

Pennsylvania Alternate System of Assessment

Alternate Assessment Anchors and Alternate Eligible Content

Grade 11

S11.A The Nature of Science

Reporting Category

S11.A.1 Reason and Analysis		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.A.1.1 Analyze and explain the nature of science in the search for understanding the natural world and its connection to technological systems.</p> <p><i>Reference: 3.1.10.A, 3.2.10.A</i></p> <p>S11.A.1.2 Identify and analyze the scientific or technological challenges of societal issues; propose possible solutions and discuss implications.</p> <p><i>Reference: 3.2.10.A, 4.3.10.B</i></p> <p>S11.A.1.3 Describe and interpret patterns of change in natural and human-made systems.</p> <p><i>Reference: 3.1.10.C, 3.1.10.E, 4.8.10.A</i></p>	<p>S11.A.1.1.1 Compare and contrast scientific theories, scientific laws, and beliefs (e.g., the law of gravity, how light travels, formation of moons, stages of ecological succession).</p> <p>S11.A.1.1.2 Analyze and explain how to verify the accuracy of scientific facts, principles, theories, and laws.</p> <p>S11.A.1.1.3 Evaluate the appropriateness of research questions (e.g., testable vs. not-testable).</p> <p>S11.A.1.1.4 Explain how specific scientific knowledge or technological design concepts solve practical problems (e.g., momentum, Newton’s laws of universal gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur’s germ theory, relativity, heliocentric theory, gas laws, processing and feedback systems).</p> <p>S11.A.1.1.5 Analyze or compare the use of both direct and indirect observation as means to study the world and the universe (e.g., behavior of atoms, functions of cells, birth of stars).</p> <p>S11.A.1.2.1 Apply and explain scientific concepts to societal issues using case studies (e.g., sea</p>	

	<p>level change, spread of HIV, deforestation, environmental health, energy).</p> <p>S11.A.1.2.2 Use case studies (e.g., Wright brothers' flying machine, Tacoma Narrows Bridge, Henry Petroski's Design Paradigms to propose possible solutions and analyze economic and environmental implications of solutions for real-world problems.</p> <p>S11.A.1.3.1 Use appropriate quantitative data to describe or interpret change in systems (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).</p> <p>S11.A.1.3.2 Describe or interpret dynamic changes to stable systems (e.g., chemical reactions, human body, food webs, tectonics, homeostasis).</p> <p>S11.A.1.3.3 Describe how changes in physical and biological indicators (e.g., soil, plants, or animals) of water systems reflect changes in these systems (e.g. changes in bloodworm populations reflect changes in pollution levels in streams).</p> <p>S11.A.1.3.4 Compare the rate of use of natural resources and their impact on sustainability.</p>	
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S11.A The Nature of Science

S11.A.2 Processes, Procedures and Tools of Scientific Investigations		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.A.2.1 Apply knowledge of scientific investigation to critique aspects of the experimental or design process.</p> <p>S11.A.2.2 Evaluate appropriate technologies for a specific purpose, or describe the information that an instrument can provide.</p>	<p>S11.A.2.1.1 Describe and interprets patterns of change in natural, physical, and man-made systems.</p>	<p>S11.A.2.1.1 Selects tallest/shortest bar on bar graph.</p>
	<p>S11.A.2.2.1 Identify the impact of changes in technology on society at large.</p>	<p>S11.A.2.1.1 Matches trendlines – all choices are trendlines.</p> <p>S11.A.2.1.1 Selects value described on a y-axis of a bar graph.</p> <p>S11.A.2.1.1 Selects value described on an x-axis of a graph.</p> <p>S11.A.2.1.1 Selects biggest/smallest value on a line graph with numbers.</p> <p>S11.A.2.1.1 Selects value described on a y-axis of a line graph.</p> <p>S11.A.2.1.1 Selects value described on an x-axis of a line graph.</p> <p>S11.A.2.1.1 Selects 2 values described on a line graph.</p> <p>S11.A.2.1.1 Selects data point described on a bar graph.</p> <p>S11.A.2.1.1 Selects interval in which change in data described occurred.</p> <p>S11.A.2.1.1 Identifies trend on a line graph.</p> <p>S11.A.2.1.1 Calculates the difference in 2 values on a line graph.</p> <p>S11.A.2.1.1 Makes prediction using line graph.</p>

