

Quarterly Environmental Theme: How do our choices influence the future?

4th Grade Essential Question: How does the built environment (agriculture and industry) influence our watershed?

Standards of Learning:

ENVIRONMENT

Standard 1:

Ecological, Social, and Economic Systems

Students develop knowledge of the interconnections and interdependency of ecological, social, and economic systems. They demonstrate understanding of how the health of these systems determines the sustainability of natural and human communities at local, regional, national, and global levels.

Standard 2:

The Natural and Built Environment

Students engage in inquiry and systems thinking and use information gained through learning experiences in, about, and for the environment to understand the structure, components, and processes of natural and human-built environments.

Standard 3:

Sustainability and Civic Responsibility

Students develop and apply the knowledge, perspective, vision, skills, and habits of mind necessary to make personal and collective decisions and take actions that promote sustainability.

Related Environmental Activities:

Maintain PHSSA gardens

Host school-wide campaign – “Beauty All Around Us”

PLT Activity 76 Tree Cookies

Students will examine the cross-sections of trees. Students will infer from a tree’s rings what environmental conditionals might have occurred in its life.

PLT Activity 91 In the Good Old Days

Students will learn how people’s personal experiences and place in history affect their attitudes toward the environment

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Standards of Learning:

SCIENCE

Interrelationships in Earth/Space Systems

- 4.6 The student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include
- a) weather measurements and meteorological tools (air pressure – barometer, wind speed – anemometer, rainfall – rain gauge, and temperature – thermometer); and
 - b) weather phenomena (fronts, clouds, and storms).

Earth Patterns, Cycles, and Change

- 4.7 The student will investigate and understand the relationships among the Earth, moon, and sun. Key concepts include
- a) the motions of the Earth, moon, and sun (revolution and rotation);
 - b) the causes for the Earth’s seasons and phases of the moon;
 - c) the relative size, position, age, and makeup of the Earth, moon, and sun; and
 - d) historical contributions in understanding the Earth-moon-sun system

Related Environmental Objectives:

Look at a complex situation and see how it can be analyzed as systems with boundaries, inputs, outputs, and flows.

Define technologies and the technological design process to understand the use of technology in different cultures and career fields. (i.e. meteorologist, astronomers, climatologist)

Provide examples of large-scale changes to ecosystems that result from human activities and natural events

Understands how technology and ideas have affected the way people lived and changed their values, beliefs, and attitudes

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Standards of Learning:

SOCIAL STUDIES

Political Growth and Western Expansion: 1781 to the Mid 1800s

- VS.6 The student will demonstrate knowledge of the role of Virginia in the establishment of the new American nation by
- explaining why George Washington is called the “Father of our Country” and James Madison is called the “Father of the Constitution”;
 - identifying the ideas of George Mason and Thomas Jefferson as expressed in the Virginia Declaration of Rights and the Virginia Statute for Religious Freedom;
 - explaining the influence of geography on the migration of Virginians into western territories.

Civil War and Postwar Eras

- VS.7 The student will demonstrate knowledge of the issues that divided our nation and led to the Civil War by
- identifying the events and differences between northern and southern states that divided Virginians and led to secession, war, and the creation of West Virginia;
 - describing Virginia’s role in the war, including identifying major battles that took place in Virginia;
 - describing the roles played by whites, enslaved African Americans, free African Americans, and American Indians.
- VS.8 The student will demonstrate knowledge of the reconstruction of Virginia following the Civil War by
- identifying the effects of Reconstruction on life in Virginia;
 - identifying the effects of segregation and “Jim Crow” on life in Virginia for whites, African Americans, and American Indians;
 - describing the importance of railroads, new industries, and the growth of cities to Virginia’s economic development.

