with State Content Standards, Alternate Academic Achievement Standards describe the level students with the most significant cognitive disabilities must reach to achieve proficiency on the extended standards when they complete their formal education.

Essence of the Standard is that which conveys the same ideas, skills and content of the Standard, expressed in simpler terms.

Extended Standards evolve from the essence of the standard, which provides linkage to the fundamental content of the State Content Standard. This extension ensures that students with the most significant cognitive disabilities have access to, and make progress in, the general curriculum.

Performance Descriptors describe, in narrative format, how students demonstrate achievement of the extended standards. Four performance levels have been adopted for West Virginia's alternate academic achievement standards: Above Mastery, Mastery, Partial Mastery, and Novice. **Mastery is considered to be demonstrated at Levels III and IV** and is identified as meeting the proficient level specified in *No Child Left Behind*.

A general description of each of these categories is included below:

- **Level IV: Above Mastery**
A student at this level performs complex tasks without assistance, i.e., independently
- **Level III: Mastery**
A student at this level performs tasks without assistance and is considered progressing toward independence
- **Level II: Partial Mastery**
A student at this level performs tasks with assistance.
- **Level I: Novice**
A student at this entry level attempts to perform tasks with assistance.

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Performance Descriptors serve two functions. Instructionally, they give teachers more information about the level of knowledge and skills they are building in their students. Performance descriptors are also used to categorize and explain student performance on statewide assessment instruments.

Numbering of Extended Standards

The number for each extended standard is composed of five parts, each part separated by a period:

- The content area code is SC for Science and CC for Chemistry
- The grade level
- The Content Standard number
- The letter ES, for Extended Standard; and
- The Extended Standard number

Illustration: SC.3.1.ES.2: Science, Grade 3, Standard 1, Extended Standard 2

Numbering of Performance Descriptors

The number for each group of four performance descriptors is composed of five parts, each part separated by a period:

- The content area is SC for science, BTC for biology and CTC for chemistry;
- The letters PD, for Performance Descriptor;
- The grade level,
- The Content Standard number; and
- The Extended Standard number.

Illustration: SC.PD.CC.1.ES.1: Science, Performance Descriptor, Chemistry Standard 1, Extended Standard 1

Unique Electronic Numbers (UENs)

Unique Electronic Numbers (or UENs) are numbers that help to electronically identify, categorize and link specific bits of information. Once Policy 2520.16 is available on the Web, each standard, each objective, and each group of four performance descriptors will have a Unique Electronic Number (UEN) that will always remain the same.

The codes printed in Policy 2520.16 form the basis of the UENs. The only additional set of numbers that will be added to each code to formulate its UEN will be a prefix that indicates the year and month that particular versions of Policy 2520.1 and Policy 2520.2 are approved by the State Board of Education.

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The prefix for the UENs for each content area in Policy 2520.16 is noted at the top of each page containing standards, objectives and performance descriptors. As sections of 2520.16 are revised, UENs will be changed to reflect the new approval date.

UENs facilitate implementation of WV Standards into Electronic formats such as Databases and XML Files. The WV Department of Education encourages everyone who is going to use the WV Content Standards in any kind of electronic distribution, alignment, or software development to use the UENs so that all efforts can be cross-referenced and there is consistency across initiatives.

Alternate Academic Achievement Standards – Policy 2520.16

Alternate academic achievement standards clarify appropriate knowledge and skills in science for students with the most significant cognitive disabilities. These students are assessed with the West Virginia Alternate Performance Task Assessment. The extended grade level standards distill the essence of the three science standards that are included in the West Virginia Content Standards and then link extensions of those standards that are appropriate for this group of students. Performance descriptors for each grade describe observable behavior that meets Novice, Partial Mastery, Mastery and Above Mastery requirements. Cut scores based on the extended standards and their aligned performance descriptors define the thresholds between these performance levels.

These standards, written collaboratively by special education teachers, general education teachers, and WVDE content specialists, are based on the collective knowledge and expertise of this group with revisions by a statewide review team. The standards describe what students with the most significant cognitive disabilities should be able to accomplish across grade levels in the areas of science.

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GRADE THREE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Nature of Science (SC.S.3.1)

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.

Essence of Standard: S.1 demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.3.1.1 recognize that science explanations may lead to new discoveries (e.g., knowledge leads to new question). SC.O.3.1.2 study the lives and discoveries of scientists of different cultures and backgrounds. SC.O.3.1.3 explore science careers in the community. SC.O.3.1. demonstrate curiosity, initiative and creativity by planning and conducting simple investigations. SC.O.3.1.5 recognize that developing solutions to problems takes time, patience and persistence through individual and cooperative ventures. SC.O.3.1.6 support statements with facts found through research from various sources, including	SC.3.1. ES.1 recognize tools used to investigate scientific concepts (e.g., magnifying glass, thermometer, ruler).	SC.PD.3.1. ES.1 Level IV students perform the following complex task without assistance: Student will • apply scientific tool to its use. EX: use a microscope to view a cell. EX: use a ruler to measure an object. EX: use a measuring cup to measure a cup of sugar. Level III students perform the following without assistance: Student will • recognize tools used to investigate scientific concepts (e.g., magnifying glass, thermometer, ruler). EX: given three instruments (magnifying glass, thermometer, ruler), determine instrument used to measure temperature. EX: given the item, determine which objects will be viewed through a magnifying glass.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
technology. SC.O.3.1.7 use scientific instruments, technology, and everyday materials to investigate the natural world. SC.O.3.1.8 use safe and proper techniques for handling, manipulating and caring for science materials (e.g., following safety rules, maintain a clean work area, or treat living organisms humanely). SC.O.3.1.9 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.		Level II students perform the following with assistance: Student will - recognize use of a scientific tool. EX: given two scientific instruments, show how to use the provided tool. Level I students attempt to perform the following with assistance: Student will - find a scientific tool. EX: point to magnifying glass, thermometer, rain gauge or magnet.

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GRADE THREE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.3.2)

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 science.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.3.2.1 identify the structures of living things, including their systems and explain their functions. SC.O.3.2.2 observe, measure and record changes in living things (e.g., growth and development, or variations within species). SC.O.3.2.3 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.3.2.4 observe and describe relationships among organisms and predict the effect of adverse factors. SC.O.3.2.5 relate the buoyancy of an object to its density.	SC.3.2.ES.1 categorize characteristics of living and non-living matter.	SC.PD.3.2. ES.1 Level IV students perform the following complex task without assistance: Student will • describe how living and non-living things are different. EX: describe how a tree can grow but a table cannot; a child can run and jump but rock cannot move on its own. Level III students perform the following without assistance: Student will • categorize characteristics of living and non-living matter. EX: categorize pictures into groups according to specific characteristics e.g., organisms that breathe through the air versus through the water.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.3.2.6 identify physical and chemical properties. SC.O.3.2.7 relate changes in states of matter to changes in temperature. SC.O.3.2.8 investigate the dissolving of solids in liquids.		Level II students perform the following with assistance: Student will • sort matter into living and non-living groups. EX: sort living and non-living matter into appropriate groups. EX: select picture of living matter from groups of pictures representing both living and non-living matter. Level I students attempt to perform the following with assistance: Student will • identify living/non-living things. EX: point to an animal. EX: point to a plant. EX: point to a rock. EX: point to a car.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.3.2.9 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.3.2 ES. 2 recognize influences of force on motion.	SC.PD.3.2. ES.2 Level IV students perform the following complex task without assistance: Student will - compare influences of force on motion. EX: determine, if 2 motorcycles leave point A at the same time, one driving 30 mph, one at 10 mph, which will arrive at point B first. EX: determine which ball will move farther, one rolled on a smooth surface versus a rough surface. Level III students perform the following without assistance: Student will - recognize influences of force on motion. EX: do a simple experiment: recognize that when two balls are different sizes pushed with the same force one will go further. EX: recognize that a toy car will go further being pushed than letting it roll on its own. EX: recognize what effects gravity and friction have on a person going down a slide. Level II students perform the following with assistance: Student will - recognize that forces can cause motion. EX: recognize when a bat hits a baseball it will move. EX: recognize a swing will move when pushed. Level I students attempt to perform the following with assistance: Student will - identify motion EX: given picture of wheel, will it roll- yes /no? EX: given 2 pictures, point to the one that moves (car, building).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
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 reaction 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.	SC.3.2.ES.3 describe basic characteristics of landforms.	SC.PD.3.2. ES.3 Level IV students perform the following complex task without assistance: Student will - locate different geographical landforms on map. EX: find geographical landform on map i.e., island, mountain, ocean. Level III students perform the following without assistance: Student will - describe basic characteristics of landforms. EX: describe mountains (mountains are high). EX: describe rivers (contain water). Level II students perform the following with assistance: Student will - label pictures of different landforms (rock, soil, water). EX: label picture of river, mountain or island. Level I students attempt to perform the following with assistance: Student will - identify natural materials that make up geographical landforms (rock, soil, water). EX: identify rock from pictures of a rock, tree, and leaf.

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GRADE THREE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.3.3)

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.

Essence of Standard: S.3 demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performances Descriptors
SC.O.3.3.1 identify that systems are made of parts that interact with one another. SC.O.3.3.2 use models as representations of real things. SC.O.3.3.3 observe that changes occur gradually, repetitively, or randomly within the environment and question causes of changes. SC.O.3.3.4 given a set of objects, group order the objects according to an established scheme.	SC.3.3.ES.1 classify scientific systems within the environment.	SC.PD.3.3. ES.1 Level IV students perform the following complex task without assistance: Student will • compare different systems in the environment. EX: compare animals to their ecosystem (e.g., How is a camel suited to live in the desert? How is a polar bear suited for the North Pole?). EX: compare plants to their ecosystems. Level III students perform the following without assistance: Student will • classify scientific systems within the environment. EX: sort animals into those that live on land versus those that live in water. EX: classify eight pictures into the four seasons.

