Cocalico School District
Course Curriculum Details
Course: Science - 05

Area: Physical Science

Big Idea: S8.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
Objective: 1: S8.A.1.2 Identify and explain the impacts of applying scientific, environmental, or technological knowledge to address solutions to practical problems.					
• S8.A.1.2.3	• S8.A.1.2.3 Describe fundamental scientific or technological concepts that could solve practical problems (e.g., Newton's laws of motion, Mendelian genetics).	• inertia • Newton's 1st law of motion • Newton's 2nd law of motion • Newton's 3rd law of motion	• Chapter 19, Lesson 2: Momentum Crash Test Investigate	• game board • several books • meter stick • small toy car • dime • quarter	• HSP Assessments

Area: Physical Science

Big Idea: S8.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: S8.A.2.2 Apply appropriate instruments for a specific purpose and describe the information the instrument can provide.					
• S8.A.2.2.3	• S8.A.2.2.3: Describe ways technology (e.g., microscope, telescope, micrometer, hydraulics, barometer) extends and enhances human abilities for specific purposes.	• scientific tools • investigation • inquiry • experiment • scientific method • hypothesis • evidence	• Chapter 19, Lesson 2: Momentum Crash Test Investigate	• tape measure • balloon • hand lens • ruler • string • spring scale	• HSP Assessments

Area: Physical Science

Big Idea: S8.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: S8.A.3.1 Explain the parts of a simple system, their roles, and their relationships to the system as a whole.					
• S8.A.3.1.1 • S8.A.3.1.2	• S8.A.3.1.1: Describe a system (e.g., watershed, circulatory system, heating system, agricultural system) as a group of related parts with specific roles that work together to achieve an observed result. • S8.A.3.1.2: Explain the concept of order in a system [e.g., (first to last; manufacturing steps, trophic levels); (simple to complex: cell, tissue, organ, organ system)].	• circulatory system • respiratory system • skeletal system • muscular system • nervous system • excretory system • tissue • organ • organ system • digestive system • classification • kingdom • species	• Chapter 1, Lesson 3: Testing Reaction Time Investigate • Chapter 1, Lesson 2: Cells and Tissues Investigate	• metric ruler • reaction time chart • prepared slides of a plant root • plant leaf • plant stem • microscope • colored pencils	• HSP Assessments
Objective: 2: S8.A.3.3 Describe repeated processes or recurring elements in natural, scientific, and technological patterns.					
• S8.A.3.3.2	• S8.A.3.3.2: Describe repeating structure patterns in nature (e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually).	• vascular tissue • xylem • phloem • photosynthesis	• Chapter 3, Lesson 1: Vascular Plant Parts Investigate	• potted plant • newspaper • ruler • hand lens	• HSP Assessments

Area: Physical Science

Big Idea: S8.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
Objective: 1: S8.C.3.1 Describe the effect of multiple forces on the movement, speed, or direction of an object.					
• S8.C.3.1.3 • S8.C.3.1.1	• S8.C.3.1.3:Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems). • S8.C.3.1.1: Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced).	• work • simple machine • lever • fulcrum • wheel-and-axle • pulley • inclined plane • force • friction • gravity • gravitational force • magnetic • magnetic force • balanced forces • unbalanced forces • net force • buoyant force • position • speed • velocity • acceleration	• Chapter 18, Lesson 3: Lifting Things the Easy Way Investigate • Chapter 18, Lesson 1& 2, Chapter 19, Lesson 1:On a Roll Investigate, Predict the Force Investigate	• several small books • ruler • 2 unsharpened pencils • shoe box without lid • 20 cm piece of string • blocks or other heavy objects • spring scale • medium-sized cardboard box • 2 books	• HSP Assessments