Related Environmental Objectives:

- Identify how the methods used to extract, harvest and transport tobacco in Virginia influenced the natural systems.
- Describe how the changing resource production and consumption patterns in Virginia during the 1800’s resulted in the need for new laws, policies, and incentives regarding resource use and management.
- Examine how political and economic decisions made during the period of westward expansion influenced the social, economic, political, and legal systems in local communities and in Virginia as a whole
- Understands and analyzes the costs and benefits of people’s decisions to move and relocate to meet their needs and wants

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Standards of Learning:

READING

4.3 The student will read fiction and nonfiction with fluency and accuracy.

- b) Explain words with multiple meanings.
- c) Use knowledge of word origins; synonyms, antonyms, and homonyms; and multiple meanings of words.

4.4 The student will read and demonstrate comprehension of fiction.

- a) Explain the author’s purpose.
- b) Describe how the choice of language, setting, and information contributes to the author’s purpose.
- c) Compare the use of fact and fantasy in historical fiction with other forms of literature.
- d) Identify major events and supporting details.
- e) Describe the relationship between text and previously read materials.
- f) Identify sensory words.

Students will complete a reading unit on historical fiction.

Suggested Guided Reading Text:
Fountas and Pinnell Library

DRA 30 – 38

Measuring Penny N
 Wild Weather: Blizzards! N
 Tell Me How Far It Is N
 Constellations N
 Abraham Lincoln: Road to the White House O

DRA 40

A Drop of Water: A Book of Science and Wonder P
 Getting to Know the U.S. Presidents: Andrew Jackson P
 The Magic School Bus Lost in the Solar System Cole P
 Sir Cumference and the Sword in the Cone: A Math Adventure P
 Can You Believe? Hurricanes Q
 Lewis and Clark: In Their Own Words R
 Pigs Might Fly R
 Journey to Ellis Island R

DRA >50

Black Holes and Other Space Phenomena T
 Enemies of Slavery T
 A Picture of Freedom: The Diary of Clotee, A Slave Girl, T
 Plantation, Virginia, 1859 T
 Forty Acres and Maybe a Mule V

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Standards of Learning:

WRITING

- 4.7 The student will write effective narratives, poems, and explanations.
- Focus on one aspect of a topic.
 - Develop a plan for writing.
 - Organize writing to convey a central idea.
 - Write several related paragraphs on the same topic.
 - Utilize elements of style, including word choice and sentence variation.
 - Write rhymed, unrhymed, and patterned poetry.
 - Use available technology.

- 4.8 The student will edit writing for correct grammar, capitalization, spelling, punctuation, and sentence structure..
- Eliminate double negatives.
 - Use noun-pronoun agreement.

During the 3rd quarter students will complete a 4 week unit on persuasive writing

Students will complete a persuasive writing unit. Here are some links to teach persuasive writing.

California School District [“Two Sides to Every Story”](#)

[Parkway School District Writing Unit Plan](#)

Gwinnett County Persuasive Writing Unit
[Exploring Persuasive Writing](#)
[Enriching Persuasive Writing](#)

Related Inquiry Unit Texts:
(From Making Meaning and Being a Writer Libraries)
 Sami and the Time of the Troubles Florence Parry
 Song and Dance Man Karen Ackerman
 Home Place Crescent
 The Memory Coat Elvira Woodruff

Related Environmental Activities:

The students will:

- Write persuasive essays to convince farmers to move west to West Virginia for better farming land
- Write essays to persuade PHSSA students to participate in a Park Clean-up day

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Standards of Learning:

MATHEMATICS

- 4.6 The student will
 a) estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and
 a) identify equivalent measurements between units within the U.S. Customary system (ounces, pounds, and tons) and between units within the metric system (grams and kilograms).
- 4.7 The student will
 a) estimate and measure length, and describe the result in both metric and U.S. Customary units; and
 b) identify equivalent measurements between units within the U.S. Customary system (inches and feet; feet and yards; inches and yards; yards and miles) and between units within the metric system (millimeters and centimeters; centimeters and meters; and millimeters and meters).
- 4.8 The student will
 a) estimate and measure liquid volume and describe the results in U.S. Customary units; and
 b) identify equivalent measurements between units within the U.S. Customary system (cups, pints, quarts, and gallons).
- 4.9 The student will determine elapsed time in hours and minutes within a 12-hour period. Geometry

Related Environmental Activities:

The students will:

- PLT Activity 67 How Big is Your Tree
 Students will be able to explain why people use standard units of measure. Students will measure trees in a systematic and consistent way.
- Measure volume using US Customary and metric units
 - Measure circumference to determine the age trees
 - Graph the temperature of Reedy Creek water over the course
 - Locate man-made and natural geometric shapes
 - Estimate and measure various objects in the park.