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		<p>S11.A.2.1.1 Selects missing value based on interpretation/extrapolation on a line graph.</p> <p>S11.A.2.2.1 Selects most recent innovation in technology – all choices perform the same basic function.</p> <p>S11.A.2.2.1 Names 1 consequence of a new technology.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.A.2.1 Apply knowledge of scientific investigation or technological design to develop or critique aspects of the experimental or design process.</p> <p><i>Reference: 3.2.10.B</i></p> <p>S11.A.2.2 Evaluate appropriate technologies for a specific purpose, or describe the information the instrument can provide.</p> <p><i>Reference: 3.7.10.B, 3.8.10.B</i></p>	<p>S11.A.2.1.1 Critique the elements of an experimental design (e.g., raising questions, formulating hypotheses, developing procedures, identifying variables, manipulating variables, interpreting data, and drawing conclusions) applicable to a specific experimental design.</p> <p>S11.A.2.1.2 Critique the elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate and communicate results) applicable to a specific technological design.</p> <p>S11.A.2.1.3 Use data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental limits.</p> <p>S11.A.2.1.4 Critique the results and conclusions of scientific inquiry for consistency and logic.</p> <p>S11.A.2.1.5 Communicate results of investigations using multiple representations.</p> <p>S11.A.2.2.1 Evaluate appropriate methods, instruments, and scale for precise quantitative and qualitative observations (e.g., to compare</p>	

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	<p>properties of materials, water quality).</p> <p>S11.A.2.2.2 Explain how technology is used to extend human abilities and precision (e.g., GPS, spectroscope, scanning electron microscope, pH meters, probes, interfaces, imaging technologies, telescope).</p>	
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S11.A The Nature of Science

S11.A.3 Systems, Models and Patterns		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.A.3.1 Identify the parts of a simple system, their roles and relationships to the system as a whole.</p>	<p>S11.A.3.1.1 Describe solution to a problem within a simple man-made system.</p>	<p>S11.A.3.1.1 Selects picture of a part of a man-made system that will solve a problem described.</p> <p>S11.A.3.1.1 Describes 1 solution to a problem with a simple man-made system.</p> <p>S11.A.3.1.1 Describes 2 possible problems with a simple man-made system – 1 possible problem eliminated in scenario.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.A.3.1 Analyze the parts of a simple system, their roles, and their relationships to the system as a whole.</p> <p><i>Reference: 3.1.10.A, 3.1.10.E, 4.3.10.C</i></p> <p>S11.A.3.2 Compare observations of the real world to observations of a constructed model.</p> <p><i>Reference: 3.1.10.B, 3.2.10.B, 4.1.10.B, 4.6.10.A</i></p> <p>S11.A.3.3 Compare and analyze repeated processes or recurring elements in patterns.</p> <p><i>Reference: 3.1.10.C, 3.2.10.B</i></p>	<p>S11.A.3.1.1 Apply systems analysis, showing relationships (e.g., flowcharts, decision trees, dichotomous keys, mind map), input and output, and measurements to explain a system and its parts.</p> <p>S11.A.3.1.2 Analyze and predict the effect of making a change in one part of a system on the system as a whole.</p> <p>S11.A.3.1.3 Use appropriate quantitative data to describe or interpret a system (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).</p> <p>S11.A.3.1.4 Apply the universal systems model of inputs, processes, outputs, and feedback to a working system (e.g., heating systems, motor, food production) and identify the resources necessary for operation of the system.</p> <p>S11.A.3.2.1 Compare the accuracy of predictions represented in a model to actual observations and behavior.</p>	