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Grade Level Objectives	Extended Grade Level Standards	Performances Descriptors
SC.O.3.3.5 given a set of events, objects, shapes, designs, or numbers, formulate patterns of constancy or regularity. SC.O.3.3.6 cite examples of the uses of science and technology in common daily events and in the community. SC.O.3.3.7 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.3.3.8 recognize that a solution to one scientific problem often creates new problems (e.g., recycling, pollution, conservation, or waste disposal). SC.O.3.3.9 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		Level II students perform the following with assistance: Student will - match a component of a scientific systems to a whole. EX: match a picture of a fish to a picture of an ocean. EX: match a picture of a deer to a picture of a forest. EX: select picture of a rainforest. Level I students attempt to perform the following with assistance: Student will - select scientific systems. EX: select picture of a forest. EX: select picture of an ocean.

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GRADE FOUR EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Nature of Science (SC.S.4.1)

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.

Essence of Standard: S.1 demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.1.1 explain how new discoveries lead to changes in scientific knowledge. SC.O.4.1.2 study the lives and discoveries of scientists of different cultures and backgrounds. SC.O.4.1.3 explore science careers in West Virginia. SC.O.4.1.4 demonstrate curiosity, initiative and creativity by developing questions that lead to investigations; designing simple experiments; and trusting observations of discoveries when trying new tasks and skills. SC.O.4.1.5 recognize that developing solutions to problems, requires persistence, flexibility, open-mindedness, and alertness for the unexpected.	SC. 4.1. ES.1 apply tools in the investigation of scientific concepts (i.e., magnifying glass, thermometer, ruler, microscope, magnet).	SC.PD.4.1. ES.1 Level IV students perform the following complex task without assistance: Student will • interpret information yielded by a variety of tools. EX: given a picture of a thermometer with a Fahrenheit temperature marked (e.g. 72 degrees), indicate the temperature on the thermometer given 3 choices (e.g. 52, 72, 84 degrees). Level III students perform the following without assistance: Student will • apply tools in the investigation of scientific concepts (e.g., magnifying glass, thermometer, ruler, microscope, and magnet). EX: given two pictures (e.g., cell and a pencil) indicate which item could be viewed through a microscope. EX: choose which tool given two or more tools (e.g., magnifying glass, and microscope), is used to observe an object (e.g., insect, etc.).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.1.6 support statements with facts found through research from various sources, including technology. SC.O.4.1.7 use scientific instruments, technology and everyday materials to investigate the natural world. SC.O.4.1.8 demonstrate safe and proper techniques for handling, manipulating and caring for science materials. SC.O.4.1.9 construct a hypothesis when provided a problem SC.O.4.1.10 establish variables and controls in an experiment; test variables through experimentation. SC.O.4.1.11 interpret data presented in a table, graph, or diagram and use it to answer questions and make decisions. SC.O.4.1.12 draw and support conclusions, make predictions and inferences based on patterns of evidence (e.g., weather maps, variation of plants, or frequency and pitch of sound). SC.O.4.1.13 apply mathematical skills and use metric units in measurements and calculations.		Level II students perform the following with assistance: Student will - match scientific instrument or tool to its appropriate use. EX: given a picture of a magnet and in a field of two objects (e.g., paper clip, tree) match the magnetic object. Level I students attempt to perform the following with assistance: Student will - identify a scientific instrument. EX: point to the microscope or magnet.

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GRADE FOUR EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.4.2)

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 science.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: **S.2** apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.2.1 describe the different characteristics of plants and animals, which help them to survive in different niches and environments. SC.O.4.2.2 associate the behaviors of living organisms to external and internal influences (e.g., hunger, climate, or seasons). SC.O.4.2.3 identify and classify variations in structures of living things including their systems and explain their functions (e.g., skeletons, teeth, plant needles, or leaves).	SC.4.2 ES.1 describe characteristics of matter in the environment.	SC.PD.4.2. ES.1 Level IV students perform the following complex task without assistance: Student will • compare different characteristics of living organisms and different characteristics of non-living organisms. EX: compare how a rock and dirt are different. EX: compare how a dog and a horse are different.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.2.4 compare and sequence changes in cycles in relation to plant and animal life.. SC.O.4.2.5 give examples how plants and animals closely resemble their parents and that some characteristics are inherited from the parents and others results from interaction with the environment. SC.O.4.2.6 identify human uses of plants and animals (e.g., food sources, or medicines). SC.O.4.2.7 describe the effects of altering environmental barriers on the migration of animals. SC.O.4.2.8 construct and explain models of habitats, food chains, and food webs. SC.O.4.2.9 investigate how properties can be used to identify substances. SC.O.4.2.10 design an experiment to investigate the dissolving of solids and analyze the results.		Level III students perform the following without assistance: Student will - describe characteristics of matter in the environment. EX: describe characteristics of animals in the north versus animals in the desert. EX: identify pictures representing physical properties as solid, liquid or gas. Level II students perform the following with assistance: Student will - identify characteristics of living matter. EX: match pictures of different animal's life cycles: baby/adult, puppy/dog. EX: place living/non-living thing into appropriate groups. Level I students attempt to perform the following with assistance: Student will - indicate example of living/non living things. EX: Indicate which of two objects is living (dog or rock).
SC.O.4.2.11 examine simple chemical changes (e.g., tarnishing, rusting, or burning). SC.O.4.2.12 explain that materials including air take up space and are made of parts that are too small to be seen without magnification. SC.O.4.2.13 differentiate changes in states of matter due	SC.4.2.ES.2 recognize different types of forces of motion.	SC.PD.4.2.ES.2 Level IV students perform the following complex task without assistance: Student will compare different types of forces of motion. EX: given a picture of pulling a sled up a slope and a picture of a person riding down the slope, compare the two types of forces. EX: given a picture of a ball being hit by a bat and picture of a ball falling through a net, determine which demonstrates gravity.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
to heat loss or gain. SC.O.4.2.14 investigate variables that affect the rate of evaporation of a liquid. SC.O.4.2.15 compare and classify liquids based on density. SC.O.4.2.16 identify different forms of energy and describe energy transformations that occur between them (e.g., electrical to heat, or radiant to chemical). SC.O.4.2.17 examine types and properties of waves (e.g., transverse, longitudinal, frequency, or wavelengths). SC.O.4.2.18 investigate static electricity and conductors/nonconductors of electricity. SC.O.4.2.19 construct simple electrical circuits. SC.O.4.2.20		Level III students perform the following without assistance: Student will - recognize different types of forces of motion. EX: determine which ball would go faster, one released on a level surface or one released on a slope. EX: determine whether the beach ball or bowling ball would go further when pushed with the same force. Level II students perform the following with assistance: Student will - classify objects according to how they move (i.e., roll, swing, float, fly). EX: separate pictures of items into categories of movement (roll vs. swing). Level I students attempt to perform the following with assistance: Student will - identify an object that rolls and one that does not. EX: indicate which one will roll and which one will not: ball and a concrete block; a wheel and a book.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
describe and explain the relationship between a compass and a magnetic field. SC.O.4.2.21 relate motion of an object to its frame of reference. SC.O.4.2.22 predict and investigate the motion of an object if the applied force is changed. SC.O.4.2.23 explore that sounds are produced by vibrating objects and columns of air and form conclusions about the relationship between frequency and pitch of sound. SC.O.4.2.24 investigate the change in the length, tension, or thickness of the vibrating object on the frequency of vibration (e.g., string, wire, or rubber band). SC.O. 4.2.25 examine the geologic time scale. SC.O.4.2.26 locate and identify patterns of stars and their change in location throughout the year. SC.O.4.2.27 compare and explain the relative time differences to erode materials. SC.O.4.2.28 investigate the cause and effects of volcanoes, earthquakes and landslides. SC.O.4.2.29 interpret a weather chart or map and predict outcomes.	SC 4.2. ES.3 compare the effects of different natural events on the environment (volcanoes, floods/rain, droughts).	SC.PD.4.2. ES.3 Level IV students perform the following complex task without assistance: Student will - predict the effect of different natural events on the environment. EX: given a picture of a volcanic eruption, predict which picture shows what will happen (e.g., lava over house vs. house surrounded by water). EX: predict what will happen with excessive rain (provide pictures of a drought and a flood). Level III students perform the following without assistance: Student will - compare the effects of different natural events on the environment. EX: compare the effects of a flood and a fire on the environment. EX: sort the effects of natural events according to their causes (floods, lava flow, fire). Level II students perform the following with assistance: Student will - describe the effects of a natural event on the environment. EX: point to the natural event (volcano) associated with a lava flow. EX: point to a representation of the weather that would cause a flood (rain). Level I students attempt to perform the following with assistance: Student will - identify natural events. EX: identify which picture shows a landslide. EX: identify which picture shows a volcano.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.2.30 identify the sun as a star. SC.O.4.2.31 explain the effects of alignment of earth, moon and sun on the earth. SC.O.4.2.32 describe and explain the planets orbital paths. SC.O.4.2.33 differentiate between types of rock and describe the rock cycle. SC.O.4.2.34 compare ocean water and fresh water. SC.O.4.2.35 investigate soil types and soil composition.		

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GRADE FOUR EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.4.3)

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.

Essence of Standard: S.3 demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.4.3.1 identify that systems are made of parts that interact with one another. SC.O.4.3.2 create models as representations of real things. SC.O.4.3.3 observe that changes occur gradually, repetitively, or randomly within the environment and question causes of change. SC.O.4.3.4 given a set of objects, group or order the objects according to an established scheme. SC.O.4.3.5 given a set of events, objects, shapes, designs, or numbers, find patterns of constancy or regularity.	SC.4.3.ES.1 compare scientific systems and patterns within the environment.	SC.PD.4.3.ES.1 Level IV students perform the following complex task without assistance: Student will • complete parts of a scientific system/patterns within environment EX: order parts to whole from components of a system. (human cells, tissue, organs). EX: using pictures, complete moon phase pattern. EX: using pictures, complete the water cycle. Level III students perform the following without assistance: Student will • compare scientific systems and patterns within the environment. EX: compare the difference of how humans fish breathe using pictures. EX: associate weather patterns with a particular season.