Patrick Henry School of Science and Arts Fourth Grade Third Quarter Curriculum Plan

	<p>4.10 The student will</p> <ul style="list-style-type: none">a) identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices; andb) identify representations of lines that illustrate intersection, parallelism, and perpendicularity. <p>4.11 The student will</p> <ul style="list-style-type: none">a) investigate congruence of plane figures after geometric transformations, such as reflection, translation, and rotation, using mirrors, paper folding, and tracing; andb) recognize the images of figures resulting from geometric	
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Standards of Learning:

ART

- 4.5 The student will identify and use variety, repetition, and unity in a work of art.
- 4.6 The student will identify and use a variety of lines in a work of art.
- 4.10 The student will create abstract works of art.
- 4.26 The student will select a preferred work of art from among others and defend the choice, using appropriate art vocabulary.

Related Environmental Objectives:

Understands how technology and ideas have affected the way people lived and changed their values, beliefs, and attitudes

Provide examples of large-scale changes to ecosystems that result from human activities and natural events (photograph examples)

Related Environmental Activities:

The students will:

- Students will evaluate the work of John James Audubon
- Photograph geometry and repetition in nature
- Students will examine geometry in quilts as it relates to the Southern slave experience.

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Standards of Learning:

MUSIC

- 4.2 The student will notate and perform rhythmic patterns that include sixteenth notes, single eighth notes, eighth rests, paired eighth notes, quarter notes, quarter rests, half notes, half rests, dotted half notes, whole notes, and whole rests, using body percussion, voice, pitched instruments, or non-pitched instruments.
- 4.8 The student will identify rondo form.
- 4.15 The student will compare the relationships between music and other disciplines.

Related Environmental Objectives:

Understands how technology and ideas have affected the way people lived and changed their values, beliefs, and attitudes

Provide examples of large-scale changes to ecosystems that result from human activities and natural events (photograph examples)

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Related Environmental Activities:

The students will:

- Identify the refrain in Slave Spirituals and relate them to the Earth patterns and celestial bodies (Big Dipper, seasons, and tides)
- Explain the relationship between weather and sound produced by musical instruments

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Standards of Learning:

HEALTH & PE

- PE 4.1 The student will refine movement skills and demonstrate the ability to combine them in increasingly complex movement activities.
- a) Demonstrate proficiency in specialized locomotor, non-locomotor, and manipulative skill combinations in game and modified sports activities (e.g., throw to a partner while he/she runs to catch, dribble and pass soccer ball/basketball to a moving receiver, catch thrown objects, continuously strike a ball against a backboard or wall with an implement).
 - b) Demonstrate moving to a rhythm (e.g., perform a variety of educational dances with different international and regional American formations; create educational dances with apparent beginning, middle, and end, combining shapes, levels, pathways, and locomotor patterns).

Related Environmental Objectives:

2.1 Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.

2.1.1 Understands and analyzes the costs and benefits of people's decisions to move and relocate to meet their needs and wants. (Gr. 4)

EALR 2: Economics

2.2 Understands how economic systems function.

- 2.2.1 Understands the basic elements of Washington State's economic system, including agriculture, businesses, industry, natural resources, and labor.