	<p>S11.A.3.2.2 Describe advantages and disadvantages of using models to simulate processes and outcomes.</p> <p>S11.A.3.2.3 Describe how relationships represented in models are used to explain scientific or technological concepts (e.g., dimensions of the solar system, life spans, size of atomic particles, topographic maps).</p> <p>S11.A.3.3.1 Describe or interpret recurring patterns that form the basis of biological classification, chemical periodicity, geological order, or astronomical order.</p> <p>S11.A.3.3.2 Compare stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.</p> <p>S11.A.3.3.3 Analyze physical patterns of motion to make predictions or draw conclusions (e.g., solar system, tectonic plates, weather systems, atomic motion, waves).</p>	
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S11.B Biological Sciences

Reporting Category

S11.B.1 Structure and Function of Organisms		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.B.1.1 Identify structural or functional similarities and differences among living things and compares their diverse needs for survival.</p>	<p>S11.B.1.1.1 Identify which type of organism would be supported in different environments.</p> <p>S11.B.1.1.2 Describe how different plants or animals use structures to function in a given habitat.</p>	<p>S11.B.1.1.1 Selects picture of shelter for an animal named.</p>
		<p>S11.B.1.1.1 Selects picture of an animal that lives in a place named.</p>
		<p>S11.B.1.1.1 Describes 2 advantages/disadvantages of one environment over another for survival of a species.</p>
		<p>S11.B.1.1.1 Sorts pictures of animals in 4 habitats.</p>
		<p>S11.B.1.1.2 Selects picture of structure used for a similar function in another animal or person.</p>
		<p>S11.B.1.1.2 Names structure and its function in the accomplishment of a task named.</p>
<p>S11.B.1.1.2 Describes 1 similarity in the function of different structures between 2 species.</p>		
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.B.1.1 Explain structure and function at multiple levels of organization.</p> <p><i>Reference: 3.3.10.A, 3.3.10.B, 4.6.10.A, 4.7.10.B</i></p>	<p>S11.B.1.1.1 Explain how structure determines function at multiple levels of organization (e.g., chemical, cellular, anatomical, ecological).</p>	
	<p>S11.B.1.1.2 Compare and contrast the structural and functional similarities and differences among living things (e.g., classify organisms into existing classification groups, compare systems).</p>	
	<p>S11.B.1.1.3 Compare and contrast cellular processes (e.g., photosynthesis and respiration, meiosis and mitosis, protein synthesis and</p>	

	DNA replication).	
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S11.B Biological Sciences

Reporting Category

S11.B.2 Continuity of Life		
ALTRENATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.B.2.1 Explain the mechanisms of the theory of evolution.</p> <p><i>Reference: 3.3.10.C, 3.3.10.D, 4.4.10.D, 4.7.10.C</i></p> <p>S11.B.2.2 Describe how genetic information is inherited and expressed.</p> <p><i>Reference: 3.3.10.C</i></p>	<p>S11.B.2.1.1 Explain the theory of evolution by interpreting data from fossil records, similarities in anatomy and physiology, embryological studies, or DNA studies that are relevant to the theory of evolution.</p> <p>S11.B.2.1.2 Explain the role of mutations, differential reproduction, and gene recombination in changing the genetic makeup of a population.</p> <p>S11.B.2.1.3 Explain the role of selective breeding and biotechnology in changing the genetic makeup of a population.</p> <p>S11.B.2.1.4 Explain why natural selection can act only on inherited traits.</p> <p>S11.B.2.2.1 Describe how genetic information is expressed (i.e., DNA, genes, chromosomes, transcription, translation, and replication).</p> <p>S11.B.2.2.2 Compare and contrast the functions of mitosis and meiosis in passing on genetic information.</p> <p>S11.B.2.2.3 Explain how different patterns of inheritance affect population variability. (i.e., multiple</p>	

	alleles, co-dominance, dominance, recessiveness, and sex-influenced traits).	
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S11.B Biological Sciences