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SC.O.4.3.6 identify and explain a simple problem or task to be completed; identify a specific solution; and list task requirements. SC.O.4.3.7 use an appropriate engineering design to solve a problem or complete a task. SC.O.4.3.8 recognize that a solution to one scientific problem often creates new problems (e.g., recycling pollution, conservation, waste disposal, or need for technology). SC.O.4.3.9 listen to and be tolerant of different viewpoints by engaging in collaborative activities and modifying ideas when new and valid information is presented from a variety of resources. SC.O.4.3.10 describe the positive and negative consequences of the application of technology on personal health and the environment. SC.O.4.3.11 develop respect and responsibility for the environment by engaging in conservation practices.		Level II students perform the following with assistance: Student will - select scientific systems/patterns. EX: indicate which pattern shows the correct order of the seasons. Level I students attempt to perform the following with assistance: Student will - identify scientific systems/patterns. EX: identify day from pictures representing night and day.
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GRADE FIVE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives.

Standard 1: Science (SC.S.5.1)

Students will

- demonstrate an understanding of the history of science and the evolvement of scientific knowledge.
- demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate an understanding of the characteristics of a scientist.
- demonstrate skills of scientific inquiry.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.1.1 realize that scientists formulate and test their explanations of nature using observation and experiments. SC.O.5.1.2 recognize scientific knowledge is subject to modification as new scientific information challenges current explanations. SC.O.5.1.3 examine the careers and contributions of men and women of diverse cultures to the development of science. SC.O.5.1.4 compare and contrast the historical significance of scientific discoveries. SC.O.5.1.5 cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.	SC.5.1.ES.1 interpret information yielded by a variety of scientific tools.	SC.PD.5.1.ES.1 Level IV students perform the following complex task without assistance: Student will • apply scientific knowledge to interpret collected data. EX: apply scientific knowledge to draw conclusions from a temperature chart. EX: apply scientific knowledge to determine the weather for a given area (rain, snow, wind) from a weather map/pictorial chart. Level III students perform the following without assistance: Student will • interpret information yielded by a variety of scientific tools. EX: use a ruler to measure length of object and compare the sizes. EX: use a thermometer to track daily temperature and identify the day with the highest temperature.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.1.6 formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data. SC.O.5.1.7 apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe. SC.O.5.1.8 use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world. SC.O.5.1.9 demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms. SC.O.5.1.10 utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables). SC.O.5.1.11 construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data. SC.O.5.1.12 use inferential reasoning to make logical conclusions from collected data.		Level II students perform the following with assistance: Student will - select appropriate scientific tool for use. EX: given a picture of a ruler, thermometer and an apple, point to the instrument that measures temperature. EX: when shown two pictures, a ruler and a magnifying glass point to the picture that indicates what is used to measure the length of a book. Level I students attempt to perform the following with assistance: Student will - identify a scientific instrument from a nonscientific instrument. EX: given pictures of two objects (e.g., piano and microscope), point to picture of scientific instrument.

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GRADE FIVE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.52)

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 science.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.2.1 demonstrate an understanding of the interconnections of biological, earth and space, and physical science. SC.O.5.2.2 identify and explain common energy conversions in cycles of matter including photosynthesis and the carbon dioxide cycle. SC.O.5.2.3 identify the structures of living organisms and explain their function. SC.O.5.2.4 observe and identify cells of organisms using a microscope.	SC.5.2.ES.1 describe adaptations that allow survival in different environments.	SC.PD.5.2.ES.1 Level IV students perform the following complex task without assistance: Student will • predict which animals or plants will survive better in various ecosystems. EX: predict which would survive better in a desert, a daisy versus a cactus. EX: predict which would survive better eating from tall trees, a giraffe or a goat. Level III students perform the following without assistance: Student will • describe adaptations that allow survival in different environments. EX: describe why porcupines have quills. EX: describe the adaptation that protects a skunk.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.2.5 compare variations of plant growth and reproduction. SC.O.5.2.6 contrast how the different characteristics of plants and animals help them to survive in different niches and environments including adaptations, natural selection, and extinction. SC.O.5.2.7 through the use of research and technology, explore the extinction of a species due to environmental conditions. SC.O.5.2.8 trace and describe the pathways of the sun's energy through producers, consumers and decomposers using food webs and pyramids.		Level II students perform the following with assistance: - recognize an adaptation in a living organism. EX: given a picture of a white bunny in snow and a picture of a dog sitting in a yard, identify the animal with an adaptation. Level I students attempt to perform the following with assistance: Student will - identify living and non-living organisms. EX: point to the picture of something that is living, point to the picture of the item that is not alive (flower, rock).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.2.9 explain that the mass of a material is conserved whether it is together, in parts, or in a different state. SC.O.5.2.10 recognize the elements are composed of only one type of matter. SC.O.5.2.11 using the periodic table, identify common elements according to their symbols. SC.O.5.2.12 through experimentation, identify substances by their relative densities (mass/volume=density). SC.O.5.2.13 analyze diagrams of electrical circuits. SC.O.5.2.14 measure electricity using voltage and wattage. SC.O.5.2.15 investigate the properties of an electromagnet by selecting appropriate materials, designing and testing an electromagnet, and evaluating differences in design. SC.O.5.2.16 describe how the variables of gravity and friction affect the motion of objects. SC.O.5.2.17 compare and contrast the change in length, tension, or thickness of a vibrating object on the frequency of vibration.	SC.5.2.ES.2 identify the effects of different types of forces (i.e., electrical, magnetic, gravitational, friction).	SC.PD.5.2.ES.2 Level IV students perform the following complex task without assistance: Student will - describe the forces that control environmental situations. EX: describe how gravity is different on the earth verses the moon. EX: describe what force would be applicable when moving a dolly over smooth versus bumpy surfaces. Level III students perform the following without assistance: Student will - identify the effects of different types of forces (i.e., electrical, magnetic, gravitational, friction). EX: given a paperclip and a magnet, identify which force is demonstrated. EX: identify what force causes an apple to fall from a tree. EX: given a picture of an object representing a force (e.g., magnet) identify which object would be influenced by that force (e.g., nail or beaker). Level II students perform the following with assistance: Student will - identify the effects of forces. EX: identify the effects of gravity. EX: identify the effects of friction. Level I students attempt to perform the following with assistance: Student will - identify a force from a non-force. EX: identify which picture shows a moving object and which shows a stationary object.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.2.18 describe the layers of the earth and their various features. SC.O.5.2.19 identify and describe natural landforms and explain how they change and impact weather and climate. SC.O.5.2.20 use a variety of instruments and sources to collect and display weather data to describe weather patterns. SC.O.5.2.21 compare and explain the different rates of weathering, erosion and deposition on various materials. SC.O.5.2.22 analyze a topographical map to make inferences related to elevation and land features. SC.O.5.2.23 identify resources as being renewable or non-renewable. SC.O.5.2.24 explore and explain how fossils and geologic features can be used to determine the relative age of rocks and rock layers. SC.O.5.2.25 recognize that the Earth is made of plates (plate tectonics).	SC.5.2.ES.3 describe the impact of natural influences on landforms.	SC.PD.5.2.ES.3 Level IV students perform the following complex task without assistance: Student will - predict changes in landforms due to natural influences. EX: predict the effects of a volcanic eruption on a mountain. EX: predict the effect of an earthquake in a forest. Level III students perform the following without assistance: Student will - describe the impact of natural influences on landforms. EX: describe what happens to the land following an earthquake. EX: describe the affects of a forest fire on the mountain. Level II students perform the following with assistance: Student will - recognize different natural influences (e.g., fire, floods, wind). EX: point to a picture of a forest fire. Level I students attempt to perform the following with assistance: Student will - identify land forms. EX: point to a picture of peninsula, cliffs, and mountain.

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GRADE FIVE EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.5.3)

Students will

- explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions.
- demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Essence of Standard: S.3 demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.5.3.1 explore the relationship between the parts of a system to the whole system. SC.O.5.3.2 construct a variety of useful models of an object, event, or process. SC.O.5.3.3 compare and contrast changes that occur in an object or a system to its original state. SC.O.5.3.4 compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight	SC.5.3.ES.1 describe the relationship between the parts of an electrical system to the whole system.	SC.PD.5.3.ES.1 Level IV students perform the following complex task without assistance: Student will: • predict what would happen if a part of a system was removed. EX: predict what will happen when there is no cord on a lamp. Level III students perform the following without assistance: Student will: • describe the relationship between the parts of an electrical system to the whole system. EX: describe how the parts of a lamp work together (light switch, bulb, cord).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
characteristics of different-sized model airplanes). SC.O.5.3.5 research everyday applications and interactions of science and technology. SC.O.5.3.6 evaluate and critically analyze mass media reports of scientific developments and events. SC.O.5.3.7 explore the connections between science, technology, society and career opportunities.		Level II students perform the following with assistance: Student will: - identify all parts of a given system. EX: label parts of an electrical system (light bulb, switch, cord). Level I students attempt to perform the following with assistance: Student will - name one part of a given system. EX: given a lamp, point to an electrical cord.