Related Environmental Activities:

The students will:

- Understand how baseball became popular as agricultural demands shifted during the Civil War period
- Determine the relationship between land availability and recreational activities in the past and present

INSTRUCTIONAL ELEMENTS

Key Vocabulary	Instructional Strategies	Instructional Materials	Technology
<p>Math – weight, mass, kilogram, gram, pound, ounce, liter milliliter, liquid ounce, meter, centimeter, millimeter, inch, yard, foot, mile, polygon, vertices, acute, obtuse, right angle, parallel, perpendicular, intersecting</p> <p>Science- meteorological tools (air pressure – barometer, anemometer, rain gauge, Fahrenheit, Celsius thermometer, fronts, nebulous, cirrus,</p> <p>Social Studies – abolish, abolitionist, migration, emancipation, migration, Confederacy, Union, arsenal, expansion, civil war, industrial, agricultural, ironclad, rebellion, revolt, reconstruction, economic opportunity,</p>	<ul style="list-style-type: none"> • Integrating content into • Language Arts activities • Author/Illustrator studies • Literature Circles • Web-Quest • Experiential learning (project-based) • Direct instruction • Small Group • Reflective discussions • Comparing/contrasting • Peer partner editing • 	<ul style="list-style-type: none"> • Websites referenced in VDOE • scope and sequence • Natural materials from Forest • Hill Park • Related texts • Assessment resources • Graphic organizers • Project Learning Tree guide • VA Studies CD • Computers • Video Camera • Maps of VA • Journals • Charts and Graphs • LCD Projector • Crayons, markers, paints • Rulers • White boards and markers • Foldables • Index cards • Self-stick notes • reusable materials 	<ul style="list-style-type: none"> • Webquest • United Streaming • Powerpoint • Wikispaces – to plan/ share information • Blogspot • Audacity – to create podcast • VA Trekkers •

INQUIRY PROJECT & CULMINATING ACTIVITY

Goal:

The 4th grade classes will work together to research symmetry and congruency in nature then plan and execute an art gallery exhibition.

Elements:

- a) The students will create drawing using geometric concepts such as transformations, lines, and polygons.
- b) The students will create 3-dimensional art of different systems (planets, moon phases, seasons)
- c) The students will photograph geometric concepts found in nature focusing on clouds and celestial bodies
- d) Students will write poetry based on nature

Pacing:

This project will be executed in 9 weeks. In class work will be completed during the inquiry block. Component pieces may be executed as home-based projects at the discretion of the classroom teacher.

Evaluation and Assessment:

Component pieces will be evaluated with assignment specific, standards related rubric. Scores for each standard will be entered into Kickboard and averaged as part of the quarterly student mastery grade. An SOL-aligned teacher-created rubric will assess the culminating activity.

ENVIRONMENT

Driving Objectives:	Essential Understanding:	Essential Skills:	Essential Questions:
<p>2.4 Understands the economic issues and problems that all societies face.</p> <p>3.2 Understands human interaction with the environment.</p> <p>.</p>	<p>Geography, natural resources, climate, and available labor contribute to the sustainability of the economy of regions in Virginia</p> <p>Geographic features of the Eastern Seaboard have influenced the movement of people</p> <p>The production, distribution, and consumption of goods, services, and resources in societies from the past or in the present.</p>	<p>2.2.1 Analyzes the production, distribution, and consumption of goods, services, and resources in societies from the past or in the present.</p> <p>2.2.1 Analyzes how the forces of supply and demand have affected the production, distribution, and consumption of goods, services, and resources in the United States in the past or present.</p> <p>Describe how improvements to agricultural practices increased supplies of food and other agricultural products (sometimes surpluses), which in turn resulted in the growth of human populations and the development of larger settlements and cities.</p>	<p>How can collecting weather data inform our choices in maintaining the rain garden?</p> <p>What impact do climate, natural resources, and geography have on human migration?</p> <p>What structures have humans built that positively impact our water supply? Negatively impact the water supply?</p> <p>How is nature mirrored in built structures to solve problems of human cultivation?</p>

