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| --- | --- | --- | --- | --- | --- |
| **Strand 1: Inquiry Process**  **Concept 1: Observations, Questions, and Hypotheses** | **S1C1PO** **1.** Formulate a relevant question through observations that can be tested by an investigation.  **M** | I will formulate a related question through an observation that can be tested. | application | Macmillan/McGraw-Hill Pg. 5, 12, & 13  Buckle Down Pg. 10-12, and Pg. 14-15  Buckle Down Pg. 18-22 and 25-41  <http://www>  <http://www.need.org/node/68#Elementary> | Formulate  Relevant  Investigation  Hypotheses  Question |
| Strand 1: Inquiry Process  Concept 1: Observations, Questions, and Hypotheses | **S1C1PO** **2.** Formulate predictions in the realm of science based on observed cause and effect relationships.  **M** | I will formulate scientific predictions based on cause and effect observation | application | Macmillan/McGraw-Hill Pg. 6, 12, & 13  Buckle Down Pg. 14-15  Buckle Down Pg. 18-22 and 25-41  <http://www.need.org/node/68#Elementary> | Formulate  Realm  Cause  Effect  relationships |
| Strand 1: Inquiry Process  Concept 1: Observations, Questions, and Hypotheses | **S1C1PO 3**. Locate information (e.g., book, article, website) related to an investigation.  **M** | I will locate information related to an investigation. | application | <http://www.sciencedaily.com/>  <http://www.sciencemag.org/>  <http://www.sciencenewsforkids.org/>  <http://www.odysseymagazine.com/>  <http://www.sciencenews.org/>  <http://www.monroe.lib.in.us/childrens/booklists>  <http://www.popsci.com/>  <http://www.discovermagizine.com/>  <http://www.scientificamerican.com/>  <http://www.spartacus.schoolnet.co.uk/REVscience>  <http://www.scirus.com/>  <http://www.redesk.com/factsci.html>  <http://www.factmonster.com/><http://www.need.org/node/68#Elementary> | Locate  Information  Website |
| Strand 1: Inquiry Process  **Concept 2: Scientific Testing (Investigating and Modeling)** | **S1C2PO** **1.** Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry  **M** | I will demonstrate safe behavior and correct actions in all science inquiry. | application | Macmillan/McGraw-Hill  Pg. 14, 61, 73, 89, 99, 110, and 111.  Pg. 113, 123, 141, and 155.  Buckle Down Pg. 22 and 23  FOSS Manuel-Safety  <http://www.need.org/node/68#Elementary> | Modeling  Investigations  Demonstrate  Appropriate  Procedures  Technology  Organisms |
| Strand 1: Inquiry Process  Concept 2: Scientific Testing (Investigating and Modeling) | **S1C2PO** **2.** Plan a simple investigation that identifies the variables to be controlled.  **M** | I will plan a study that finds the variables to be  Controlled. | application | Buckle Down Pg. 18-22 and 25-41  <http://www.kids4research.org/>  <http://www.ehow.com>  <http://www.sciencebuddies.org/>  FOSS-Variables  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Variables  Controlled  Identify  simple |
| Strand 1: Inquiry Process  Concept 2: Scientific Testing (Investigating and Modeling) | **S1C2PO** **3.** Conduct simple investigations (e.g., related to forces and motion, Earth processes) based on student-developed questions in life, physical, and Earth and space sciences**.**  **M** | I will conduct a simple test based on student-made questions. | Application | Macmillan/McGraw-Hill  Pg. 14, 61, 73, 89, 99, 110, and 111.  Pg. 113, 123, 141, and 155.  Buckle Down Pg. 18-22 and 25-41  FOSS-Ideas and Inventions  <http://www.fossweb.com/>  <http://www.need.org/node/68#Elementary>  <http://www.fossweb.com/NYC/resources.html> | Conduct  Related  Force  Motion  processes |
| Strand 1: Inquiry Process  Concept 2: Scientific Testing (Investigating and Modeling) | **S1C2PO** **4.** Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).  **M** | I will measure using proper tools. | Evaluation | Macmillan/McGraw-Hill  Pg. R2-R7  Buckle Down Pg. 18-22 and 25-41  FOSS-Measurement  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Measure  Ruler  Scale  Balance  Units  Metric  customary |