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GRADE SIX EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Science (SC.S.6.1)

Students will

- demonstrate an understanding of the history of science and the evolvement of scientific knowledge.
- demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate an understanding of the characteristics of a scientist.
- demonstrate skills of scientific inquiry.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.1.1 realize that scientists formulate and test their explanations of nature using observation and experiments. SC.O.6.1.5 cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems. SC.O.6.1.6 formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection. SC.O.6.1.7 apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe.	SC 6.1.ES.1 apply scientific processes used in problem solving.	SC.PD.6.1.ES.1 Level IV students perform the following complex task without assistance: Student will • sequence a scientific process to solve a problem. EX: sequence the steps to conduct a simple experiment (e.g., a stalk of celery in water and a stalk of celery in water with food coloring to study changes). EX: explain the changes that occur to the ingredients in baking (e.g., liquid to solids). Level III students perform the following without assistance: Student will • apply scientific processes used in problem solving. EX: mix colors to create a new color. EX: given a thermometer with a temperature marked, show a place on the thermometer that would indicate an increase in temperature when heat is added.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.1.8 use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world. SC.O.6.1.9 demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms. SC.O.6.1.10 utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables). SC.O.6.1.11 construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data. SC.O.6.1.12 use inferential reasoning to make logical conclusions from collected data.		Level II students perform the following with assistance: Student will - match a scientific process to a task. EX: given a set of pictures (e.g., drop of water, ice cube, sand) match the pictures that represents different forms of the same substance. EX: given a bag of un-popped popcorn, indicate what process is needed to make it pop. Level I students attempt to perform the following with assistance: Student will - identify items relating to scientific processes. EX: identify the microscope, thermometer, or scales from a desk, chalkboard, tree.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.1.2 recognize scientific knowledge is subject to modification as new scientific information challenges current explanations. SC.O.6.1.3 examine the careers and contributions of men and women of diverse cultures to the development of science. SC.O.6.1.4 compare and contrast the historical significance of scientific discoveries.	SC.6.1.ES.2 recognize the contributions of science.	SC.PD.6.1.ES.2 Level IV students perform the following complex task without assistance: Student will - explore the contributions of science. EX: compare the contributions of a scientific discovery (stove vs. microwave). EX: contrast the contributions of a scientific discovery (candle vs. light bulb). Level III students perform the following without assistance: Student will - recognize the contributions of science. EX: complete a fill-in-the-blank activity involving scientific discoveries. EX: identify how the computer makes life easier. Level II students perform the following with assistance: Student will - match scientific developments and their functions. EX: match the discovery and the product (plane to space shuttle, old fashioned phone to cell phone). EX: match discovery to its use in society (cell phone to communication). Level I students attempt to perform the following with assistance: Student will - select picture of a scientific invention that has made life easier. EX: select a picture of a car versus a horse.

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GRADE SIX EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.6.2)

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 science.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
Life science SC.O.6.2.1 demonstrate the interrelationships among physics, chemistry, biology, earth and environmental science, and astronomy. SC.O.6.2.2 use pictures to show cyclical processes in nature (e.g., nitrogen cycle, carbon cycle, or water cycle). SC.O.6.2.3 classify living organisms according to their structure and functions. SC.O.6.2.4 compare the similarities of internal features of organisms, which can be used to infer relatedness.	SC.6.2.ES.1 describe the life cycles in nature.	SC.PD.6.2.ES.1 Level IV students perform the following complex task without assistance: Student will • interpret the life cycles in nature. EX: sequence pictures illustrating the stages of the life cycle of a butterfly. EX: chart the growth of a seed over a two week period. Level III students perform the following without the assistance: Student will • describe the life cycles in nature. EX: describe a egg to chicken cycle. EX: describe seeds to plant cycle.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.2.5 examine how abiotic and biotic factors affect the interdependence among organisms. SC.O.6.2.6 construct models of plant and animal cells and compare the basic parts (e.g., cytoplasm, cell wall, cell membrane, nucleus, or chloroplasts). SC.O.6.2.7 compare growth cycles in different plants (e.g., mosses, ferns, perennials, biennials, woody plants, or herbaceous plants). SC.O.6.2.8 predict changes in populations of organisms due to limiting environmental factors (e.g., food supply, predators, disease, or habitat). SC.O.6.2.9 analyze the ecological consequences of human interactions with the environment (e.g., renewable and non-renewable resources). SC.O.6.2.20 correlate the relationship of mass to gravitational force (e.g., larger the mass the larger the gravitational force, or the closer the objects the stronger the force).		Level II students perform the following with assistance: Student will - match stage of a life cycle to an animal. EX: match a cocoon to a butterfly. EX: match a tadpole to a frog. Level I students attempt to perform the following with assistance: Student will - select a stage in a life cycle. EX: point to a picture of an egg or a hen.
Physical science SC.O.6.2.10 classify and investigate properties and processes (changes) as either physical or chemical. SC.O.6.2.11 investigate the formation and separation of simple mixtures of matter concluding that	SC.6.2.ES.2 classify the properties and processes of energy.	SC.PD.6.2.ES.2 Level IV students perform the following complex task without assistance: Student will determine the processes and properties of energy and matter. EX: select simple machines (inclined plane, wheel and axle, levers, etc) that would be used to complete a task (e.g., simple machine that would be used to load a heavy box into a truck).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
matter is composed of tiny particles and that the particles are the same for the same type of matter. SC.O.6.2.12 use indicators to classify substances as acidic, basic or neutral. SC.O.6.2.13 using the periodic table, identify the symbols of elements as solids, liquids, and gases; metals or nonmetals. SC.O.6.2.14 describe the composition and properties of matter (e.g., particles, malleability, melting point, density, inertia, or specific heat). SC.O.6.2.15 investigate the properties of the electromagnetic spectrum (e.g., wavelengths, frequencies, visible light); relate wavelengths and/or frequencies to position on the electromagnetic spectrum (e.g., colors, x-ray). SC.O.6.2.16 recognize that an object's color is based upon the absorption and reflection of light waves. SC.O.6.2.17 describe light and sound in terms of longitudinal or transverse waves. SC.O.6.2.18 describe the flow of heat between objects (e.g., hot air rises, or absorption and release of heat by metals).		EX: classify items as having kinetic or potential energy. EX: determine whether a substance is an acid, base or neutral using litmus paper. Level III students perform the following without assistance: Student will • classify the properties and processes of energy. EX: classify the processes of energy that result in heat (sun, fire). EX: classifying object by temperature using a thermometer. Level II students perform the following with assistance: Student will • identify the properties and processes of energy. EX: label pictures that are associated to light or sound energy. EX: match pictures of items that are hot to a thermometer. Level I students attempt to perform the following with assistance: Student will • choose objects that represent the properties and processes of energy. EX: given three pictures, point to the one that represents heat.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.2.19 diagram simple parallel and series circuits (e.g., hot air rises, or absorption and release of heat by metals). SC.O.6.2.21 examine simple machines and the forces involved. SC.O.6.2.22 apply the effects of balanced and unbalanced forces on motion of objects. SC.O.6.2.23 explain motion in terms of frames of reference and analyze graphs depicting motion and predicted future motion.		
Earth and space SC.O.6.2.24 monitor major atmospheric events using a variety of resources including technology. SC.O.6.2.25 compare and contrast continental drift hypothesis to the plate tectonic theory. SC.O.6.2.26 associate plant and animal life forms with specific geologic time periods. SC.O.6.2.27 recognize the phases of the moon. SC.O.6.2.28 investigate models of earth-moon-sun relationships (e.g., gravity, time, or tides). SC.O.6.2.29 compare the earth's tilt and revolution to the seasonal changes.	SC.6.2.ES.3 explain the relationships between the earth, moon and sun.	SC.PD.6.2.ES.3 Level IV students perform the following complex task without assistance: Student will - interpret the impact of the moon and sun on earth. EX: interpret the seasonal changes in relation to the sun. Level III students perform the following without assistance: Student will - explain the relationships between the earth, moon and sun. EX: sequence planets in order from the sun. EX: label the phases of the moon.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
		Level II students perform the following with assistance: Student will - match relationships between the earth, moon and sun. EX: identify/describe a season. EX : point to the picture of the crescent, new or full moon. Level I students attempt to perform the following with assistance: Student will - identify the earth, moon and sun. EX: point to the picture of the sun given pictures of sun, moon and earth. EX: identify the moon when given photos/pictures of the moon and the sun.

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GRADE SIX EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.6.3)

Students will

- explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions.
- demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Essence of Standard: S.1 demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.3.1. explore the relationship between the parts of a system to the whole system. SC.O.6.3.2. construct a variety of useful models of an object, event, or process. SC.O.6.3.3 compare and contrast changes that occur in an object or a system to its original state. SC.O.6.3.4 compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes).	SC.6.3.ES.1 describe changes in the earth's systems.	SC.PD.6.3.ES.1 Level IV students perform the following complex task without assistance: Student will • predict changes in systems. EX: construct a model of an active volcano and predict the changes that will occur. EX: predict the changes that occur in the environment as a result of a tornado. Level III students perform the following without assistance: Student will • describe changes in the earth's systems. EX: describe the four layers of earth's geosphere (crust, mantle, outer core, inner core). EX: using an apple sliced in quarters, identify and label the names of the layers of the atmosphere. EX: using technology (internet, TV,) find and list the weather conditions for a one week period.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.6.3.5 research everyday applications and interactions of science and technology. SC.O.6.3.6 evaluate and critically analyze mass media reports of scientific developments and events		Level II students perform the following with assistance: Student will • match parts of a system to the whole. EX: given three pictures identify types of weather (e.g., snowy, raining, sunny) - EX: given three pictures identify the parts of a water system (river, streams, lakes). Level I students attempt to perform the following with assistance: Student will • identify a system. EX: given a globe point to the ocean.

