



Cocalico School District
Course Curriculum Details
Course: Science - 03

Area: Life Science

Big Idea: S4.B.2 Continuity of Life

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.B.2.1 Identify and explain how adaptations help organisms to survive.					
<ul style="list-style-type: none"> • S4.B.2.1.1 • S4.B.2.1.2 	<ul style="list-style-type: none"> • S4.B.2.1.1: Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest). • S4.B.2.1.2: Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water). 	<ul style="list-style-type: none"> • environment • ecosystem • population • community • habitat • adaptation • instinct • hibernate • migrate • camouflage • mimicry • desert • grassland • forest • resource 	<ul style="list-style-type: none"> • Ch 4 Investigates: Observe an Environment, Grass Roots, How Insects Hide, Changing the Environment 	<ul style="list-style-type: none"> • hula hoop • grass plants • ruler • white paper • hand lens • construction paper • crayons/markers • pipe cleaners • scissors • tape • watch/clock • moist sand • shallow cardboard box • leaves and twigs • wooden block • water and watering can • small stones 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.B.3. Ecological Behavior and Systems

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
<p>Objective: 1: S4.B.3.1 Identify and describe living and nonliving things in the environment and their interaction.</p>					
<ul style="list-style-type: none"> • S4.B.3.1.1 • S4.B.3.1.2 	<ul style="list-style-type: none"> • S4.B.3.1.1 Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground). • S4.B.3.1.2 Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem. 	<ul style="list-style-type: none"> • environment • ecosystem • population • community • habitat • adaptation • instinct • hibernate • migrate • camouflage • mimicry • desert • grassland • forest • resource 	<ul style="list-style-type: none"> • Ch 4 Investigates: Observe an Environment, Grass Roots, How Insects Hide, Changing the Environment 	<ul style="list-style-type: none"> • hula hoop • grass plants • ruler • white paper • hand lens • construction paper • crayons/markers • pipe cleaners • scissors • tape • watch/clock • moist sand • shallow cardboard box • leaves and twigs • wooden block • water and watering can • small stones 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.B.3. Ecological Behavior and Systems

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 2: S4.B.3.2 Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment.					
<ul style="list-style-type: none"> S4.B.3.2.1 S4.B.3.2.2 	<ul style="list-style-type: none"> S4.B.3.2.1 Describe what happens to a living thing when its habitat is changed. S4.B.3.2.2 Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems. 	<ul style="list-style-type: none"> environment ecosystem population community habitat adaptation instinct hibernate migrate camouflage mimicry desert grassland forest resource 	<ul style="list-style-type: none"> Ch 4 Investigates: Observe an Environment, Grass Roots, How Insects Hide, Changing the Environment 	<ul style="list-style-type: none"> hula hoop grass plants ruler white paper hand lens construction paper crayons/markers pipe cleaners scissors tape watch/clock moist sand shallow cardboard box leaves and twigs wooden block water and watering can small stones 	<ul style="list-style-type: none"> HSP Assessments
Objective: 3: S4.B.3.3 Identify or describe human reliance on the environment at the individual or the community level.					
<ul style="list-style-type: none"> S4.B.3.3.2 	<ul style="list-style-type: none"> S4.B.3.3.2 Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products). 	<ul style="list-style-type: none"> condensation evaporation precipitation water cycle 	<ul style="list-style-type: none"> Ch 9 Investigate: Where in the World is Water? 	<ul style="list-style-type: none"> paper plastic inflatable globe pencil 	<ul style="list-style-type: none"> HSP Assessments



Cocalico School District
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Area: Earth Science

Big Idea: S4.D.1 Earth Features and Processes that Change Earth and Its Resources