S11.B.3 Ecological Behavior and Systems		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.B.3.1 Identify structural or functional similarities and differences among living things.</p> <p>S11.B.3.3 Describe how human-made systems impact an ecosystem.</p> <p>S11.B.3.4 Identify/Describe the safety of various foods based on handling, preparation, storage, and appearance.</p>	<p>S11.B.3.1.1 Sort living things into hierarchical groups.</p>	<p>S11.B.3.1.1 Selects member of a class named.</p>
	<p>S11.B.3.3.1 Identify/Describe human impact on the environment.</p>	<p>S11.B.3.1.1 Completes a graphic organizer of 4 classes – 2 hierarchical levels with pictures of species shown.</p>
	<p>S11.B.3.4.1 Identify/Describe when food may be unsafe to eat (past expiration date, food has mold, unrefrigerated).</p>	<p>S11.B.3.1.1 Completes a graphic organizer of kingdom, class, and species.</p> <p>S11.B.3.3.1 Describes 1 effect of pollution on living things in the scenario described.</p> <p>S11.B.3.3.1 Describes 2 effects of human activity on the environment.</p> <p>S11.B.3.4.1 Selects picture of food that is safe/unsafe to eat.</p> <p>S11.B.3.4.1 Selects picture of food that is safe to eat based on expiration date.</p> <p>S11.B.3.4.1 Describes 1 reason for using safe food handling practices.</p> <p>S11.B.3.4.1 Describes 2 safe food handling/preparation practices that should have been used in a scenario described.</p> <p>S11.B.3.4.1 Describes 1 way to determine whether food is unsafe to eat.</p> <p>S11.B.3.4.1 Describes function of expiration date.</p>

S11.B Biological Sciences

ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.B.3.1 Use evidence or examples to explain the characteristics of and interactions within an ecosystem.</p> <p><i>Reference: 4.3.10.C, 4.6.10.A</i></p> <p>S11.B.3.2 Analyze patterns of change in natural or human-made systems over time.</p> <p><i>Reference: 3.1.10.C, 4.2.10.D, 4.3.10.B, 3.1.10.E, 4.3.10.C</i></p> <p>S11.B.3.3 Explain how human-made systems impact the management and distribution of natural resources.</p> <p><i>Reference: 4.2.10.C, 4.4.10.C, 3.8.10.C</i></p>	<p>S11.B.3.1.1 Explain the significance of diversity in ecosystems.</p> <p>S11.B.3.1.2 Explain the biotic (i.e., plant, animal, and microbial communities) and abiotic (i.e., soil, air, temperature, and water) components of an ecosystem and their interaction.</p> <p>S11.B.3.1.3 Describe how living organisms affect the survival of one another.</p> <p>S11.B.3.1.4 Explain the similarities and differences in the major biomes (e.g., desert, tropical rain forest, temperate forest, coniferous forest, tundra) and the communities that inhabit them.</p> <p>S11.B.3.1.5 Predict how limiting factors (e.g., physical, biological, chemical factors) can affect organisms.</p> <p>S11.B.3.2.1 Use evidence to explain how cyclical patterns in population dynamics affect natural systems.</p> <p>S11.B.3.2.2 Explain biological diversity as an indicator of a healthy environment.</p> <p>S11.B.3.2.3 Explain how natural processes (e.g., seasonal change, catastrophic events, habitat alterations) impact the environment over time.</p>	

	<p>S11.B.3.3.1 Describe different human-made systems and how they use renewable and nonrenewable natural resources (e.g., energy, transportation, distribution, management, and processing).</p> <p>S11.B.3.3.2 Compare and contrast the impact of management practices (e.g., production, processing, research, development, marketing, distribution, consumption, by-products) in meeting the need for commodities locally and globally.</p> <p>S11.B.3.3.3 Explain the environmental benefits and risks associated with human-made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).</p>	
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S11.C Physical Sciences