| Strand 1: Inquiry Process  Concept 2: Scientific Testing (Investigating and Modeling) | **S1C2PO** **5.** Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).  **M** | I will record data in an organized and correct format | application | Macmillan/McGraw-Hill  Pg. R8 and R9.  Buckle Down Pg. 18-22 and 25-41  <http://www.eduplace.com/>  <http://www.teachvision.fen.com/>  <http://www.science-class.net/>  <http://www.abctech.com/>  <http://www.internet4classrooms.com/>  <http://www.need.org/node/68#Elementary> | Format  Data  Format  T-chart  record |
| Strand 1: Inquiry Process  **Concept 3: Analysis and Conclusions** | **S1C3PO** **1.** Analyze data obtained in a scientific investigation to identify trends and form conclusions.  **M** | I will analyze data obtained in a scientific inquiry to identify trends and conclusions. | analysis | Macmillan/McGraw-Hill  Pg. 8 and 9.  Pg. R21 and R22.  Buckle Down Pg. 18-22 and 25-41  FOSS-Manuel  <http://www.need.org/node/68#Elementary> | Analyze  Obtained  Trends  conclusion |
| Strand 1: Inquiry Process  Concept 3: Analysis and Conclusions | **S1C3PO** **2**. Analyze whether the data is consistent with the proposed explanation that motivated the investigation.  **M** | I will analyze if data is consistent with the explanation that motivated the inquiry | analysis | Macmillan/McGraw-Hill  Pg. 8 and 9.  Pg. R21 and R22.  Buckle Down Pg. 18-22  FOSS-Manual  <http://www.need.org/node/68#Elementary> | Data  Motivated  Explanation  Consistent  inquiry |
| Strand 1: Inquiry Process  Concept 3: Analysis and Conclusions | **S1C3PO** **3**. Evaluate the reasonableness of the outcome of an investigation.  **M** | I will evaluate the fairness  of an inquiry. | evaluation | Buckle Down Pg. 18-22 and 25-41  FOSS-Manuel  <http://www.need.org/node/68#Elementary> | Evaluate  Reasonableness  Outcome  Fairness  investigation |
| Strand 1: Inquiry Process  Concept 3: Analysis and Conclusions | **S1C3PO** **4**. Develop new investigations and predictions based on questions that arise from the findings of an investigation.  **M** | I will develop new studies and predictions based on questions from the inquiry. | application | Macmillan/McGraw-Hill  Pg. 6, 12, & 13  Buckle Down Pg. 18-22 and 25-41  FOSS-Manuel  <http://www.need.org/node/68#Elementary> | Prediction  Arise  Construct  Inquiry  findings |
| Strand 1: Inquiry Process  Concept 3: Analysis and Conclusions | **S1C3PO** **5**. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).  **M** | I will identify likely relationships between variables in a simple inquiry. | knowledge | Buckle Down Pg. 18-22 and 25-41  <http://www.kids4research.org/>  <http://www.ehow.com>  <http://www.sciencebuddies.org/>  FOSS-Levers and Pulleys  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Variables  Relationships  Simple  Distance  Incline  mass |
| Strand 1: Inquiry Process  **Concept 4: Communication**  . | **S1C4PO** **1**. Communicate verbally or in writing the results of an inquiry.  **M** | I will communicate verbally and write the results of a scientific question. | knowledge | Macmillan/McGraw-Hill  Pg. 12, 376, and 377.  Buckle Down Pg. 18-22 and 25-41  Writing in Science   1. Descriptive Pg. 70 & 338 2. Explanatory Pg. 96, 280, 438, and 618. 3. Expository Pg. 58, 258, 550 and 662. 4. Fictional Pg. 152 5. Narrative Pg. 404 6. Persuasive Pg. 228 | Communicate  Verbally  results |
| Strand 1: Inquiry Process  Concept 4: Communication | **S1C4PO** **2**. Choose an appropriate graphic representation for collected data:   * bar graph * line graph * Venn diagram * model   **C** | I will choose the  correct graphic organizer for collected data | knowledge | Macmillan/McGraw-Hill  Pg. R8 and R9  Buckle Down Pg. 18-22 and 25-41  FOSS-Manuel | Graphic  Symbol  Collected  Data  Bar graph  Line graph  Venn diagram  model |
| Strand 1: Inquiry Process  Concept 4: Communication | **S1C4PO** **3.** Communicate with other groups or individuals to compare the results of a common investigation.  **M** | I will communicate with others to compare results of a scientific question. | comprehension | Macmillan/McGraw-Hill  Pg. 12, 376, and 377.  Buckle Down Pg. 18-22 and 25-41  FOSS-Manuel | Compare  Results  Investigation  common |
| **Strand 2: History and Nature of Science**  **Concept 1: History of Science as a Human Endeavor** | **S2C1PO1** Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Percy Lavon Julian [scientist], supports Strand 4; Niels Bohr [scientist], supports Strand 5; Edwin Hubble [scientist], supports Strand 6).  **M** |  |  |  |  |