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.D.1.2 Identify the types and uses of Earth's resources.					
<ul style="list-style-type: none"> S4.D.1.2.3 	<ul style="list-style-type: none"> S4.D.1.2.3 Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation). 	<ul style="list-style-type: none"> fresh water glacier groundwater water cycle 	<ul style="list-style-type: none"> Ch 9 Investigate: Where in the World is Water? 	<ul style="list-style-type: none"> paper inflatable globe pencil 	<ul style="list-style-type: none"> HSP Assessments
Objective: 2: S4.D.1.3 Describe Earth's different sources of water or describe changes in the form of water.					
<ul style="list-style-type: none"> S4.D.1.3.1 S4.D.1.3.2 	<ul style="list-style-type: none"> S4.D.1.3.1 Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans). S4.D.1.3.2 Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting). 	<ul style="list-style-type: none"> environment ecosystem freshwater saltwater glacier groundwater water cycle condensation evaporation precipitation freezing melting 	<ul style="list-style-type: none"> Ch 4 Investigate: Changing the Environment Ch 9 Investigate: Where in the World is Water? Ch 9 Investigate: Condensation in a Terrarium 	<ul style="list-style-type: none"> moist sand shallow cardboard box leaves and twigs wooden block water and watering can small stones paper inflatable globe pencil plastic container seeds soil spray bottle 	<ul style="list-style-type: none"> HSP Assessments



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Area: Earth Science

Big Idea: S4.D.2 Weather, Climate and Atmospheric Processes

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.D.2.1 Identify basic weather conditions and how they are measured.					
<ul style="list-style-type: none"> • S4.D.2.1.1 • S4.D.2.1.2 • S4.D.2.1.3 	<ul style="list-style-type: none"> • S4.D.2.1.1 Identify basic cloud types (cirrus, cumulus, stratus, cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature and precipitation). • S4.D.2.1.2 Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation). • S4.D.2.1.3 Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, barometer) to study weather and what they measure. 	<ul style="list-style-type: none"> • condensation • evaporation • precipitation • water cycle • atmosphere • oxygen • weather • temperature • stratus • cumulus • cirrus • anemometer 	<ul style="list-style-type: none"> • Ch 9 Investigate: Condensation in a Terrarium, Measuring Wind 	<ul style="list-style-type: none"> • plastic container • seeds • soil • water • spray bottle • pinwheel 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.D.3 Composition and Structure of the Universe

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.D.3.1 Describe Earth's relationship to the Sun and the Moon.					
<ul style="list-style-type: none"> • S4.D.3.1.1 • S4.D.3.1.2 • S4.D.3.1.3 	<ul style="list-style-type: none"> • S4.D.3.1.1 Describe motions of the Sun-Earth-Moon system. • S4.D.3.1.2 Explain how the motion of the Sun-Earth-Moon system relates to time (e.g., days, months, years). • S4.D.3.1.3 Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of the Earth's axis. 	<ul style="list-style-type: none"> • axis • rotation • revolution • moon phases • lunar cycle • lunar eclipse • solar eclipse • planet • orbit • solar system 	<ul style="list-style-type: none"> • Ch 10 Investigates: How Sunlight Strikes Earth, The Moon's Phases, The Planets 	<ul style="list-style-type: none"> • tape • graph paper • book • flashlight • meter stick • black and red markers • wooden block • volleyball/large foam ball • pencil 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.A.3 Systems, Models, and Patterns