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GRADE SEVEN EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Science (SC.S.7.1)

Students will

- demonstrate an understanding of the history of science and the evolvement of scientific knowledge.
- demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate an understanding of the characteristics of a scientist.
- demonstrate skills of scientific inquiry.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.1.5 cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems. SC.O.7.1.6 formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection. SC.O.7.1.7 apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe. SC.O.7.1.8 use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.	SC.7.1.ES.1 apply the scientific methods to collect and record data.	SC.PD.7.1.ES.1 Level IV students perform the following complex task without assistance: Student will • apply the scientific method to identify a question that can be answered given a simple scenario. EX: given liquid in three different shaped containers, determine if they contain the same amount. EX: given a chart comparing the rate of growth of a plant grown in darkness and one grown in the light, tell which data indicates the growth of plant grown in light. Level III students perform the following without assistance: Student will • apply the scientific method to collect and record data. EX: measure the volume of liquids in different shape containers and record the measurements on a chart.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.1.9 demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms. SC.O.7.1.10 utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables). SC.O.7.1.11 construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data. SC.O.7.1.12 use inferential reasoning to make logical conclusions from collected data.		Level II students perform the following with assistance: Student will • match tools and scientific instruments to their use. EX: determine which of these tools can be used to compare the mass of two objects, a scale or a ruler. Level I students attempt to perform the following with assistance: Student will • identify scientific tools and instruments. EX: microscopes, telescopes, graduated cylinder, scales.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.1.1 realize that scientists formulate and test their explanations of nature using observation and experiments. SC.O.7.1.2 recognize scientific knowledge is subject to modification as new scientific information challenges current explanations. SC.O.7.1.3 examine the careers and contributions of men and women of diverse cultures to the development of science. SC.O.7.1.4 compare and contrast the historical significance of scientific discoveries.	SC.7.1.ES.2 explore the contributions of science innovations to modern day life.	SC.PD.7.1.ES.2 Level IV students perform the following complex task without assistance: Student will - describe the importance of scientific innovations. EX: describe the fastest way to communicate information (email vs general mail vs. instant messaging). Level III students perform the following without assistance: Student will - explore the contributions of science innovations to modern day life. EX: compare benefits of transportation by car vs airplane vs bicycle. EX: contrast home cooked food with fast food. Level II students perform the following with assistance: Student will - match scientific developments to their uses. EX: match a picture of a telephone to someone communicating on one. EX: match a microwave to a bag of microwave popcorn. Level I students attempt to perform the following with assistance: Student will - identify a modern innovation. EX: identify a telephone. EX: identify a computer.

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GRADE SEVEN EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.7.2)

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, earth /environmental science and astronomy.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.2.1 demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy. SC.O.7.2. 2 identify and describe disease causing organisms (such as bacteria, viruses, protozoa, fungi) and the diseases they cause. SC.O.7.2. 3 explain how skeletal, muscular, and integumentary systems work together in the human body. SC.O.7.2. 4 compare the level of organization of cells, tissues and organs in living things.	SC.7.2.ES.1 describe the effects of environmental changes on plants and animals.	SC.PD.7.2.ES.1 Level IV students perform the following complex task without assistance: Student will • predict the effects of environmental changes on plants and animals. EX: predict how air pollution will affect air quality. EX: predict how water pollution will affect drinking water. Level III students perform the following without assistance: Student will • describe the effects of environmental changes on plants and animals. EX: describe how air pollution can make it difficult to breathe. EX: describe how water pollution kills fish.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.2.5 construct simple keys to differentiate among living things with similar characteristics. SC.O.7.2. 6 use pictures to show cyclical processes in nature (e.g., water cycle, nitrogen cycle, or carbon cycle). SC.O.7.2.7 evaluate how the different adaptations and life cycles of plants and animals help them to survive in different niches and environments (e.g., inherited and acquired adaptations). SC.O.7.2. 8 analyze how changes in the environment have led to reproductive adaptations through natural selection. SC.O.7.2.9 explain how an organism's behavior response is a combination of heredity and the environment. SC.O.7.2.10 analyze the differences in the growth, development and reproduction in flowering and non-flowering plants. SC.O.7.2.11 predict the trends of interdependent populations if one of the limiting factors is changed. SC.O.7.2.12 evaluate the consequences of the introduction of chemicals into the ecosystem (e.g., environmental consequences, human health risks, or mutations).		Level II students perform the following with assistance: Student will - identify sources of pollution. EX: select pictures representing sources of pollution such as oil spills, litter, smoke stacks, or cars from non-polluting items such as bicycle, recycling bin. Level I students attempt to perform the following with assistance: Student will - identify pollution (air, water, and land). EX: choose the picture that represents pollution given two or more choices (e.g., dirty streams or a clean stream; litter or a trash can).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.2.13 compare differences among elements, compounds, homogeneous and heterogeneous mixtures. SC.O.7.2.14 examine the differences in types of solutions (e.g., solutes and solvents, relative concentrations, conductivity, pH) SC.O.7.2.15 examine chemical reactions involving acids and bases by monitoring color changes of indicator(s) and identifying the salt formed in the neutralization reaction. SC.O.7.2.16 write word equations to describe how sound is perceived by the ear. SC.O.7.2.17 describe the movement of individual particles and verify the conservation of matter during the phase changes (e.g., melting, boiling, or freezing) SC.O.7.2.18 identify the characteristics of sound waves and describe how sound is perceived by the ear. SC.O.7.2.19 define the absorption and reflection of light as translucent, opaque and transparent. SC.O.7.2.20 interpret and illustrate changes in waves as they encounter various mediums (e.g., mirrors, or lenses).	SC.7.2.ES.2 describe the properties and processes of matter and energy.	SC.PD.7.2.ES.2 Level IV students perform the following complex task without assistance: Student will - predict the properties of processes of matter and energy. EX: determine what will happen when you mix vinegar and baking soda (acid and base). EX: determine what will happen when you mix salt and water (makes a solution). EX: determine what will happen when you mix water and sand (makes a heterogeneous mixture). Level III students perform the following without assistance: Student will - describe the properties and processes of matter and energy. EX: describe what happens to water when you heat or cool it. (liquid to gas or liquid to solid). Level II students perform the following with assistance: Student will - match the properties and processes of matter and energy. EX: match pictures that demonstrate one of the states of matter. (solid, liquid, gas). EX: match pictures of thermometers with pictures of objects that are hot or cold. Level I students attempt to perform the following with assistance: Student will - identify the properties of matter and energy. EX: point to the picture that shows a solid object. EX: point to the picture that shows light energy (light bulb).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.2.21 investigate absorption and reflection of light by an object. SC.O.7.2.22 characterize AC and DC circuits. SC.O.7.2.23 explain conservation of matter and energy and investigate the different forms of energy (e.g., mechanical, potential, kinetic, or gravitational). SC.O.7.2.24 perform experiments with simple machines to demonstrate the relationship between forces and distance; use vectors to represent motion. SC.O.7.2.25 explain the effect of gravity on falling objects (e.g., $g=9.8\text{m/s}^2$, object dropped on earth and on moon).		

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.2.26 describe and compare the causes of tides, surfs and currents. SC.O.7.2.27 examine the effects of the sun's energy on oceans and weather (e.g., air masses, or convection currents). SC.O.7.2.28 interpret GIS maps and create and interpret topographical maps. SC.O.7.2.32 explain how changing latitude affects climate. SC.O.7.2.29 describe rock (e.g., crystal/particle size, or mineral composition and uses). SC.O.7.2.30 classify rocks (e.g., rock cycle). SC.O.7.2.31 determine the relevant age of rock layers using index fossils and the law of superposition. SC.O.7.2.33 trace the life cycle of a star.	SC.7.2.ES.3 describe the factors that affect weather.	SC.PD.7.2.ES.3 Level IV students perform the following complex task without assistance: Student will - interpret simple weather charts. EX: indicate the month with the most rainfall from a chart. Level III students perform the following without assistance: Student will - describe the factors that affect weather (climate and location). EX: describe how living near a body of water affects the weather (more or less rain depending on your location). Level II students perform the following with assistance: Student will - identify seasonal weather patterns. EX: identify the season in which you would mostly likely have hot, sunny days. Level I students attempt to perform the following with assistance: Student will - identify different types of weather. EX: given a choice of three pictures, show the picture of rain.

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GRADE SEVEN EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.7.3)

Students will

- explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions.
- demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Essence of Standard: S.3 The student will demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.3.1 explore the relationship between the parts of a system to the whole system. SC.O.7.3.2 construct a variety of use full models of an object, event, or process. SC.O.7.3.3 compare and contrast changes that occur in an object or a system to its original state. SC.O.7.3.4 compare and contrast the influence that a variation in scale will have on the way an object or system works (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes	SC.S.7.3.ES.1 describe the relationship of the various components of a system with the overall system.	SC.PD.7.3.ES.1 Level IV students perform the following complex task without assistance: Student will • predict the changes in systems and relate them to practical uses in technology. EX: predict what happens to the respiratory system if you inhale smoke. EX: predict how the earth would be affected if the sun no longer existed. Level III students perform the following without assistance: Student will • describe the relationship of the various components of a system with the overall system. EX: describe the relationship of the parts of a water cycle to the whole. EX: describe the relationships of animals within the food chain.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.7.3.5 research every day applications and interactions of science and technology. SC.O.7.3.6 evaluate and critically analyze mass media reports of scientific developments and events. SC.O.7.3.7 explore the connections between science, technology, society and career opportunities		Level II students perform the following with assistance: Student will • identify the function of system. EX: point to a picture of lungs when asked what helps us to breathe. EX: identify what plants need to live. Level I students attempt to perform the following with assistance: Student will • point to the components of a system. EX: point to the picture of a major organ of one of the systems (heart, lungs, brain).