SCIENCE

Driving Objectives:	Essential Understanding:	Essential Skills:	Essential Questions:
<p>Interrelationships in Earth/Space Systems</p> <p>4.6 The student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include</p> <p>a) weather measurements and meteorological tools (air pressure – barometer, wind speed – anemometer, rainfall – rain gauge, and temperature – thermometer); and</p> <p>b) weather phenomena (fronts, clouds, and storms).</p> <p>Earth Patterns, Cycles, and Change</p> <p>4.7 The student will investigate and understand the</p>	<p>Cirrus, stratus, cumulus, and cumulo-nimbus clouds are associated with certain weather conditions.</p> <p>Extreme atmospheric conditions create various kinds of storms such as thunderstorms, hurricanes, and tornadoes.</p> <p>Meteorologists gather data by using a variety of instruments.</p> <p>Meteorologists use data to predict weather patterns</p> <p>Different atmospheric conditions create different types of precipitation.</p> <p>Due to its axial tilt, the Earth experiences seasons during its revolution around the sun.</p> <p>The phases of the moon are caused by its position relative to the Earth and the sun.</p> <p>The sun is an average-sized yellow star.</p> <p>Our moon is a small rocky satellite, having about one-quarter the diameter of the Earth and one-eighth its mass. It has extremes of temperature, virtually no</p>	<p>Use appropriate weather instruments to measure and record data over time</p> <p>thermometer to compare air temperatures over a period of time.</p> <p>Predict what the changes mean in terms of changing weather patterns.</p> <p>Illustrate and label high and low pressure air masses and warm and cold fronts.</p> <p>Differentiate between cloud types and the associated weather.</p> <p>Compare and contrast the formation of different types of precipitation</p> <p>Differentiate between rotation and revolution.</p> <p>Describe how the Earth’s axial tilt causes the seasons.</p> <p>Model the formation of the eight moon phases, sequence the phases in order, and describe how the phases occur.</p> <p>Describe the major characteristics of the sun,.</p>	<p>How can weather changes be recorded over time?</p> <p>How are various forms of precipitation formed?</p> <p>What cloud types are associated with various types of weather?</p> <p>Why are barometers used to predict weather changes?</p> <p>What instruments are used to measure wind speed? Air pressure? Temperature? Precipitation?</p> <p>What are the 8 phases of the moon, and how are they caused?</p> <p>What are the components of the solar system?</p> <p>How has technology increased our understanding of the space?</p>

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<p>relationships among the Earth, moon, and sun. Key concepts include</p> <ul style="list-style-type: none"> a) the motions of the Earth, moon, and sun (revolution and rotation); b) the causes for the Earth's seasons and phases of the moon; c) the relative size, position, age, and makeup of the Earth, moon, and sun; and d) historical contributions in understanding the Earth-moon-sun system. 	<p>atmosphere, no water, and no life.</p>	<p>Create and describe a model of the Earth-moon-sun system with approximate scale distances and sizes.</p> <p>Compare and contrast the surface conditions of the Earth, moon, and sun.</p> <p>Describe a contribution of the NASA Apollo missions to our understanding of the moon.</p>	
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SOCIAL STUDIES

