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| --- | --- | --- | --- | --- | --- |
| **Strand 1: Inquiry Process** **Concept 1: Observations, Questions, & Hypotheses** | **S1C1PO1** Differentiate inference from observations. **I** | I will understand the difference between what I think and see. | Knowledge ComprehensionAnalysis | [www.dictionary.com](http://www.dictionary.com)Ref: Science “A Closer Look” Macmillan/McGraw-Hill Pgs 1-14 | InferenceObservationsHypothesis |
| Strand 1: Inquiry Process Concept 1: Observations, Questions, & Hypotheses | **S1C1PO2** Formulate a relevant question through observations that can be tested by investigation. **I** | I will put together questions that can be tested by a study. | SynthesisAnalysis |  | FormulateRelevantObservationinvestigate |
| Strand 1: Inquiry Process Concept 1: Observations, Questions, & Hypotheses | **S1C1PO3** Formulate predictions in the realm of science based on observed cause & effect relationships. **I** | I will make predictions based on cause & effect. | KnowledgeComprehensionSynthesis |  | PredictionsRealmCauseEffect |
| Strand 1 Inquiry Process Concept 1: Observations, Questions & Hypotheses | **S1C1PO4** Locate information (e.g.: book, article, website) related to an investigation. **I** | I will find information through research using books, articles, or internet. | Knowledge Comprehension | <http://owl.english.purdue.edu/owl/resource/747/01/> | Resources for a bibliographyRelatedInvestigation |
| **Strand 1: Inquiry Process** **Concept 2: Scientific Testing (Investigating & Modeling)** | **S1C2PO1** Demonstrate safe behavior & appropriate procedures (e.g.: use & care of technology, materials, organisms) in all science inquiry. **I** | I will practice safety when working on science projects. | KnowledgeApplication |  | Appropriate ProcedureSafetyGoggles |
| Strand 1: Inquiry Process Concept 2: Scientific Testing (Investigating & Modeling) | **S1C2PO2**  Plan a simple investigation that identifies the variables to be controlled. **I** | I will plan a simple investigation where there is a controlled variable. | KnowledgeComprehensionApplication | Science materials kit | Controlled Variable |
| Strand 1: Inquiry Process Concept 2: Scientific Testing (Investigating & Modeling) | **S1C2PO3** Conduct controlled investigations (e.g.: related to erosion, plant life cycles, weather, magnetism) in life, physical, & Earth & space sciences. **I** | I will conduct a controlled investigation that explains processes involving Life, Earth, Physical, and Space Science. | KnowledgeComprehensionApplication | Science materials kit | Conduct investigation, Life Science, Physical Science, Earth & Space Science |
| Strand 1: Inquiry Process Concept 2: Scientific Testing (Investigating & Modeling) | **S1C2PO4** Measure using appropriate tools (e.g.: ruler, balance) & units of measure (i.e.: metric, U.S. customary). **I** | I will measure using the tools (ruler, calculator, scale) needed to complete an experiment. | Knowledge Application | Science materials kit, ruler, (metric, U.S., customary), balance, weights | ScaleRulerConversion formulas for standard to metric & vice versa |
| Strand 1: Inquiry Process Concept 2: Scientific Testing (Investigating & Modeling) | **S1C2PO5** Record data in an organized & appropriate format (e.g.: t-chart, table, list, written log). **I** | I will record all data in my science log using charts & notes. | Knowledge Comprehension | Graph paperData collected log | Organize data t-charttablegraphscharts |
| **Strand 1: Inquiry Process****Concept 3: Analysis & Conclusions** | **S1C3PO1**: Analyze data obtained in a scientific investigation to identify trends. **I** | I will analyze collected data to see what changes happened and identify trends. | KnowledgeComprehensionAnalysis |  | AnalyzeTrendObtainFormulateData Identify |
| Strand 1: Inquiry Process Concept 3: Analysis & Conclusions | **S1C3PO2**: Formulate conclusions based upon identified trends in data. **I** | I will analyze collected data to help me make a good guess at what will happen at the end  | Knowledge ComprehensionSynthesis | t-charts, graphs, tables, lists, written log | ConclusionsFormulateTrends |
| Strand 1: Inquiry Process Concept 3: Analysis & Conclusions | **S1C3PO3**: Determine that data collected is consistent with the formulated question. **I** | I will determine that data collected matches the question. | AnalysisEvaluation |  | DetermineConsistentDataFormulated question |