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GRADE EIGHT EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Nature of Science (SC.S.8.1)

Students will

- demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate the ability to use inquiry process to solve problems.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.1.1 formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results. SC.O.8.1.2 demonstrate how a testable methodology is employed to seek solutions for personal and societal issues. (e.g., "scientific method"). SC.O.8.1.3 relate societal, cultural and economic issues to key scientific innovations. SC.O.8.1.4 conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping,	SC.8.1.ES.1 use scientific processes and skills to organize data.	SC.PD.8.1.ES.1 Level IV students perform the following complex task without assistance: Student will • draw conclusions from collected data. EX: use the leaf chart to draw conclusions. EX: use the rain information collected to draw conclusions. Level III students perform the following without assistance: Student will • use scientific processes and skills to organize data. EX: graph number of broad flat leaves and long thin leaves in a simple histogram or bar graph. EX: record the amount of rain collected each day on a chart or graph.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic). SC.O.8.1.5 implement safe procedures and practices when manipulating equipment, materials, organisms, and models. SC.O.8.1.6 use appropriate technology solutions within a problem solving setting to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and present and communicate conclusions. SC.O.8.1.7 design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis of error, or communicate and defend the results and conclusions). SC.O.8.1.8 draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, predict the influence of external variances such as potential sources of error, or interpret maps.		Level II students perform the following with assistance Student will • use scientific processes and skills to collect data. EX: in a leaf collection, sort the leaves according to shape and record the number of each. EX: use a rain gauge to collect rain. Level I students attempt to perform the following with assistance: Student will • match an appropriate conclusion with data. EX: select picture that shows what happens when you burn something. EX: select the picture that shows what happens when ice cream is left in the sun.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.1.1 formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results. SC.O.8.1.2 demonstrate how a testable methodology is employed to seek solutions for personal and societal issues. (e.g., "scientific method"). SC.O.8.1.3 relate societal, cultural and economic issues to key scientific innovations. SC.O.8.1.4 conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic). SC.O.8.1.5 implement safe procedures and practices when manipulating equipment, materials, organisms, and models. SC.O.8.1.6 use appropriate technology solutions within a problem solving setting to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and present and communicate conclusions. SC.O.8.1.7 design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation	SC.8.1. ES.2 describe the importance of scientific innovations.	SC.PD.8.1.ES.2 Level IV students perform the following complex task without assistance: Student will • explain the importance of scientific innovations. EX: explain the benefits of having a computer in your room. EX: explain the benefit of using an airplane, washing machine, etc. Level III students perform the following without assistance: Student will • describe the importance of scientific innovations. EX: describe the quickest way to cook a meal. EX: describe the quickest way to travel long distance. Level II students perform the following with assistance Student will • identify a discovery that has made life easier. EX: circle the picture showing a transportation discovery (give choice of horse and buggy to a car). EX: circle the picture of a discovery that makes home life easier. Level I students attempt to perform the following with assistance: Student will • identify the use of a scientific discovery. EX: choose the picture of a person using a scientific discovery (e.g., a picture of a person talking on a cell phone). EX: point to a picture that represents a scientific discovery.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis of error, or communicate and defend the results and conclusions). SC.O.8.1.8 draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, predict the influence of external variances such as potential sources of error, or interpret maps.		

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GRADE EIGHT EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 2: Content of Science (SC.S.8.2)

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, earth /environmental science and astronomy.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.2.1 demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy. SC.O.8.2.2 examine and describe the structures and functions of cell organelles. SC.O.8.2.3. explain how the circulatory, respiratory and reproductive systems work together in the human body. SC.O.8.2.4 compare the variations in cells, tissues and organs of the circulatory, respiratory and reproductive systems of different organisms.	SC.8.2.ES.1 determine patterns in nature.	SC.PD.8.2.ES.1 Level IV students perform the following complex task without assistance: Student will • model patterns in nature. EX: given 3-4 pictures of a seed growing to plant, put in order. EX: arrange pictures of the stages of the moon in order. Level III students perform the following without the assistance: Student will • describe patterns in nature. EX: describe the pattern in nature for plant stages. EX: describe a simple food chain.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.2.5 discuss how living cells obtain the essentials of life through chemical reactions of transpiration, respiration and photosynthesis. SC.O.8.2.6 analyze how behaviors of organisms lead to species continuity (e.g., reproductive/mating behaviors, or seed dispersal). SC.O.8.2.7 demonstrate the basic principles of genetics; introduce Mendel's law, monohybrid crosses, production of body and sex cells (mitosis/meiosis), genes, chromosomes, and inherited traits. SC.O.8.2.8 compare patterns of human development to other vertebrates. SC.O.8.2.9 organize groups of unknown organisms based on observable characteristics (e.g., create dichotomous keys). SC.O.8.2.10 trace matter and energy flow in a food web as it flows from sunlight to producers and consumers, design an environment in which the chemical and energy needs for the growth, reproduction and development of plants are met (e.g., food pyramids, decomposition).		Level II students perform the following with assistance: Student will - identify patterns in nature. EX: identify the ending point of a pattern (i.e., a seed becoming a plant). Level I students attempt to perform the following with assistance: Student will - match a pattern in nature. EX: match like pictures representing patterns of nature (winter to winter, seed to seed).
SC.O.8.2.11 use the periodic table to locate and classify elements as metallic, non-metallic or metalloid.	SC.8.2.ES.2 recognize sources of energy in nature.	SC.PD.8.2.ES.2 Level IV students perform the following complex task without assistance: Student will categorize sources of energy in nature . EX: categorize sources of energy as light,

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.2.12 reconstruct development models of the atom (e.g., Crookes, Thompson, Becquerel, Rutherford, or Bohr). SC.O.8.2.13 calculate the number of protons, neutrons, and electrons and use the information to construct a Bohr model of the atom. SC.O.8.2.14 classify elements into their families based upon their valence electrons. SC.O.8.2.15 evaluate the variations in diffusion rates and examine the effect of changing temperatures. SC.O.8.2.16 conduct and classify chemical reactions by reaction type (e.g., synthesis, decomposition, single replacement or double replacement); energy type (e.g., endothermic and exothermic); and write word equations for the chemical reactions. SC.O.8.2.17 identify and describe factors that affect chemical reaction rates, including catalysts, temperature changes, light energies and particle size. SC.O.8.2.18 examine the various sources of energy (e.g., fossil fuels, wind, solar, geothermal, nuclear, biomass). SC.O.8.2.19 explain the Doppler effect (e.g., sound).		temperature or sound. EX: categorize a set of pictures as either kinetic or potential energy (car moving, piece of fire wood, basketball bouncing, and a match). Level III students perform the following without the assistance: Student will - recognize sources of energy in nature. EX: identify the sources of energy found in nature (coal, oil, natural gas, wind, sun). Level II students perform the following with assistance: Student will - identify objects that use various fuel sources. EX: point to pictures of objects that use gasoline or electricity. Level I students attempt to perform the following with assistance: Student will - select a source of energy in nature. EX: point to a picture of the sun. EX: point to the picture of a windmill.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.2.20 quantitatively represent wavelength, frequency and velocity (e.g., $V=\lambda f$). SC.O.8.2.21 relate the conservation of energy theory to energy transformations (e.g., electrical/heat, or mechanical/heat). SC.O.8.2.22 quantitatively represent work, power, pressure (e.g., $\text{Work}=\text{Force} \times \text{distance}$, $\text{Power}=\text{Work}/\text{time}$, or $\text{pressure}=\text{force}/\text{area}$) from collected data. SC.O.8.2.23 graph and interpret the relationships of distance versus time, speed versus time, and acceleration versus time. SC.O.8.2.25 illustrate and calculate the mechanical advantage of simple machines. SC.O.8.2.24 describe Newton's Laws of Motion; identify examples, illustrate qualitatively and quantitatively drawing vector examples.		
SC.8.2.26 research and draw conclusions related to the quality and quantity of surface and ground water. SC.O.8.2.27 identify and explain the principle forces of plate tectonics and related geological events (e.g., earthquakes, volcanoes, or landforms).	SC.8.2.ES.3 identify the components of patterns in earth and space science.	SC.PD.8.2.ES.3 Level IV students perform the following complex task without assistance: Student will sequence patterns in earth and space science. EX: given a list of planet names or pictures of planets, arrange them in order by size (smallest to largest). EX: given a list of the stages of the water cycle with one stage blank, select the missing stage from 3 choices.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.2.28 determine the impact of oceans on weather and climate; relate global patterns of atmospheric movement on local weather. SC.O.8.2.29 analyze the forces of tectonics, weathering and erosion that have shaped the earth's surface SC.O.8.2.30 model processes of soil formation and suggest methods of soil preservation and conservation. SC.O.8.2.31 research and recognize the societal concerns of exploration and colonization of space. SC.O.8.3.32 explain phenomena associated with motions in sun-earth-moon system. (e.g., eclipses, tides, or seasons). SC.O.8.2.33 describe the origin and orbits of comets, asteroids, and meteoroids.		Level III students perform the following without assistance: Student will - identify the components of patterns in earth and space science. EX: identify objects found in space, given pictures of sun, stars, planets and objects not found in space, such as trees, dogs and houses. EX: identify the components of the water cycle. Level II students perform the following with assistance: Student will - match patterns in earth and space science using a model. EX: Put picture of the season in correct order following a model. EX: Put pictures of planets in the correct order following a model. Level I students attempt to perform the following with assistance: Student will - identify a concepts in earth and space science. EX: point to a picture that represents a season. EX: point to a picture of a planet.

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GRADE EIGHT EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.8.3)

Students will

- demonstrate the ability to use inquiry process to explore systems, models, and changes.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate an understanding of the utilization of technology to gather data and communicate designs, results and conclusions.
- demonstrate an understanding of the personal and societal benefits of science, and an understanding of public policy decisions as related to health, population, resource and environmental issues.

Essence of Standard: S.3 The student will demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.3.1 synthesize concepts across various science disciplines to better understand the natural world (e.g., form and function, systems, or change over time). SC.O.8.3.2 investigate, compare and design scientific and technological solutions to personal and societal problems. SC.O.8.3.3 communicate experimental designs, results and conclusions using advanced technology tools. SC.O.8.3.4 collaborate to present research on current environmental and technological issues to predict possible solutions.	SC.8.3.ES.1 determine scientific and technological solutions for everyday problems.	SC.PD.8.3.ES.1 Level IV students perform the following complex task without assistance: Student will • apply scientific and technological solutions to everyday problems. EX: use the computer to communicate to a classmate. EX: use a microwave oven to reheat food. Level III students perform the following without assistance: Student will • determine scientific and technological solutions for everyday problems. EX: determine solution to carrying a stack of CDs (Mp3 player). EX: determine an alternative to using a land-line phone.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.8.3.5 explore occupational opportunities in science, engineering and technology and evaluate the required academic preparation. SC.O.8.3.6 given a current science-technology-societal issue, construct and defend potential solutions.		Level II students perform the following with assistance: Student will • match scientific and technological solutions to everyday problems EX: indicate which of the following items would be used to measure liquids: a beaker, a Bunsen burner or a dinner plate., Level I students attempt to perform the following with assistance: Student will • identify a scientific or technological solution to an everyday problem. EX: point to the picture of the microwave oven. EX: point to the picture of a computer.