Driving Objectives:	Essential Understanding:	Essential Skills:	Essential Questions:
<p>VS.7 The student will demonstrate knowledge of the issues that divided our nation and led to the Civil War by</p> <p>a) identifying the events and differences between northern and southern states that divided Virginians and led to secession, war, and the creation of West Virginia;</p> <p>b) describing Virginia’s role in the war, including identifying major battles that took place in Virginia;</p> <p>c) describing the roles played by whites, enslaved African Americans, free</p>	<p>The actions and ideas of some Virginians formed the basis for the new constitutional government of the United States.</p> <p>The Virginia Declaration of Rights, written by George Mason, states that all Virginians have many rights, including freedom of religion and freedom of the press.</p> <p>The Virginia Statute for Religious Freedom, written by Thomas Jefferson, states that all people should be free to worship as they please.</p> <p>Because of economic differences between the North and South, they were unable to resolve their conflicts, and the South seceded from the United States.</p>	<p>Identify and interpret artifacts and primary and secondary source documents to understand events in history. (VS.1a)</p> <p>Determine cause-and-effect relationships. (VS.1b)</p> <p>Compare and contrast historical events. (VS.1c)</p> <p>Draw conclusions and make generalizations. (VS.1d)</p> <p>Make connections between past and present. (VS.1e)</p> <p>Sequence events in Virginia history. (VS.1f)</p> <p>Interpret ideas and events from different historical perspectives.</p>	<p>What key ideas of the Virginia Declaration of Rights are included in the Constitution of the United States of America?</p> <p>What key ideas of the Virginia Statute for Religious Freedom are included in the Constitution of the United States of America?</p> <p>What geographic factors influenced Virginians to move to the western frontier of Virginia and beyond?</p> <p>Why did Virginia secede from the Union?</p> <p>Why did West Virginia become a state?</p> <p>What major Civil War battles</p>

<p>African Americans, and American Indians.VS.8 The student will demonstrate knowledge of the reconstruction of Virginia following the Civil War by</p> <ul style="list-style-type: none"> a) identifying the effects of Reconstruction on life in Virginia; b) identifying the effects of segregation and “Jim Crow” on life in Virginia for whites, African Americans, and American Indians; c) describing the importance of railroads, new industries, and the growth of cities to Virginia’s economic development. <p>Virginia: 1900 to the Present</p> <p>VS.9 The student will demonstrate knowledge of twentieth- and twenty-first-century Virginia by</p> <ul style="list-style-type: none"> a) describing the economic and social transition from a rural, agricultural society to a more urban, 			
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<p>industrialized society, including the reasons people came to Virginia from other states and countries;</p> <p>b) identifying the impact of Virginians, such as Woodrow Wilson and George C. Marshall, on international events;</p> <p>c) identifying the social and political events in Virginia linked to desegregation and Massive Resistance and their relationship to national history;</p> <p>d) identifying the political, social, and/or economic contributions made by Maggie L. Walker; Harry F. Byrd, Sr.; Oliver W. Hill; Arthur R. Ashe, Jr.; A. Linwood Holton, Jr.; and L. Douglas Wilder.</p>			
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LANGUAGE ARTS

DRIVING OBJECTIVES	ESSENTIAL UNDERSTANDINGS	ESSENTIAL SKILLS	ESSENTIAL QUESTIONS
<p>4.3 The student will read fiction and nonfiction with fluency and accuracy.</p> <p>b) Explain words with multiple meanings. c) Use knowledge of word origins; synonyms, antonyms, and homonyms; and multiple meanings of words.</p> <p>4.4 The student will read and demonstrate comprehension of fiction.</p> <p>a) Explain the author’s purpose. b) Describe how the choice of language, setting, and information contributes to the author’s purpose. c) Compare the use of fact and fantasy in historical fiction with other forms of literature. d) Identify major events and supporting details. e) Describe the relationship between text and previously read materials. f) Identify sensory words.</p>	<ul style="list-style-type: none"> • use the content and structure of a sentence, paragraph, or reading selection to help determine the meaning of an unfamiliar word • use a variety of strategies and word recognition skills to read fluently • know the type of information found in word reference materials such as a glossary, dictionary, and thesaurus. • develop a variety of comprehension strategies • understand that there are different forms of fiction (realistic, historical, and fantasy). 	<p>explain why the author wrote the piece (identify purpose), e.g., to entertain, inform, or persuade</p> <ul style="list-style-type: none"> • find words or sentences that help identify the author’s purpose • find setting details and other information that help identify the author’s purpose • know that fictional stories, such as fantasy, describe imaginary characters and events • understand that historical fiction is a story based on facts • identify the facts contained in a piece of historical fiction • compare the use of fact and fantasy in historical fiction with the use of fact and fantasy in other forms of literature • identify major events and supporting details • discuss the similarities and differences between text and previously read materials • identify sensory words that describe sights, sounds, smells, and tastes, and describe how they make the reader feel • know that narrative poetry tells a story through verse. 	<p>What tools do author’s use to establish mood, tone, and theme?</p> <p>What are the elements of historical fiction?</p> <p>How can readers determine the differences between fact and fiction in historical fiction?</p> <p>What are the different forms of fiction?</p>