Reporting Category

S11.C.1 Structure, Properties, and Interactions of Matter and Energy		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.C.1.1 Describe the relationship between the structure and properties of matter.</p>	<p>S11.C.1.1.1 Categorize objects based on 4 physical properties (size, shape, texture, thickness, or color).</p>	<p>S11.C.1.1.1 Selects object based on 2 attributes named – choices differ on up to 3 attributes – target shares 2 attributes with example provided.</p>
	<p>S11.C.1.1.2 Make predictions and identify changes in physical properties of matter as a function of change in temperature.</p>	<p>S11.C.1.1.1 Selects object based on 3 attributes named – choices differ on up to 4 attributes.</p>
	<p>S11.C.1.1.3 Identify final product when items are combined resulting in a physical change, change in appearance, and a chemical change.</p>	<p>S11.C.1.1.1 Sorts 7 objects into 2 groups based on a new attribute – items are presorted – items differ on up to 4 attributes.</p>
		<p>S11.C.1.1.2 Selects picture of items that will/will not melt.</p>
		<p>S11.C.1.1.2 Sequences changes in states of matter as a function of temperature.</p>
		<p>S11.C.1.1.2 Selects picture of item heated/cooled the longest/shortest amount of time.</p>
		<p>S11.C.1.1.2 Describes the change in state of matter in a scenario described involving changes in temperature.</p>
		<p>S11.C.1.1.3 Selects photograph of item that can be prepared with 4 ingredients.</p>
		<p>S11.C.1.1.3 Selects 2 ingredients used to make food product.</p>
		<p>S11.C.1.1.3 Selects food based on dietary restrictions described.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.C.1.1 Explain the relationship between the structure and properties of matter.</p>	<p>S11.C.1.1.1 Explain that matter is made of particles called atoms and that atoms are composed</p>	

<p><i>Reference: 3.4.10.A</i></p>	<p>of even smaller particles (e.g., proton, neutrons, electrons).</p> <p>S11.C.1.1.2 Explain the relationship between the physical properties of a substance and its molecular or atomic structure.</p> <p>S11.C.1.1.3 Explain the formation of compounds and their resulting properties using bonding theories (ionic and covalent).</p> <p>S11.C.1.1.4 Explain how the relationships of chemical properties of elements are represented in the repeating patterns within the periodic table.</p> <p>S11.C.1.1.5 Predict the behavior of gases through the application of laws (i.e., Boyle's law, Charles' law, or ideal gas law).</p> <p>S11.C.1.1.6 Describe factors that influence the frequency of collisions during chemical reactions that might affect the reaction rates (e.g., surface area, concentration, catalyst, temperature, agitation).</p>	
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S11.C.2 Forms, Sources, Conversion, and Transfer of Energy		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.C.2.1 Analyze energy sources and transfer of energy, or conversion of energy.</p> <p><i>Reference: 3.4.10.B</i></p> <p>S11.C.2.2 Demonstrate that different ways of obtaining, transforming, and distributing energy have different environmental consequences.</p> <p><i>Reference: 3.4.10.B, 4.8.10.C, 4.2.10.A</i></p>	<p>S11.C.2.1.1 Compare or analyze different types of waves in the electromagnetic spectrum (e.g., ultraviolet, infrared, visible light, x-rays, microwaves) as it relates to their properties, energy levels, and motion.</p> <p>S11.C.2.1.2 Describe energy changes in chemical reactions.</p> <p>S11.C.2.1.3 Apply the knowledge of conservation of energy to explain common systems (e.g., refrigeration system, rocket propulsion, heat pump).</p> <p>S11.C.2.1.4 Use Ohm's Law to explain resistance, current and electro-motive forces.</p> <p>S11.C.2.2.1 Explain the environmental impacts of energy use by various economic sectors (e.g., mining, logging, and transportation) on environmental systems).</p> <p>S11.C.2.2.2 Explain the practical use of alternative sources of energy (i.e., wind, solar, and biomass) to address environmental problems (e.g., air quality, erosion, resource depletion).</p> <p>S11.C.2.2.3 Give examples of renewable energy</p>	