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GRADE TEN EXTENDED SCIENCE
CONTENT STANDARDS AND ACHIEVEMENT DESCRIPTORS

Science Content Standards and Objectives

Standard 1: Nature of Science (SC.S.1)

Students will

- demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate the ability to use inquiry process to solve problems.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CB.1.1 formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results. SC.O.CB.1.2 demonstrate how a testable methodology is employed to seek solutions for personal and societal issues (e.g., "scientific methods"). SC.O.CB.1.3 relate societal, cultural and economic issues to key scientific innovations. SC.O.CB.1.5 implement safe procedures and practices when manipulating equipment, materials, organisms, and models.	SC.CB.1.ES.1 safely use laboratory equipment.	SC.PD.CB.1.ES.1 Level IV students perform the following complex task without assistance: Student will • sequence the steps to safely conduct lab experiments. EX: given safety rules, determine the order in which they would be completed. Level III students perform the following without assistance: Student will • safely use laboratory equipment. EX: given a lab experiment (pour liquid from a beaker into graduated cylinder) choose the correct safety equipment (eye protection and apron). EX: given a lab experiment (Bunsen burner, beaker) choose the correct safety equipment (oven mitt, tongs, hot hands).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
		Level II students perform the following with assistance: Student will - select the correct safety laboratory equipment for conducting experiments. EX: match items to correct usage: goggles to eyes, apron to body, hair tie to hair, closed vs. open shoes. Level I students attempt to perform the following with assistance: Student will - identify laboratory safety equipment. EX: given pictures of an object choose the requested item: goggles, apron, shoes, hair tie, oven mitts, tongs or hot hands.
SC.O.CB.1.4 conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic). SC.O.CB.1.6 use appropriate technology solutions within a problem solving setting to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and present and communicate conclusions. SC.O.CB.1.7 design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation	SC.CB.1.ES.2 connect historical scientific innovations to modern day usage.	SC.PD.CB.1.ES.2 Level IV students perform the following complex task without assistance: Student will - sequence related scientific innovations. EX: sequence Bunsen burner, hot plate, microwave in the order in which they were invented. EX: sequence pictures of crank phone, rotary dial phone, touchtone phone, and cell phone in order of development. Level III students perform the following without assistance: Student will - connect historical scientific innovations to modern day usage. EX: connect magnifying glass to microscope. EX: connect slide of bacteria to picture of pill (antibiotic).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis of error, or communicate and defend the results and conclusions). SC.O.CB.1.8 draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, or predict the influence of external variances such as potential sources of error).		Level II students perform the following with assistance Student will - choose the appropriate use of a scientific instrument. EX: choose a microscope to view a slide. EX: choose x-ray to see broken bone. Level I students attempt to perform the following with assistance: Student will - identify a scientific instrument/innovations. EX: given a picture of a scientific instrument (e.g., microscope, Bunsen burner, hot plate, microwave, pill), identify the scientific instrument. EX: given picture of a x-ray and a different item, choose the requested item.

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GRADE TEN EXTENDED SCIENCE
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Science Content Standards and Objectives

Standard 2: Content of Science (SC.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.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CB.2.27 compare the characteristics, structures and life cycles of simple to complex organisms.	SC.CB.2.ES.1 classify organisms according to their characteristics and structures.	SC.PD.CB.2.ES.1 Level IV students perform the following complex task without assistance: Student will • classify organisms according to their methods of reproduction. EX: identify that birds lay eggs, dogs have puppies, etc. Level III students perform the following without assistance: Student will • classify organisms according to their characteristics and structures. EX: classify birds and fish according to features (scales, feathers, fur). Level II students perform the following with assistance: Student will • identify animals according to characteristics. EX: identify an animal that has fur (feathers, scales). EX: Identify an aquatic animal, identify land animal.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
		Level I students attempt to perform the following with assistance: Student will • identify animals. EX: point to a horse.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CB.2.4 analyze the flow of matter and energy through cellular processes such as photosynthesis, respiration and fermentation. SC.O.CB.2.11 compile GIS and traditional map data to locate patterns in biological and environmental systems. SC.O.CB.2.12 characterize complex interactions of organisms within ecosystems based on their niches including interspecific and intraspecific. SC.O.CB.2.13 evaluate the use of a particular sampling technique to study ecosystems. SC.O.CB.2.14 predict changes in a ecosystem's productivity when environmental variables are altered. SC.O.CB.2.15 analyze graphs reflecting changes in populations to predict future populations. SC.O.CB.2.22 compare and contrast the morphology, reproduction and life cycles of plants in view of the habitats supporting the plants. SC.O.CB.2.23 evaluate forest management practice for short and long-term resource utilization. SC.O.CB.2.24 assess the importance of wild and cultivated plants to human society, economics and environment.	SC.CB.2.ES.2 apply the knowledge of populations and ecology to the environment.	SC.PD.CB.2.ES.2 Level IV students perform the following complex task without assistance: Student will - predict the outcome of plant growth with limited factors. EX: predict what will happen if too many seeds are planted in one container. EX: predict what will happen if there is drought, extreme cold, or flooding. Level III students perform the following without assistance: Student will - apply the knowledge of populations and ecology to the environment. EX: perform experiments with plants; adding too much water to plant versus no water no sunlight with sunlight. Level II students perform the following with assistance: Student will - identify factors that allow plant growth. EX: given pictures, identify factors that seeds need to grow (sun, rain soil, rock). EX: given pictures of rock, car, boat, sun determine which will help plants grow. Level I students attempt to perform the following with assistance: Student will - recognize a seed. EX: identify pictures of seeds. EX: identify seed given a seed/another item.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CB.2.25 analyze animal behaviors and reproductive strategies as they lead to evolutionary success in specific environment. SC.O.CB.2.26 compare the characteristics, structures and life cycles of simple to complex organisms.		
SC.O.CB.2.7 assess water use practices based on water supply and quality. SC.O.CB.2.8 defend the use of recycling as a tool for energy and resource conservation. SC.O.CB.2.9 illustrate the functioning of modern sanitary landfills and compare them with historic disposal methods. SC.O.2.10.10 predict the effects of human activity on cycles of matter and energy in the biosphere over time. SC.O.CB.2.16 model cycles in soil including natural and human interactions that influence soil development. SC.O.CB.2.17 evaluate the effects of biocide use and chemical hazards on the diversity of life in ecosystems.	SC.CB.2.ES.3 recognize how humans impact the environment.	SC.PD.CB.2.ES.3 Level IV students perform the following complex task without assistance: Student will - describe how humans lessen their impact on the environment. EX: describe benefits of recycling versus landfill. EX: identify benefits of purchasing recyclable items vs. non recyclable items. EX: discuss whether people should dispose of their trash or recycle. Level III students perform the following without assistance: Student will - recognize how humans impact the environment. EX: tell why turning lights off when no one is in the room impacts the environment. EX: describe how people should dispose of trash or recycle. Level II students perform the following with assistance: Student will - identify items that can be recycled. EX: given pictures of a soda can and a cat, point to object that can be recycled. (Other examples of items: glass bottle and Styrofoam; leaf and rock).

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
		Level I students attempt to perform the following with assistance: Student will choose the appropriate method for disposing trash. EX: identify trash can, recycle bin, garbage bag.

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Science Content Standards and Objectives

Standard 3: Application of Science (SC.S.3)

Students will

- demonstrate the ability to use inquiry process to explore systems, models, and changes.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate an understanding of the utilization of technology to gather data and communicate designs, results and conclusions.
- demonstrate an understanding of the personal and societal benefits, the impact of different points of view, predict the long-term societal impact and an understanding of public policy decisions as related to health, population, resource and environmental issues.

Essence of Standard: S.3 demonstrate the ability to evaluate the personal and societal benefits of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CB.3.1 synthesize concepts across various science disciplines to better understand the natural world (e.g., form and function, systems, or change over time). SC.S.CB.3.2 investigate, compare and design scientific and technological solutions to address personal and societal problems. SC.S.CB.3.3 communicate experimental designs, results and conclusions using advanced technology tools. SC.S.CB.3.4 collaborate to present research on current environmental and technological issues to predict possible solutions.	SC.CB.3.ES.1 evaluate the impact of science and technology on the environment.	SC.PD.CB.3.ES.1 Level IV students perform the following complex task without assistance: Student will • use technology to predict the impact of science on the environment. EX: given daily temperature, rainfall, wind direction, the student will chart and interpret weather information. Level III students perform the following without assistance: Student will • evaluate the impact of science and technology on the environment. EX: read the temperature on a thermometer and record it. EX: using a picture of a rain gauge, read and record the amount of rain.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.S.CB.3.5 explore occupational opportunities in science, engineering and technology and evaluate the required academic preparation. SC.S.CB.3.6 given a current science-technology-societal issue, construct and defend potential solutions.		Level I students attempt to perform the following with assistance: Student will - identify science and technology tools. EX: given pictures of a thermometer, rain gauge, weather vane identify requested item. - EX: given a thermometer and a rock, select the thermometer. Level I students attempt to perform the following with assistance: Student will: - match science-technology tools. EX: given 3 pictures, a thermometer and two pictures (thermometer and rock) match.

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GRADE ELEVEN EXTENDED SCIENCE
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Science Content Standards and Objectives

Standard 1: Nature of Science (SC.S.CC.1)

Students will

- demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate the ability to use inquiry process to solve problems.