| Strand 1: Inquiry Process Concept 3: Analysis & Conclusions | **S1C3PO4**: Determine whether the data supports the prediction for an investigation. **I** | I will determine whether the collected data matches my prediction. | AnalysisEvaluation |  | Prediction for an investigationSupport |
| Strand 1: Inquiry Process Concept 3: Analysis & Conclusions | **S1C3PO5**: Develop new questions & predictions based upon the data collected in the investigation. **I** | I will create new questions from the collected data. | KnowledgeComprehensionApplicationSynthesis |  | Develop new questions |
| **Strand 1: Inquiry Process** **Concept 4: Communications** | **S1C4PO1** Communicate verbally or in writing the results of an inquiry. **I** | I will present to my classmates the results of my investigation. | KnowledgeComprehension | T-charts, graphs, tables, lists, written log | CommunicateInquiryPresent |
| Strand 1: Inquiry Process Concept 4: Communications | **S1C4PO2** Choose an appropriate graphic representation for collected data: bar graph, line graph, Venn diagram, model. **I** | I will determine which graph to present my data (bar & line graph, Venn diagram). | KnowledgeComprehensionApplication | T-charts, graphs, tables, lists, written log | Graphic representationVenn-diagram |
| Strand 1: Inquiry Process Concept 4: Communications | **S1C4PO3** Communicate with other groups or individuals to compare the results of a common investigation. **I** | I will communicate the results of my investigation with peers. | KnowledgeComprehension | Results from investigation | CompareCommonInvestigation |
| **Strand 2: History & Nature of Science****Concept 1: History of Science as a Human Endeavor** | **S2C1PO1** Indentify how diverse people and/or cultures, past & present, have made important contributions to scientific innovations (e.g. Margaret Mead [anthropologist] supports Strand 4; Nikola Tesla [engineer, inventor] supports Strand 5; Michael Faraday [scientist], supports Strand 5; Benjamin Franklin [scientist], supports Strand 5). **I** | I will identify how people from all over the world have contributed to science that makes our lives easier & better, today.  | Knowledge Comprehension | <http://www.pitara.com/magazine/people.asp> | CultureDiversityContributeInnovationMargaret MeadNikola TeslaMichael FaradayBenjamin FranklinAlbert EinsteinGalileo |
| Strand 2: History & Nature of Science Concept 1: History of Science as a Human Endeavor | **S2C1PO 2** Describe science-related career opportunities. **I** | I will identify jobs that require knowledge of science. | KnowledgeComprehension | <http://www.dol.gov/><http://www.bls.gov/oco/> | Career opportunities |
| **Strand 2: History & Nature of Science** **Concept 2: Nature of Scientific Knowledge** | **S2C2PO1** Explain the role of experimentation in scientific inquiry. **I** | I will explain how experiments help me understand science. | KnowledgeComprehension |  | ComponentsInteractionExperimentation |
|  | **S2C2PO2** Describe the interaction of components in a system (e.g.: flashlight, radio)**I** | I will describe how the parts in a system work together. | KnowledgeComprehension | FlashlightRadio | Interactions of components & systems |
| Strand 2: History & Nature of Science Concept 2: Nature of Scientific Knowledge | **S2C2PO3** Explain various ways scientists generate ideas (e.g.: observation, experiment, collaboration, theoretical & mathematical models). **I** | I will explain various ways scientists generate ideas.  | KnowledgeComprehensionSynthesis | Internet search engines, Buckle Down AIMS, Science prep booklet | VariousGenerateTheoryCollaborationBrainstormingMathematical models |
| **Strand 3: Science in Personal and Social Perspectives.** **Concept 1: Changes in Environment** |  **S3C1PO1** Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, floods, pollution, dams). **I** | I will describe how natural events and human activities have positive and negative impacts on environments | KnowledgeComprehension | Science Text Macmillian/McGraw-Hill p.294-306 Pollution and Conservation  | Natural events, human activities, impacts |  |