| Strand 2: History and Nature of Science  **Concept 2: Nature of Scientific Knowledge** | **S2C2PO1** Provide examples that support the premise that science is an ongoing process that changes in response to new information and discoveries (e.g.*,* space exploration, medical advances).  **M** |  |  |  |  |
| Strand 2: History and Nature of Science  Concept 2: Nature of Scientific Knowledge | **S2C2PO2** Explain the cycle by which new scientific knowledge generates new scientific inquiry  **M** |  |  |  |  |
| Strand 2: History and Nature of Science  Concept 2: Nature of Scientific Knowledge | **S2C2PO** **3.** Describe how scientific knowledge is subject to modification and/or change as new information/ technology challenges prevailing theories.  **M** | I will describe how scientific knowledge changes as new information challenges present theories. | knowledge | Buckle Down Pg. 18-22 and 25-41  <http://www.onlinelibrary.wiley.com/>  <http://www.users.aristotle.net/>  FOSS-Ideas and Inventions  FOSS-Models and Designs  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Modification  Technology  Challenges  Prevailing  Theories |
| Strand 2: History and Nature of Science  Concept 2: Nature of Scientific Knowledge | **S2C2PO** **4**. Compare collaborative approaches that scientists use for investigations (e.g., teams, individual with peer review).  **M** | I will collaborate ways to a scientific investigation. | Knowledge | Buckle Down Pg. 18-22 and 25-41  <http://www.nerrsepa.org/>  <http://www.district.auburn.cnyric.org/>  <http://www.eric.ed.gov/>  <http://www.ejse.southwestern.edu/>  FOSS-Manuel | Collaborative  Approaches  Investigations  Peer  review |
| Strand 2: History and Nature of Science  Concept 2: Nature of Scientific Knowledge | **S2C2PO** **5**. Describe qualities of the scientists’ habits of mind (e.g., openness, skepticism, integrity, tolerance).  **M** | I will describe the traits of the scientists’ habits of mind. | knowledge | Buckle Down Pg. 18-22 and 25-41  Buckle Down 42-46  <http://www.childresearch.net>  FOSS-Manual  <http://www.need.org/node/68#Elementary> | Qualities  Habits  Openness  Skepticism  Integrity  tolerance |
| **Strand 3: Science in Personal and Social Perspectives**  **Concept 1: Changes in Environments** | **S3C1PO** **1**. Explain the impacts of natural hazards on habitats (e.g., global warming, floods, asteroid or large meteor impacts).  **M** | I will explain the impact of natural danger on habitats. | comprehension | Buckle Down Pg. 106-107  FOSS-Environments  FOSS-Water Planet  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Impact  Natural  Habitats  Hazards  Asteroid  Meteor  Global warming  Perspective  Personal |
| Strand 3: Science in Personal and Social Perspectives  Concept 1: Changes in Environments | **S3C1PO 2** Propose a solution, resource, or product that addresses a specific human, animal, or habitat need  **M** |  |  |  |  |
| Strand 3: Science in Personal and Social Perspectives  Concept 1: Changes in Environments | **S3C1PO** **3**. Evaluate the possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal, or habitat needs.  **M** | I will evaluate ways to solve animal and human environmental needs. | evaluation | Buckle Down Pg. 165-172  FOSS-Environments  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html> | Possible  Strengths  Solution  Environment  Exact  Human  Weaknesses  Propose  habitat |
| Strand 3: Science in Personal and Social Perspectives  **Concept 2: Science and Technology in Society** | **S3C2PO** **1**. Describe the relationship between science and technology.  **M** | I will describe the relationship between science and technology. | knowledge | Buckle Down Unit One-The Nature of Science  FOSS-Ideas and Inventions  FOSS-Models and Designs  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Technology  Perspective  relationship |