Essence of Standard: S.1. demonstrate the understanding of the history of science and the ways the inquiry process is used to solve problems.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CC. 1.4 conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic SC.O.CC. 1.5 implement safe procedures and practices when manipulating equipment, materials, organisms, and models. SC.O.CC. 1.6 use appropriate technology solutions within a problem solving setting to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and present and communicate conclusions. SC.O.CC. 1.7 design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation	SC.CC.1.ES.1 safely use laboratory equipment to measure items.	SC.PD.CC.1.ES.1 Level IV students perform the following complex task without assistance: Student will • interpret and graph collected data. EX: graph the amount of liquid in various beakers. EX: given a bar graph of different temperatures, answer questions about the data . Level III students perform the following without assistance: Student will • safely use laboratory equipment to measure items. EX: select and use laboratory equipment to measure volume. EX: determine which object should be used to safely handle a hot pan or beaker on a Bunsen burner. Level II students perform the following with assistance: Student will • match the instrument to its function. EX: given a beaker and a thermometer, choose the one that measures amount.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis of error, or communicate and defend the results and conclusions). SC.O.CC. 1.8 draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, predict the influence of external variances such as potential sources of error, or interpret maps).		Level I students attempt to perform the following with assistance: Student will identify laboratory equipment. EX: select requested item (goggles, beaker, thermometer).
SC.O.CC.1.1 formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results. SC.O.CC.1.3 relate societal, cultural and economic issues to key scientific innovations.	SC.CC.1.ES.2 identify scientific innovations in chemistry	SC.PD.CC.1.ES.2 Level IV students perform the following complex task without assistance: Student will sequence chronologically related scientific innovations. EX: sequence pan balance, triple beam balance and electronic balance in order that they were invented. EX: given pictures of fire, stove, microwave, sequence them in order of discovery. Level III students perform the following without assistance: Student will identify scientific innovations in chemistry EX: discuss the use and benefits of plastic in modern day life.

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Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
		Level II students perform the following with assistance: Student will - match a modern scientific instrument to its use. EX: match a thermometer to taking temperature, microwave to heating food, stopwatch to keeping time. Level I students attempt to perform the following with assistance: Student will - identify a modern scientific instrument. EX: choose which is a more modern instrument, an electronic scale or a balance scale. EX: choose which is a more modern instrument, a digital thermometer or a mercury thermometer.
The following objective was not included in the extended standards: SC.O.CC.1.2 demonstrate how a testable framework is employed to seek solutions for personal and societal issues. (e.g., "scientific method").		

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Science Content Standards and Objectives

Standard 2: Content of Science (SC.CC.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, earth /environmental science and astronomy.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Essence of Standard: S.2 apply knowledge, understanding and skills of science subject matter.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CC.2.1 classify examples of matter as pure substance or mixture. SC.O.CC.2.2 compare and contrast the properties of metals, nonmetals and metalloids. SC.O.CC.2.3 research the sources and uses of elements. SC.O.CC.2.4 using kinetic energy explain the physical states of matter. SC.O.CC.2.5 perform calculations using the gas laws. SC.O.CC.2.6 predict the physical and chemical properties of an element based on the relationship between its group and period on the periodic table. SC.O.CC.2.7 examine experimentally the methods of separating mixtures (e.g., filtration, distillation, or chromatography).	SC.CC.2.ES.1 classify examples of matter based on their properties.	SC.PD.CC.2.ES.1 Level IV students perform the following complex task without assistance: Student will • organize examples of solids into non-metals and metals. EX: sort real metal and non-metal items. EX: sort pictures of metal and non-metal items. Level III students perform the following without assistance: Student will • classify examples of matter based on their properties. EX: classify substances as pure substances or mixtures. Level II students perform the following with assistance: Student will • sort items based on properties of matter. EX: sort items into solids, liquids and gases.

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SC.O.CC.2.20 compare and contrast the properties of strong and weak acids and bases.		Level I students attempt to perform the following with assistance: Student will identify an item as a solid or a liquid. EX: choose a solid item; rock or book. EX: choose a liquid item; water, coke, juice.
SC.O.CC.2.8 generate the correct formula and/or name for ionic and molecular compounds. SC.O.CC.2.11 write and balance a chemical equation, given the information in a sentence. SC.O.CC.2.12 classify a balanced equation into one of the five basic types (e.g., synthesis or combination, decomposition, single replacement, double replacement, or combustion). SC.O.CC.2.19 recognize that water's role as a solvent is dependent upon its polarity. SC.O.CC.2.21 predict the product of an acid-base reaction. SC.O.CC.2.23 classify reactions as exothermic and endothermic reactions by the direction of heat flow in a chemical reaction.	SC.CC.2. ES.2 identify the difference between a chemical change and a physical change.	SC.PD.CC.2.ES.2 Level IV students perform the following complex task without assistance: Student will - apply knowledge of chemical changes. EX: given a log (insert other similar items), describe what needs to happen to cause a chemical change. Level III students perform the following without assistance: Student will - identify the difference between a chemical change and a physical change. EX: participate in an experiment: when vinegar and baking soda are combined in one glass and oil and water in a second glass, identify which one produces a chemical change. Level II students perform the following with assistance: Student will - identify a chemical change. EX: given two pictures of cutting a log versus burning a log, identify which picture shows a chemical change.

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		Level I students attempt to perform the following with assistance: Student will identify a physical change. EX: given two pictures (cutting paper and burning paper) identify which is a physical change. EX: given two pictures (burning log and cutting log), identify which shows a physical change.
SC.O.CC.2.13 perform unit conversions using dimensional analysis. SC.O.CC.2.14 apply the mole concept to chemical formulas to find the molar mass. SC.O.CC.2.15 calculate the percent composition by mass of the elements in a compound. SC.O.CC.2.16 perform mole conversions to generate values for theoretical yield, percentage yield and to identify the limiting reactant. SC.O.CC.2.18 perform solution concentration calculations (e.g., molarity, or ppm). SC.O.CC.2.24 perform experiments to determine this specific capacity of metal.	SC.CC.2. ES.3 compare substances by mass, temperature or concentration.	SC.PD.CC.2.ES.3 Level IV students perform the following complex task without assistance: Student will predict the changes in mass, temperature or concentration, given different circumstances. EX: Mass- given a deflated balloon, predict what will happen as the balloon is blown-up. EX: Temperature- determine what happens to a snowman as temperature increases. EX: Concentration- determine what happens when a teaspoon of sugar is added to lemonade, tea or water (tastes sweeter). Level III students perform the following without assistance: Student will compare substances by mass, temperature or concentration. EX: Mass - Weigh 2 different substances on a pan balance and determine which has more mass. EX: Temperature - given 2 buckets of water, one in the sun and one in the snow, determine which will be warmer and which will be colder. EX: Concentration - given two glasses of tea with different amounts of sugar, indicate which has a greater concentration of sugar (tastes sweeter).

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		Level II students perform the following with assistance: Student will - recognize that mass and temperature can be changed. EX: given one block of wood first and another one on top, describe what happens to the mass when the second block is added. EX: describe what happens to the temperature of water when it boils. Level I students attempt to perform the following with assistance: Student will - identify that temperature is a measure of heat in a substance and that mass is the amount of matter in a substance. EX: given substances of two different temperatures indicate which is hotter. EX: given a large block and a small block, identify which has more mass.
The following objectives were not included in the extended standards: SC.O.CC.2.9 classify compounds of having an ionic or covalent bonds. SC.O.CC.2.17 determine experimentally the effects of temperature and concentration on solution properties (e.g., solubility, conductivity, or density and colligative properties). SC.O.CC.2.22 compare and contrast the concepts of heat and temperature. SC.O.CC.2.10 predict the polarity of a bond by calculating the electronegativity difference between the two elements in the bond. SC.O.CC.2.25 interpret a phase change diagram.		

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Science Content Standards and Objectives

Standard 3: Application of Science (SC.CC.3)

Students will

- demonstrate the ability to use inquiry process to explore systems, models, and changes.
- demonstrate an understanding of the interdependence between science and technology.
- demonstrate an understanding of the utilization of technology to gather data and communicate designs, results and conclusions.
- demonstrate an understanding of the personal and societal benefits of science, and an understanding of public policy decisions as related to health, population, resource and environmental issues.

Essence of Standard: S.3 demonstrate an understanding of everyday applications and interactions of science and technology.

Grade Level Objectives	Extended Grade Level Standards	Performance Descriptors
SC.O.CC.3.1 synthesize concepts across various science disciplines to better understand the natural world (e.g., form and function, or systems and change over time). SC.O.CC.3.2 investigate, compare and design scientific and technological solutions to address personal and societal problems. SC.O.CC.3.3 communicate experimental designs, results and conclusions using advanced technology tools. SC.O.CC.3.4 collaborate to present research on current environmental and technological issues to predict possible solutions.	SC.CC.3.ES.1 describe the impact of technology on the environment.	SC.PD.CC.3.ES.1 Level IV students perform the following complex task without assistance: Student will • determine solutions to environmental problems. EX: determine solution to air pollution – electric cars, car pools. EX: determine solution to water pollution- prevent oil spills, clean up spills. EX: determine solution to trash/litter- recycle, composting, buying recycled products. Level III students perform the following without assistance: Student will • describe the impact of technology on the environment. EX: use pictures to identify the impact of water, land and air pollution. EX: describe how impact of solar panels reduces dependence on electricity. EX: describe how trash is reduced through recycling and reuse.

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SC.O.CC.3.5 explore occupational opportunities in science, engineering and technology and evaluate the required academic preparation. SC.O.CC.3.6 given a current science-technology-societal issue, construct and defend potential solutions.		Level II students perform the following with assistance: Student will - recognize causes of pollution. EX: using pictures, match pollutions with their cause: Air pollution- caused by cars and factories Water pollution- caused by factories, oil spills Trash/litter – people. Level I students attempt to perform the following with assistance: Student will - identify different types of pollution. EX: use pictures to match water pollution to dead fish; air pollution to smog.