| Strand 3: Science in Personal and Social Perspectives. Concept 1: Changes in Environment | **S3C1PO2**  Evaluate the consequences of environmental occurrences that happen either rapidly (e.g., fire, flood, tornado) or over a long period of time (e.g., drought, melting ice caps, the greenhouse effect, erosion).**I** | I will evaluate the consequences of environmental occurrences that happen either rapidly or over a long period of time | EvaluationSynthesis | MacMillian/McGraw-Hill text p.284-309Tornados p.309Also see website <http://www.wrh.noaa.gov/fgz/News/06Oct2010tor/06Oct2010.html>Fire see website <http://www.nps.gov/yell/planyourvisit/upload/firesupplement.pdf><http://www.msnbc.msn.com/id/37813063/ns/us_news-life/>Flood/Tsunami – p244See website <http://environment.nationalgeographic.com/environment/natural-disasters/tsunami-profile/>Changes in weather p236-247 | Consequences, environmental occurrences, rapidly |
| **Strand 3: Science in Personal and Social****Concept 2: Science and Technology in Society** | **S3C2PO1**  Describe how science and technology (e.g., computers, air conditioning, & medicine) have improved the lives of many people. **I** | I will describe how science and technology have improved the lives of many people | KnowledgeComprehensionApplication | See text R2 thru R13<http://www.google.com/search?q=arizona+history+of+science+technology+air> | Technology improve |
| Strand 3: Science in Personal and Social Concept 2: Science and Technology in Society | **S3C2PO2**  Describe benefits (e.g., easy communications, rapid transportation) and risks (e.g., pollution, destruction of natural resources) related to the use of technology. **I** | I will describe benefits and risks related to the use of technology | KnowledgeComprehension | Science text book, internet research. See website <http://inventors.about.com/library/inventors/bl_history_of_transportation.htm>Communication<http://inventors.about.com/od/timelines/Timelines_of_Invention_and_Technology.htm><http://www.brainpop.com/science/ourfragileenvironment/naturalresources/preview.weml> | Benefits, risks, pollution, transportation, destruction , communicate |
| Strand 3: Science in Personal and Social Concept 2: Science and Technology in Society | **S3C2PO3**  Design and construct a technological solution to a common problem or need using common materials. **I** | I will design and construct a technological solution to a common problem or need using common materials | ApplicationAnalysisSynthesis | Science materials kitsAIMS Invention Kit  | Construct, design, common problem, need, common materials |
| **Strand 4: Life Science****Concept 1: Characteristics of Organisms.**  | **S4C1PO1**  Compare structures in plants (e.g., roots stems, leaves, flowers) and animals (e.g., muscles, bones, nerves) that serve different functions in growth and survival.**I** | I will compare structures in plants and animals that serve different functions in growth and survival | ComprehensionApplicationAnalysisEvaluation | Science text book, internet researchTextbook see pgs 44-72 | Structures in plants, structures in animals, functions in growth, functions in survival |
| Strand 4: Life ScienceConcept 1: Characteristics of Organisms.  | **S4C1PO2**  Classify animals by identifiable group characteristics: vertebrates – mammals, birds, fish, reptiles, amphibian Invertebrates – insects, arachnids **I** | I will classify animals by identifiable group characteristics: vertebrates-mammals, birds, fish, reptiles, amphibian invertebrates-insects, arachnids | ComprehensionAnalysisSynthesis | Science text books, AIMS kits, internet research, magazine picturessee textbook pgs 33-69 | Classify, group characteristics vertebrates & invertebrates |
| **Strand 4: Life Science****Concept 3: Organisms and Environments** | **S4C3PO1**  Describe ways various resources (e.g., air, water, plants, animals, soil) are utilized to meet the needs of population.**I** | I will describe ways various resources are utilized to meet the needs of population | KnowledgeComprehensionApplicationEvaluation | Prior knowledge, critical thinking skills, questioning strategiesSee textbook p126 – 160 | Resources utilizepopulation |
| Strand 4: Life ScienceConcept 3: Organisms and Environments | **S4C3PO2**  Differentiate renewable resources from nonrenewable resources. **I** | I will differentiate renewable resources from nonrenewable resources | KnowledgeComprehension | Science Text book 278-281 | Differentiate, renewable, nonrenewable & resources |
| Strand 4: Life ScienceConcept 3: Organisms and Environments | **S4C3PO3**  Analyze the effect that limited resources (e.g., natural gas, minerals) may have on an environment. **I** | I will analyze the effect that limited resources may have on an environment | KnowledgeAnalysisSynthesis | Science Text book 278-281 | Limited resources, environment, analyze, effect |