	resources (e.g., wind, solar, biomass) and nonrenewable resources (e.g., coal, oil, natural gas) and explain the environmental and economic advantages and disadvantages of their use.	
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S11.C.3 Principles of Motion and Force		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.C.3.1 Use the principles of motion and force to solve real world challenges.</p>	<p>S11.C.3.1.1 Compare objects of different masses, surfaces, and inclines and the force (push or pull) needed to move them.</p>	<p>S11.C.3.1.1 Describes 1 solution to a problem in a scenario involving weight and force – scenario contains 1 failed attempt.</p>
	<p>S11.C.3.1.2 Determine the speed, distance, or time an object travels, given two of the variables.</p>	<p>S11.C.3.1.1 Describes 1 solution to a problem in a scenario involving weight and force – scenario contains 2 failed attempts.</p> <p>S11.C.3.1.2 Selects fastest/slowest moving object or person from a 15-item, 2-variable display – duration and distance shown.</p> <p>S11.C.3.1.2 Calculates missing value of the distance traveled based on a 20-item, 3-variable display – speed, duration, and distance shown.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.C.3.1 Use the principles of motion and force to solve real-world challenges.</p> <p><i>Reference: 3.4.10.C, 3.6.10.C</i></p>	<p>S11.C.3.1.1 Explain common phenomena (e.g., motion of bowling ball, a rock in a landslide, an astronaut during a space walk, a car hitting a patch of ice on the road) using an understanding of conservation of momentum.</p> <p>S11.C.3.1.2 Design or evaluate simple technological or natural systems that incorporate the principles of force and motion (e.g., simple and compound machines).</p> <p>S11.C.3.1.3 Explain that acceleration is the rate at which the velocity of an object is changing.</p> <p>S11.C.3.1.4 Describe electricity and magnetism as two aspects of a single electromagnetic force.</p>	

	<p>S11.C.3.1.5 Calculate the mechanical advantage of moving an object using a simple machine.</p> <p>S11.C.3.1.6 Identify elements of simple machines in compound machines.</p>	
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S11.D Earth and Space Sciences

Reporting Category

S11.D.1 Earth Features and Processes that Change Earth and Its Resources		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.D.1.2 Describe factors affecting availability, location, extraction, and use of natural resources.</p>	<p>S11.D.1.2.1 Identify steps of how products come from natural resources.</p> <p>S11.D.1.2.3 Describe how people may conserve natural resources.</p>	<p>S11.D.1.2.1 Selects picture of source of product named.</p> <p>S11.D.1.2.1 Selects picture of location where main component of item originates.</p> <p>S11.D.1.2.1 Orders 5 pictures based on the manufacturing process.</p> <p>S11.D.1.2.3 Describes 1 effect of conservation effort on the environment.</p> <p>S11.D.1.2.3 Describes 1 environmental reason for using one of the 2 pictured options.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.D.1.1 Explain and analyze the forces in the lithosphere that continually shape Earth.</p> <p><i>Reference: 3.5.10.A, 4.4.10.B, 4.1.10.B</i></p> <p>S11.D.1.2 Analyze how human-made systems impact the management and distribution of natural resources.</p> <p><i>Reference: 4.2.10.C, 3.5.10.B, 3.6.10.A</i></p> <p>S11.D.1.3 Explain the significance and contribution of water as a resource to living things and the shaping of the land.</p> <p><i>Reference: 3.5.10.D, 4.1.10.B, 4.3.10.B</i></p>	<p>S11.D.1.1.1 Classify and describe major types of rocks (igneous – granite, basalt, obsidian, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss) and minerals (quartz, calcite, dolomite, clay, feldspar, mica, halite, pyrite) by their origin and formation.</p> <p>S11.D.1.1.2 Explain the processes that take place at plate boundaries and how these processes continue to shape Earth (e.g., volcanic activity, earthquakes, mountain building, mid-ocean ridges, deep-sea trenches, new land being formed).</p> <p>S11.D.1.1.3 Analyze features created by the interaction of processes that change Earth’s surface (e.g., wind and moving water help break down rock into soil; plate movement, earthquakes, and volcanic activity help</p>	