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.A.3.2 Use models to illustrate simple concepts and compare the models to what they represent.					
<ul style="list-style-type: none"> S4.A.3.2.2 	<ul style="list-style-type: none"> S4.A.3.2.2 Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system). 	<ul style="list-style-type: none"> condensation evaporation precipitation water cycle axis rotation revolution planet solar system orbit 	<ul style="list-style-type: none"> Ch 9 Investigate: Condensation in a Terrarium Ch 10 Investigates: How Sunlight Strikes Earth, The Moon's Phases, The Planets 	<ul style="list-style-type: none"> plastic container seeds soil water spray bottle tape graph paper book flashlight meter stick black and red markers wooden block volleyball/large foam ball 	<ul style="list-style-type: none"> HSP Assessments
Objective: 2: S4.A.3.3 Identify and make observations about patterns that regularly occur and reoccur in nature.					
<ul style="list-style-type: none"> S4.A.3.3.1 S4.A.3.3.2 	<ul style="list-style-type: none"> S4.A.3.3.1 Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle). S4.A.3.3.2 Predict future conditions/events based on observable patterns (e.g. day/night, seasons, sunrise/sunset, lunar phases). 	<ul style="list-style-type: none"> condensation evaporation precipitation water cycle weather temperature anemometer moon phases lunar cycle lunar eclipse solar eclipse 	<ul style="list-style-type: none"> Ch 9 Investigates: Condensation in a Terrarium, Measuring Wind Ch 10 Investigates: How Sunlight Strikes Earth, The Moon's Phases, The Planets 	<ul style="list-style-type: none"> plastic container seeds soil water spray bottle tape graph paper book flashlight meter stick black and red markers wooden block volleyball/large foam ball pencil 	<ul style="list-style-type: none"> HSP Assessments



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Area: Physical Science

Big Idea: S4.C.2 Forms, Sources, Conversion, and Transfer of Energy

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.C.2.1 Recognize basic energy types and sources, or describe how energy can be changed from one form to another.					
<ul style="list-style-type: none"> S4.C.2.1.2 	<ul style="list-style-type: none"> S4.C.2.1.2 Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan). 	<ul style="list-style-type: none"> producer consumer decomposer herbivore carnivore omnivore food chain energy pyramid food web 	<ul style="list-style-type: none"> Ch 5 Investigates: Checking Teeth, Making a Food Chain, Making a Food Web 	<ul style="list-style-type: none"> small mirror pencil picture sorting cards index cards marker string/yarn tape poster board/paper crayons 	<ul style="list-style-type: none"> HSP Assessments



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Area: Physical Science

Big Idea: S4.C.3 Principles of Motion and Force

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
<p>Objective: 1: S4.C.3.1 Identify and describe different types of force and motion, resulting from these forces, or the effect of the interaction between force and motion.</p>					
<ul style="list-style-type: none"> S4.C.3.1.1 	<ul style="list-style-type: none"> S4.C.3.1.1 Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction). 	<ul style="list-style-type: none"> motion distance speed force gravity weight wave crest trough wavelength work simple machine lever fulcrum wheel-and-axle pulley inclined plane wedge screw 	<ul style="list-style-type: none"> Ch 15 Investigates: Make it Move, Speed Ramp, Two Kinds of Waves Ch 16 Investigates: Work With Me, Inclined to Help 	<ul style="list-style-type: none"> clay string books cookie sheet block metric ruler penny rubber eraser rope spring toys graph paper checker straws board chair tape measure toy car spring scale 	<ul style="list-style-type: none"> HSP Assessments



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Big Idea: S4.A.1 Reasoning and Analysis

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
<p>Objective: 1: S4.A.1.1 Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.</p>					
<ul style="list-style-type: none"> S4.A.1.1.2 	<ul style="list-style-type: none"> S4.A.1.1.2 Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment. 	<ul style="list-style-type: none"> environment ecosystem population community habitat resource food chain energy pyramid predator prey food web water cycle atmosphere oxygen weather temperature 	<ul style="list-style-type: none"> Ch 4 Investigates: Observe an Environment, Changing the Environment 	<ul style="list-style-type: none"> hula hoop moist sand shallow cardboard box leaves and twigs wooden block water and watering can small stones 	<ul style="list-style-type: none"> HSP Assessments



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Big Idea: S4.A.1 Reasoning and Analysis