| Strand 4: Life ScienceConcept 3: Organisms and Environments | **S4C3PO4**  Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).**I** | I will describe ways in which resources can be conserved | KnowledgeComprehensionApplication | Science Text book 298-300 | Resources ConserveRecycleReduceReuse |
| **Strand 4: Life Science****Concept 4: Diversity, Adaption, and Behavior. Identify plant and animal adaptations.** | **S4C4PO1**  Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment. **I** | I will recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment | KnowledgeComprehension | Science Text 138-145 | Populations, inherited traitsBehaviorFavorable Environment  |
| Strand 4: Life ScienceConcept 4: Diversity, Adaption, and Behavior. Identify plant and animal adaptations. | **S4C4PO2**  Give examples of adaptations that allow plants and animals to survive; camouflage-horned lizards, coyotes; * mimicry-Monarch and Viceroy butterflies;
* physical-cactus spines;
* mutualism-species of acacia that harbor ants, which repel other harmful insects

**I** | I will give examples of adaptations that allow plants and animals to survive | Knowledge Comprehension | Science Text 74-122 | Adaptation, survive, camouflage, mimicry, Monarch, Viceroy, cactus spines, mutualism-species, acacia, harbor, repel |
| **Strand 5: Physical Science****Concept 3: Energy and Magnetism****Investigate different forms of energy** | **S5C3PO1**  Demonstrate that electricity flowing in circuits can produce light, heat, sound, and magnetic effects. **I M** | I will demonstrate that electricity flowing circuits can produce light, heat, sound, and magnet effects. | KnowledgeComprehensionApplication | Science classroom materials kit Science Text McMillan/McGraw HillP. 563-571 | DemonstrateFlowing circuitsMagnet effects |
| Strand 5: Physical ScienceConcept 3: Energy and MagnetismInvestigate different forms of energy | **S5C3PO2**  Construct series and parallel electric circuits. **I M** | I will construct series and parallel electric circuits. | Knowledge ComprehensionApplication | AIMS electrical kitScience Text 562-571 | SeriesParallel electriccircuits |
| Strand 5: Physical ScienceConcept 3: Energy and MagnetismInvestigate different forms of energy | **S5C3PO3**  Explain the purpose of conductors and insulators in various practical applications. **I M** | I will explain the purpose of conductors and insulators in various practical applications. | Knowledge ComprehensionApplication | Science Text 532-533 | ConductorInsulator InsulatorPractical |
| Strand 5: Physical ScienceConcept 3: Energy and MagnetismInvestigate different forms of energy | **S5C3PO4**  Investigate the characteristics of magnets (e.g., opposite poles attract, like poles repel, the force between two magnet poles depends on the distance between them).**I M** | I will investigate the characteristics of magnets  | KnowledgeComprehensionApplication | Science Text 413, 574-587 | Characteristics,Poles, repel, force |
| Strand 5: Physical ScienceConcept 3: Energy and MagnetismInvestigate different forms of energy | **S5C3PO5**  State cause and effect relationships between magnets and circuitry **I M** | I will state cause & effect relationship between magnets circuitry | KnowledgeComprehensionApplicationAnalysis | Science Text 576-585 | Cause, effect, magnets, circuitry |
| **Strand 6: Earth and space Science****Concept 2: Earth’s Processes and Systems** | **S6C2PO1** Identify the Earth processes that cause erosion **I** | I will identify the Earth processes that cause erosion | KnowledgeComprehension | Science Text 228-267 | Earth processeserosion |
| Strand 6: Earth and space ScienceConcept 2: Earth’s Processes and Systems | **S6C2PO2** Describe how currents and wind cause erosion and land changes **I** | I can describe how currents and wind cause erosion and land changes | KnowledgeComprehension | Canyon de Chelly, Window Rock, Grand Canyon, Antelope Canyon Identify area surrounding where you live[http://www.navajonationparks.org/htm/antelope canyon2.htm](http://www.navajonationparks.org/htm/antelope%20canyon2.htm) | Currentswind currents erosion |
| Strand 6: Earth and space ScienceConcept 2: Earth’s Processes and Systems | **S6C2PO3** Describe the role that water plays in the following processes that alter the Earth’s surface features: erosion, deposition, weathering **I** | I will describe the role that water plays in the following processes that alter the Earth’s surface features; erosion, deposition, weathering  | KnowledgeComprehension | Observe land area around them, Grand Canyon, Petrified ForrestScience text 228-231, 238, 298 | Surface features erosion deposition weathering |