MATHEMATICS

Driving Objectives	Essential Understandings	Essential Skills	Essential Questions
<p>4.6 The student will</p> <p>a) estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and</p> <p>a) identify equivalent measurements between units within the U.S. Customary system (ounces, pounds, and tons) and between units within the metric system (grams and kilograms).</p> <p>4.7 The student will</p> <p>a) estimate and measure length, and describe the result in both metric and U.S. Customary units and</p> <p>b) identify equivalent measurements between units within the U.S. Customary system (inches and yards; yards and miles) and between units within the metric system</p> <p>4.8 The student will</p> <p>a) estimate and measure liquid volume and describe the results in U.S. Customary units; and</p> <p>b) identify equivalent</p>	<ul style="list-style-type: none"> • Understand that points, lines, line segments, rays, and angles, including endpoints and vertices are fundamental components of noncircular geometric figures. • Understand that the shortest distance between two points on a flat surface is a line segment. • Understand that lines in a plane either intersect or are parallel. Perpendicularity is a special case of intersection. • Identify practical situations that illustrate parallel, intersecting, and perpendicular lines. • Understand the meaning of the term <i>congruent</i>. • Understand how to identify congruent figures. • Understand that the orientation of figures does not affect congruency or no congruency. • Identify polygons with 10 or fewer sides in everyday situations. • Identify polygons with 10 or fewer sides in multiple orientations (rotations, reflections, and translations of the polygons). 	<ul style="list-style-type: none"> • Identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices. • Understand that lines in a plane can intersect or are parallel. Perpendicularity is a special case of intersection. Identify practical situations that illustrate parallel, intersecting, and perpendicular lines. • Recognize the congruence of plane figures resulting from geometric transformations such as translation, reflection, and rotation, using mirrors, paper folding and tracing. • Define and identify properties of polygons with 10 or fewer sides. • Identify polygons by name with 10 or fewer sides in multiple orientations (rotations, reflections, and translations of the polygons). 	

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<p>measurements between units within the U.S. Customary system</p> <p>4.9 The student will determine elapsed time in hours and minutes within a 12-hour period.</p> <p>4.10 The student will</p> <ul style="list-style-type: none"> a) identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices; and b) identify representations of lines that illustrate intersection, parallelism, and perpendicularity. <p>4.11 The student will</p> <ul style="list-style-type: none"> a) investigate congruence of plane figures after geometric transformations, such as reflection, translation, and rotation, using mirrors, paper folding, and tracing; and b) recognize the images figures resulting from geometric 			
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RESOURCES		
Community (Field Trips)	Internet	People and Other Resources
<p><u>Science Museum of Virginia</u> :Science on a Sphere® Exhibit -Animated images of atmospheric storms, climate change and ocean temperature are shown</p> <p>American Civil War Center at Historic Tredegar</p> <p>Appomattox Courthouse- see the reenactment of Lee’s surrender to Grant, ending the Civil War</p> <p>Cold Harbor Battlefield</p>	<p>Podcasts are available on the Tredegar digital feed subscription.</p> <p>Weather Wiz Kids is a website developed by a meteorologist to answer students’ questions about weather and climate.</p> <p>The National Aeronautics and Space Administration host a virtual space club for kids.</p>	<p>The Richmond History Center offers walking tours of historic Richmond sites, and will come onsite to walk neighborhoods.</p> <p>Interactive Smartboard Lesson featuring weather related images and vocabulary</p> <p>Students can write local meteorologist at:</p> <p>Detailed directions for students to build their own weather stations</p>