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
<p>Objective: 2: S4.A.1.3 Recognize and describe change in natural or human-made systems and the possible effects of those changes.</p>					
<ul style="list-style-type: none"> • S4.A.1.3.1 • S4.A.1.3.2 • S4.A.1.3.3 • S4.A.1.3.4 	<ul style="list-style-type: none"> • S4.A.1.3.1 Observe and record change by using time and measurement. • S4.A.1.3.2 Describe relative size, distance, or motion. • S4.A.1.3.3 Observe and describe the change to objects caused by temperature change or light. • S4.A.1.3.4 Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else). 	<ul style="list-style-type: none"> • Ch 15: force, distance, speed, gravity, weight, work, wave, crest, trough, wavelength • Ch 10: axis, rotation, revolution, planet, orbit, moon phases, lunar cycle, lunar eclipse, solar eclipse • Ch 4: environment, ecosystem, population, community, habitat, hibernate, migrate, resource • Ch 9: weather, water cycle, evaporation, condensation, precipitation, solid, liquid, gas, melting, freezing • Ch 5: producer, consumer, decomposer, herbivore, carnivore, omnivore, food chain, energy pyramid, predator, prey, food web 	<ul style="list-style-type: none"> • Ch 15 Investigates: Speed Ramp, Two Kinds of Waves, Make It Move • Ch 10 Investigates: How Sunlight Strikes Earth, The Moon's Phases, The Planets • Ch 4 Investigates: Observe an Environment, Changing the Environment • Ch 9 Investigate: Condensation in a Terrarium 	<ul style="list-style-type: none"> • books, cookie sheet, block, metric ruler, penny, rubber eraser, rope, spring toys • tape, graph paper, book, flashlight, meter stick, black and red markers, wooden block, volleyball/large foam ball, pencil, clay, string • hula hoop, plastic container, seeds, soil, water and watering can, spray bottle, tape, graph paper, book, flashlight, meter stick, black and red markers, wooden block, volleyball/large foam ball, moist sand, shallow cardboard box, leaves and twigs, wooden block, small stones 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.A.2 Processes, Procedures, and Tools of Scientific Investigations

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: S4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to solve a problem.					
<ul style="list-style-type: none"> • S4.A.2.1.1 • S4.A.2.1.2 • S4.A.2.1.4 	<ul style="list-style-type: none"> • S4.A.2.1.1 Generate questions about objects, organisms, or events that can be answered through scientific investigations. • S4.A.2.1.2 Design and describe an investigation (a fair test) to test one variable. • S4.A.2.1.4 State a conclusion that is consistent with the information/data. 	<ul style="list-style-type: none"> • inquiry • infer • variable • formulate • scientific method • investigation • hypothesis • experiment 	<ul style="list-style-type: none"> • GRS Investigates: Making Bubbles, Shapes of Bubbles, Bubble Colors 	<ul style="list-style-type: none"> • metric measuring cup • water • large container • dishwashing soap • stirring stick • straw • small containers • wire hangers • pie pan • bubbles • tape • clear plastic lid • flashlight • cotton ball • spoon 	<ul style="list-style-type: none"> • HSP Assessments



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Big Idea: S4.A.2 Processes, Procedures, and Tools of Scientific Investigations

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 2: S4.A.2.2 Identify appropriate instruments for a specific task and describe the information the instrument can provide.					
<ul style="list-style-type: none"> S4.A.2.2.1 	<ul style="list-style-type: none"> S4.A.2.2.1 Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length-ruler, mass-balance scale, volume-beaker, temperature-thermometer; making observations: hand lens, binoculars, telescope). 	<ul style="list-style-type: none"> inquiry infer variable formulate scientific method investigation hypothesis experiment 	<ul style="list-style-type: none"> GRS Investigates: Making Bubbles, Shapes of Bubbles, Bubble Colors 	<ul style="list-style-type: none"> metric measuring cup water large container dishwashing soap stirring stick straw small containers wire hangers pie pan bubbles tape clear plastic lid flashlight cotton ball spoon 	<ul style="list-style-type: none"> HSP Assessments