| Strand 6: Earth and space ScienceConcept 2: Earth’s Processes and Systems | **S6C2PO4** Compare rapid and slow processes that change the Earth’s surface, including: * rapid – earthquakes, volcanoes, floods
* slow – wind, weathering

**I** | I will compare rapid and slow processes that change the Earth’s surface, including: rapid earthquakes, volcanoes, floods, slow-wind, weathering | KnowledgeComprehension | Internet research for early and more recent photographs of areas, Japan’s country outline before 2010 to after the tsunami, Louisiana coast line before Katrina and after Katrina for comparisons. | Rapid, processes, slow-wind weatheringearthquakes, volcanoes, floods |
| Strand 6: Earth and space ScienceConcept 2: Earth’s Processes and Systems | **S6C2PO5** Identify the Earth events that cause changes in atmospheric conditions (e.g., volcanic eruptions, forest fires) **I** | I will identify the Earth events that cause changes in atmospheric conditions | KnowledgeComprehension | Internet research for visuals of Mt. St. Helens before and after photos, Yellowstone National Park photos before and after the fire. How did the atmosphere change | Events, atmospheric conditions |
| Strand 6: Earth and space ScienceConcept 2: Earth’s Processes and Systems | **S6C2PO6** Analyze evidence that indicates life and environmental conditions have changed (e.g., tree rings, fish fossils in desert regions, ice cores) **I** | I will analyze evidence that indicates life and environmental conditions have changed  | KnowledgeComprehensionApplicationAnalysis | Analyze photos of before and after photographs of an environmental change. Evaluate the evidence. Petrified Forrest, Natural Bridge, Painted Desert | Analyze evidence, indicates, environmental conditions |
| Strand 6: Earth and space Science**Concept 3: Changes in the Earth and Sky** | **S6C3PO1** Identify the sources of water within an environment (e.g., ground water, surface water, atmospheric water, glaciers) **I** | I will identify the sources of water within an environment  | KnowledgeComprehension | Science Text 314, 322-333World Map | Identify, environment, ground water, surface water, atmospheric water, glaciers |
| Strand 6: Earth and space ScienceConcept 3: Changes in the Earth and Sky | **S6C3PO2** Describe the distribution of water on the Earth’s surface**I** | I will describe the distribution of water on the Earth’s surface | KnowledgeComprehensionApplication | Visual-globeScience text 204-207 | Describe, distribution, Earth’s surface |
| Strand 6: Earth and space ScienceConcept 3: Changes in the Earth and Sky | **S6C3PO3** Differentiate between weather and climate as they relate to the Southwestern United States **I** | I will differentiate between weather and climate as they relate to the Southwestern United States | KnowledgeComprehension | Internet research for weather, Science text 236-245, 307-355, 344-353 | Differentiate, climate, weather, relate,Southwest |
| Strand 6: Earth and space ScienceConcept 3: Changes in the Earth and Sky | **S6C3PO4** Measure changes in weather (e.g., precipitation, wind speed, barometric pressure) **I** | I will measure changes in weather (precipitation, wind, speed, barometer) | KnowledgeComprehensionApplicationEvaluation | Science text R2, R6, 318-319, 531, Gallup Independent weather maps | Barometer, precipitation, wind speed, barometer, anemometer, spectrometer, rain gauge |
| Strand 6: Earth and space ScienceConcept 3: Changes in the Earth and Sky | **S6C3PO5** Interpret the symbols on a weather map or chart to identify the following: temperatures, fronts, precipitation**I** | I will interpret the symbols on a weather map or chart to identify temperatures, fronts, and precipitation | Knowledge ComprehensionEvaluation | Science text R2, R6, 318-319, 531, Gallup Independent weather maps | Interpret, weather symbols, weather maps, temperature maps, weather map fronts, weather map precipitation |
| Strand 6: Earth and space ScienceConcept 3: Changes in the Earth and Sky | **S6C3PO6** Compare weather conditions in various locations (regions of Arizona, various U.S. cities, coastal vs. interior geographical regions). **I** | I will compare weather conditions in various locations | Knowledge ComprehensionAnalysis | Internet research for regions in Arizona, U.S. cities, costal and interior geographical regions See website <http://www.weather.gov/> | Compare, regions, costal, interior, geographical regions |