| Strand 3: Science in Personal and Social Perspectives  Concept 2: Science and Technology in Society | **S3C2PO** **2**. Explain how scientific knowledge, skills, and technological capabilities are integral to a variety of careers.  **M** | I will explain how scientific knowledge, skill, and technical ability are important to a career. | comprehension | Macmillan/McGraw-Hill Pg. 472, 690, 134, 356, 564, 232, 564, 143, 690, 356, 232, and 472.  FOSS-Manuel  <http://www.need.org/node/68#Elementary> | Technological  Capabilities  Career  Skill  Ability  Integral  Variety  Important |
| Strand 3: Science in Personal and Social Perspectives  Concept 2: Science and Technology in Society | **S3C2PO** **3**. Design and construct a technological solution to a common problem or need using common materials.  **M** | I will design and construct  a technical answer to a problem or need using materials. | application | Buckle Down Pg. 18-22 and 25-41  FOSS-Ideas and Inventions  FOSS-Models and Designs  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Design  Technology  Solution  Construct  Technical  materials |
| **Strand 4: Life Science**  **Concept 1: Structure and Function in Living** | **S4C1PO** **2.** Identify the following types of muscles:   * cardiac – heart * smooth – stomach * skeletal – biceps   **M** | I will identify the types of muscles. | knowledge | Macmillan/McGraw-Hill  Pg. R10 and R11  <http://www.buzzle.com/>  <http://edutech.kennesaw.edu/>  FOSS-Human Body  <http://www.fossweb.com/>  <http://www.fosweb.com/NYC/resources.html> | Muscles  Cardiac  biceps |
| Strand 4: Life Science  Concept 1: Structure and Function in Living | **S4C1PO** **3**. Identify the functions and parts of the nervous system:  control center – brain  relay mechanism – spinal cord  transport messages – nerves  **M** | I will identify the parts of the nervous system. | knowledge | Macmillan/McGraw-Hill  Pg. R16 and R17  <http://www.buzzle.com/>  <http://www.eruptingmind.com/>  <http://www.faculty.washington.edu/>  <http://www.webschoolsolutions.com/>  <http://edutech.kennesaw.edu/>  FOSS-Human Body  <http://www.fossweb.com/>  <http://www.fosweb.com/NYC/resources.html> | Nervous  System  Responses  Relay  Transport  Messages  Mechanism  Spinal cord  nerves |
| Strand 4: Life Science  Concept 1: Structure and Function in Living Systems | **S4C1PO4** Distinguish between voluntary and involuntary responses.  **M** |  |  |  |  |
| **Strand 5: Physical Science**  **Concept 1: Properties and Changes of Properties in Matter** | **S5C1PO1** Identify that matter is made of smaller units called:   * molecules (e.g.*,* H2O, CO2) * atoms (e.g., H, N, Na)   **M** |  |  |  |  |
| Strand 5: Physical Science  Concept 1: Properties and Changes of Properties in Matter | **S5C1PO2** Distinguish between mixtures and compounds.  **M** |  |  |  |  |
| Strand 5: Physical Science  Concept 1: Properties and Changes of Properties in Matter | **S5C1PO3** Describe changes of matter:   * physical – cutting wood, ripping paper, freezing water * chemical – burning of wood, rusting of iron, milk turning sour   **M** |  |  |  |  |
| Strand 5: Physical Science  **Concept 2: Motion and Forces** | **S5C2PO1**. Describe the following forces:   * gravity * friction   **M** | I will describe the forces in gravity and friction. | Comprehension | Macmillan/McGraw Hill-pgs. 421, 425, 438, 439, 583, 587, 589, 594, 595, 597, Buckle Down-Science  Pg. 94-104  Science-A Closer Look  Pg. 568A-620  Science-A Closer Look  (School to Home Activities) Pg. 83-89  FOSS-Levers and Pulleys  FOSS-Variables  <http://www.fossweb.com/>  <http://www.need.org/node/68#Elementary> | Objects  Pulling  Slowing Motion  Rubbing  Force  Gravity  Weight  Friction  Normal Force  Balanced  Equilibrium |
| Strand 5: Physical Science  Concept 2: Motion and Forces | **S5C2PO2**. Describe the various effects forces can have on an object (e.g.*,* cause motion, halt motion, change direction of motion, cause deformation).  **M** | I will describe the various forces on an object. | Comprehension | Macmillan/McGraw Hill-pgs. 571, 575, 580, Buckle Down-Science  Pg. 94-104  Science-A Closer Look  Pg. 568A-620  Science-A Closer Look  (School to Home Activities)  Pg. 101-109  FOSS-Levers and Pulleys  FOSS-Models and Designs  FOSS-Variables  <http://www.fossweb.com/>  <http://www.need.org/node/68#Elementary> | Force  Gravity  Weight  Friction  Normal Force  Balanced  Equilibrium  Basic Laws of Motion  Newton’s 1st Law of Motion  Inertia  Unbalanced  Newton’s 2nd Law of Motion |