Area: Life Science

Big Idea: S8.B.1 Structure and Function of Organisms

Objective: 1: S8.B.1.1 Describe and compare structural and functional similarities and differences that characterize diverse living things.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
• S8.B.1.1.1 • S8.B.1.1.2 • S8.B.1.1.3 • S8.B.1.1.4	• S8.B.1.1.1: Describe the structures of living things that help them function effectively in specific ways (e.g., adaptations, characteristics). • S8.B.1.1.2: Compare similarities and differences in internal structures of organisms (e.g., invertebrate/vertebrate, vascular/nonvascular, single-celled/multi-celled) and external structures (e.g., appendages, body segments, type of covering, size, shape). • S8.B.1.1.3: Apply knowledge of characteristic structures to identify or categorize organisms (i.e., plants, animals, fungi, bacteria and protista). • S8.B.1.1.4: Identify the levels of organization from cell to organism and describe how specific structures (parts), which underlie larger systems, enable the system to function as a whole.	• cell • microscopic organism • cell membrane • nucleus • cytoplasm • protist • classification • kingdom • species • vertebrate • invertebrate • vascular tissue • xylem • phloem • photosynthesis • spore • gymnosperm • angiosperm • germinate • tissue • organ • organ system • digestive system	• Chapter 1, Lesson 1: Observing Cells Investigate • Chapter 2, Lessons 1&2, Chapter 3, Lessons 1& 2: Classify Shoes Investigate, Build a Model Backbone Investigate, Vascular Plant Parts Investigate • Chapter 2, Lesson 1&2: Classify Shoes Investigate, Build a Model Backbone Investigate • Chapter 1, Lesson 2: Cells and Tissues Investigate	• dropper • red food coloring • microscope slide • slice of onion • cover slip • paper towels • microscope • colored pencils • prepared slide of animal skin cell • newspaper • shoes • chenille stick • wagon wheel shaped pasta • soft candy rings • potted plant • ruler • hand lens • prepared slide of plant root • plant stem • plant leaf	• HSP Assessments

Area: Life Science

Big Idea: S8.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: 1: S8.B.3.3 Explain how renewable and nonrenewable resources provide for human needs or how these needs impact the environment.					
• S8.B.3.3.1	• S8.B.3.3.1: Explain how human activities may affect local, regional and global environments.	• shore • headland • tide pool • jetty	• Chapter 12, Lesson 3: The Effect of Waves on a Beach Investigate	• sand • large flat shallow pan • water	• HSP Assessments

Area: Earth Science

Big Idea: S8.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: S8.D.1.3 Describe characteristic features of Earth's water systems or their impact on resources.					
• S8.D.1.3.1 • S8.D.1.3.3	• S8.D.1.3.1: Describe the water cycle and the physical processes on which it depends (i.e., evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy inputs and phase changes). • S8.D.1.3.3:Distinguish among different water systems (e.g., wetland, ocean and river systems and watersheds) and describe their relationships to each other as well as to landforms.	• water cycle • evaporation • condensation • humidity • precipitation • salinity • water pressure • continental shelf • continental slope • abyssal plain • wave • current • tide • shore • headland • tide pool • jetty	• Chapter 11, Lesson 2: Water, Water Everywhere Investigate • Chapter 12, Lesson 1,2,&3: Ice Water Investigate, Making Waves Investigate	• graduated cylinder • water • small plastic cup • zip-top plastic bag	• HSP Assessments

Area: Earth Science

Big Idea: S8.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: S8.D.2.1 Explain how pressure, temperature, moisture, and wind are used to describe atmospheric conditions that affect regional weather or climate.					
• S8.D.2.1.1 • S8.D.2.1.2 • S8.D.2.1.3	• S8.D.2.1.1: Explain the impact of water systems on the local weather or the climate of a region (e.g., lake effect snow, land/ocean breezes). • S8.D.2.1.2: Identify how global patterns of atmospheric movement influence regional weather and climate. • S8.D.2.1.3: Identify how cloud types, wind directions, and barometric pressure changes are associated with weather patterns in different regions of the country.	• atmosphere • troposphere • air pressure • local winds • prevailing winds • wave • current • tide • air mass • front • climate	• Chapter 11, Lesson 1: The Uneven Heating of Earth Investigate • Chapter 11, Lesson 1&3: Measuring Weather Conditions Investigate	• 2 aluminum cans • water • dry soil • spoon • 2 thermometers • weather station	• HSP Assessments

Area: Earth Science

Big Idea: S8.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: S8.D.3.1 Explain the relationships between and among the objects of our solar system.					
• S8.D.3.1.1 • S8.D.3.1.3	• S8.D.3.1.1: Describe patterns of Earth's movements (i.e., rotation and revolution) in relation to the moon and sun (i.e., phases, eclipses and tides). • S8.D.3.1.3: Compare and contrast characteristics of celestial bodies found in the solar system (e.g., moons, asteroids, comets, meteors, inner and outer planets).	• sun • rotate • axis • revolve • orbit • equator • moon • crater • moon phase • eclipse • refraction • star • solar system • constellation • planet • universe • galaxy	• Chapter 13, Lessons 1 &2: Moving Through Space Investigate, Making Craters Investigate • Chapter 13, Lesson 3: Make a Telescope Investigate	• beach ball, baseball, table tennis ball, safety goggles, aluminum pan, large spoon, 1 cup flour, meterstick, newspaper, apron, 1/2 cup water, marble • baseball • table tennis ball • safety goggles • aluminum pan • large spoon • 1 c. flour • meter stick • newspaper • apron • 1/2 c. water • marble • 2 sheets - construction paper • tape • 2 convex lenses • modeling clay	• HSP Assessments