	<p>cause mountains and valleys to form; flowing water and deposition of material help form deltas).</p> <p>S11.D.1.2.1 Evaluate factors affecting availability, location, extraction, and use of natural resources.</p> <p>S11.D.1.2.2 Explain the impact of obtaining and using natural resources for the production of energy and materials (e.g., resource renewal, amount of pollution, deforestation).</p> <p>S11.D.1.3.1 Explain the multiple functions of different water systems in relation to landforms (e.g., buffer zones, nurseries, food production areas, habitat, water quality control, biological indicators).</p> <p>S11.D.1.3.2 Explain relationships among physical characteristics, vegetation, topography, and flow as it relates to water systems.</p> <p>S11.D.1.3.3 Explain factors (e.g., nutrient loading, turbidity, rate of flow, rate of deposition, biological diversity) that affect water quality and flow through a water system.</p>	
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S11.D Earth and Space Sciences

Reporting Category

S11.D.2 Weather, Climate, and Atmospheric Processes		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
<p>S11.D.2.1 Predict how the transfer of energy and substances between Earth’s atmosphere and its surface influences regional weather.</p>	<p>S11.D.2.1.1 Identify effects of temperature on peoples’ choice of clothing.</p>	<p>S11.D.2.1.1 Selects picture of clothing/accessory that should be worn in temperature named – perception of the temperature named.</p>
	<p>S11.D.2.1.3 Compare and contrasts weather conditions using weather forecasts.</p>	<p>S11.D.2.1.1 Completes a table showing people wearing different clothing/accessories by matching temperatures.</p>
	<p>S11.D.2.1.4 Identify extreme weather conditions and describe appropriate weather precautions.</p>	<p>S11.D.2.1.1 Names 1 clothing/accessory that should be worn at one temperature named and shown but not at another temperature named and shown.</p>
		<p>S11.D.2.1.3 Locates day in which the described activity is most/least appropriate given a 5-day weather forecast.</p>
		<p>S11.D.2.1.3 Locates day in which the weather condition described is most/least likely to occur given a 5-day forecast – percent probability shown.</p>
		<p>S11.D.2.1.5 Selects picture of person engaged in action that is safest/most dangerous under weather condition described.</p>
		<p>S11.D.2.1.5 Selects word for a weather condition under which described precaution is most appropriate.</p>
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.D.2.1 Analyze how the transfer of energy and substances between Earth's atmosphere and its surface influences regional or global weather or climate.</p>	<p>S11.D.2.1.1 Describe how changes in concentration of minor components (e.g., O₂, CO₂, ozone, dust, pollution) in Earth's atmosphere are linked to climate change.</p>	

<p><i>Reference: 3.5.10.C</i></p>	<p>S11.D.2.1.2 Compare the transmission, reflection, absorption, and radiation of solar energy to and by the Earth’s surface under different environmental conditions (e.g., major volcanic eruptions, greenhouse effect, reduction of ozone layer; increased global cloud cover)</p> <p>S11.D.2.1.3 Explain weather patterns and seasonal changes using the concepts of heat and density.</p> <p>S11.D.2.1.4 Analyze weather maps and weather data (e.g., air masses, fronts, temperature, air pressure, wind speed, wind direction, precipitation) to predict regional or global weather events.</p>	
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S11.D Earth and Space Sciences

Reporting Category

S11.D.3 Composition and Structure of the Universe		
ALTERNATE ASSESSMENT ANCHOR	ALTERNATE ELIGIBLE CONTENT	EXAMPLE
ASSESSMENT ANCHOR	ELIGIBLE CONTENT	EXAMPLE
<p>S11.D.3.1 Explain the composition, structure and origin of the universe.</p> <p><i>Reference: 3.4.10.D</i></p>	<p>S11.D.3.1.1 Describe planetary motion and the physical laws that explain planetary motion.</p> <p>S11.D.3.1.2 Describe the structure, formation, and life cycle of stars.</p> <p>S11.D.3.1.3 Explain the current scientific theories of the origin of the solar system and universe (big bang theory, solar nebular theory, stellar evolution).</p>	