| Strand 5: Physical Science  Concept 2: Motion and Forces | **S5C2PO3**. Examine forces and motion through investigations using simple machines (e.g.*,* wedge, plane, wheel and axle, pulley, lever).  **M** | I will examine forces and motion through experiments using a simple machine. | Analysis | Macmillan/McGraw-Hill- Pgs.592, 610, 609, 611, 616, 618, 619, 621,  Buckle Down-Science  Pg. 94-104  Science-A Closer Look  Pg. 568A-620  Science-A Closer Look  (School to Home Activities)  Pg. 101-109  FOSS-Levers and Pulleys  <http://www.fossweb.com/>  <http://www.need.org/node/68#Elementary> | Newton’s 3rd Law of Motion  Simple Machine  Fulcrum  Compound Machine  Force Balance  Mass |
| Strand 5: Physical Science  Concept 2: Motion and Forces | **S5C2PO4**. Demonstrate effects of variables on an object’s motion (e.g.*,* incline angle, friction, applied forces).  **M** | I will demonstrate the effects of variables on an object’s motion. | Application | Macmillan/McGraw-Hill-Pgs.73, 571, 587, 589 ,601, 608, 611, 617, Buckle Down-Science  Pg. 94-104  Science-A Closer Look  Pg. 568A-620  Science-A Closer Look  (School to Home Activities)  Pg. 101-109  FOSS-Levers and Pulleys  FOSS-Models and Designs  FOSS-Variables  <http://www.fossweb.com/> | Force Reduction  Distance  No Force  Less Force  More Force  Push  Pull  Muscle Force  Machine Force  Force Providers-  (Gravity  Electricity  Magnetism) |
| **Strand 6: Earth and Space Science**  **Concept 2: Earth’s Processes and Systems** | **S6C2PO 1** Describe how the Moon’s appearance changes during a four-week lunar cycle  **M** |  |  |  |  |
| **Strand 6: Earth and Space Science**  **Concept 3: Earth in the Solar System** | **S6C3PO** **2**. Describe the distinguishing characteristics of the known planets in the solar system.  **M** | I will describe and distinguish.  Planetary objects. | knowledge | Macmillan/McGraw-Hill  Pg. 444-447  <http://imagine.gsfc.nasa.gov/>  FOSS-Sun, Moon, and Stars  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary>  Buckle Down Pg. 134 | Unique  Characteristics  Solar system  planets |
| Strand 6: Earth and Space Science  Concept 3: Earth in the Solar System | **S6C3PO** **3.** Describe various objects in the sky (e.g., asteroids, comets, stars, meteors/shooting stars).  **M** | I will describe various objects in the sky. | knowledge | Macmillan/McGraw-Hill  Pg. 450-451  Buckle Down Pg. 134  <http://imagine.gsfc.nasa.gov/>  FOSS-Sun, Moon, and Stars  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html><http://www.need.org/node/68#Elementary> | Objects  Asteroids  Comets  Stars  Meteor  Shooting stars |
| Strand 6: Earth and Space Science  Concept 3: Earth in the Solar System | **S6C3PO** **4**. Describe the change in position and motion of the following objects in the sky over time:   * real motion – Moon, planets * apparent motion (due to the motion of the Earth) – Sun, Moon, stars   **M** | I will describe the changes and motion of objects in the sky. | knowledge | Macmillan/McGraw-Hill  Pg. 432-436, 444-445, and 458-466.  Buckle Down Pg. 134  <http://imagine.gsfc.nasa.gov/>  FOSS-Sun, Moon, and Stars  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html> | Position  Motion  Real motion  Moon  Planets  Apparent motion |
| Strand 6: Earth and Space Science  Concept 3: Earth in the Solar System | **S6C3PO** **5.** Explain the apparent motion of the Sun and stars  **M** | I will explain the motion of the sun and stars. | synthesis | Macmillan/McGraw-Hill Pg. 458-466  Buckle Down Pg. 134  FOSS-Sun, Moon, and Stars  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html> | Motion  Stars  sun |
| Strand 6: Earth and Space Science  Concept 3: Earth in the Solar System | **S6C3PO** **6.** Describe efforts to explore space (e.g., Apollo missions, space shuttles, Hubble space telescope, space probes).  **M** | I will describe ways to explore space. | knowledge | Macmillan/McGraw-Hill  Pg. 422, 442, 443, 447, 452, & 454.  <http://imagine.gsfc.nasa.gov/>  FOSS-Ideas and Inventions  FOSS-Models and Designs  <http://www.fossweb.com/>  <http://www.fossweb.com/NYC/resources.html>  <http://www.need.org/node/68#Elementary> | Explore  Shuttle  Mission  Telescope  Space probes |