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| ***Please Note:*** *Strands 1, 2, and 3 are designed to be explicitly taught and embedded within each of the content Strands 4, 5, and 6, and are not intended to be taught in isolation. The processes, skills, and content of the first three strands are designed to “umbrella” and complement the content of Life Science, Physical Science, and Earth and Space Science. Therefore, Strands 1, 2, and 3 appear in all four quarters of the 2nd Grade Science Curriculum Guide.* | | | | | |
| **Strand 1: Inquiry Process**  **Concept 1:** Observations, Questions, and Hypotheses | **S1C1PO** **1.** Formulate relevant questions about the properties of objects, organisms, and events in the environment  **I** | I can create  questions about the properties of objects, organisms, and events in the environment | Comprehension  Synthesis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, Chapters 1, 2, 3, & 4  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | organism  environment  observations  questions  hypothesis |
| **Strand 1: Inquiry Process**  **Concept 1:** Observations, Questions, and Hypotheses | **S1C1PO 2**. Predict the results of  An investigation (e.g., in Animal life cycles, phases of matter, the water cycle).  **I** | I can predict the results of an investigation. | Application  Comprehension  Knowledge  Synthesis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | predict  results  life cycles  phases  water cycle |
| **Strand 1: Inquiry Process**  **Concept 2:** Scientific Testing (Investigating and Modeling) | **S12PO 1**. Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry  **I** | I can show safe behavior and procedures. | Application  Comprehension | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16  Classroom Rules  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | safe behavior  procedures  instruments  materials  organisms |
| **Strand 1: Inquiry Process**  **Concept 2:** Scientific Testing (Investigating and Modeling) | **S1C2PO** **2.** Participate in guided  investigations in life, physical, and Earth and space sciences.  **I** | I can participate in guided investigations. | Application  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, Ch 1 Les 3, Ch 2 Les 3, Ch 4 Les 3  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | investigations  life  physical  Earth  space science |
| **Strand 1: Inquiry Process**  **Concept 2:**  Scientific Testing (Investigating and Modeling) | **S1C2PO** **3.** Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units).  **I** | I can use simple tools to collect data. | Application  Analysis  Synthesis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | tools  rulers  thermometers  magnifiers  balances  data |
| **Strand 1: Inquiry Process**  **Concept 2:**  Scientific Testing (Investigating and Modeling) | **S1C2PO** **4**. Record data from  guided investigations in an  organized and appropriate format (e.g., lab book, log, notebook, chart paper).  **I** | I can record data from guided investigations in  an organized format. | Application  Synthesis  Comprehension | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, Ch 1 L3, Ch 2 L3, Ch 4 L2, Ch 4 L3  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | record data  investigations  lab book  log  notebook |
| **Strand 1: Inquiry Process**  **Concept 3:**  Analysis and Conclusions | **S1C3PO** **1**. Organize data using  graphs (i.e., pictograph, tally chart), tables, and journals.  **I** | I can organize data using graphs. | Application  Comprehension  Knowledge | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 141  Interactive Science Notebook  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | analysis  conclusions  graphs  pictograph  tables  journals |
| **Strand 1: Inquiry Process**  **Concept 3:**  Analysis and Conclusions | **S1C3PO** **2.** Construct reasonable  explanations of observations on the basis of data obtained (e.g., Based on the data, does this makes sense? Could this really happen?)  **I** | I can explain my observations of data. | Application  Comprehension  Synthesis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 129, 171  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | reasonable explanations  observations |
| **Strand 1: Inquiry Process**  **Concept 3:**  Analysis and Conclusions | **S1C3PO** **3**. Compare the results of the investigation to predictions made prior to the investigation.  **I** | I can compare the results of the investigation to my predictions. | Comprehension  Analysis  Evaluation | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, Ch 1, 2, 3, & 4  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | investigation  predictions  prior |
| **Strand 1: Inquiry Process**  **Concept 3:**  Analysis and Conclusions | **S1C3PO** **4.** Generate questions  For possible future Investigations based on the conclusions of the  investigation.  **I** | I can develop questions for future investigations using what I learned. | Synthesis  Application  Knowledge | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 148  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | generate  future investigation  conclusions |
| **Strand 1: Inquiry Process**  **Concept 4:** Communication | **S1C4PO** **1**. Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written).  **I** | I can share the results and conclusions of an investigation. | Knowledge  Comprehension  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 29, Ch 2, Ch 3  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | communicate results  conclusions verbal  drawn  written |
| **Strand 1: Inquiry Process**  **Concept 4:** Communication | **S1C4PO** **2.** Communicate with other groups to describe the results of an investigation.  **I** | I can share the results of an investigation with others. | Knowledge  Comprehension  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 29, Ch 2, Ch 3  <http://www.rockingham.k12.va.us/curriculum-resources.html>  [www.sciencebuddies.org](http://www.sciencebuddies.org) | communicate  results  conclusions |
| **Strand 2: History and Nature of Science**  **Concept 1:**  History of Science as a Human Endeavor | **S2C1PO** **1.** Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations  **I** | I can identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations | Knowledge  Comprehension  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, Ch 2 pages 66 – 67, Ch 3 pp. 110 – 111, Ch 4 pp. 126 – 127  StoryTown Lesson 19 | diverse  scientific innovations |
| **Strand 2: History and Nature of Science**  **Concept 1:**  History of Science as a Human Endeavor | **S2C1PO** **2**. Identify science-related career opportunities.  **I** | I can identify science-related career opportunities | Knowledge  Comprehension  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, Ch 2 pages 66 – 67 & 82, Ch 3 pp. 110 – 111, Ch 4 pp. 126 – 127  [www.marinecareers.net](http://www.marinecareers.net)  jobs.aol.com/Articles&News | career  opportunities |
| Strand 2: History and Nature of Science  **Concept 2: Nature of Scientific Knowledge** | **S2C2PO** **1**. Identify components of familiar systems (e.g.*,* organs of the digestive system, bicycle).  **I** | I can identify components of familiar systems. | Knowledge  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Systems in the Body, pages R8 – R11  Kidshealth.org>Kids>How the  Body Works  www.kidskonnect.com/subject...31/...337-human-body.html | components  systems  organs  digestive |
| **Strand 2: History and Nature of Science**  **Concept 2:**  Nature of Scientific Knowledge | **S2C2PO** **2**. Identify the following characteristics of a system   * consists of multiple parts or subsystems * parts work interdependently   **I** | I can identify the following characteristics of a system:  \*consists of multiple parts or subsystems  \* parts work interdependently | Knowledge  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Systems in the Body, pages R8 – R11  Kidshealth.org>Kids>How the  Body Works  www.kidskonnect.com/subject...31/...337-human-body.html | system  multiple parts  subsystems  interdependently |
| **Strand 2: History and Nature of Science**    **Concept 2:**  Nature of Scientific Knowledge | **S2C2PO** **3**. Identify parts of a system too small to be seen (e.g.*,* plant and animal cells).  **I** | I can identify parts of a system too small to be seen. | Knowledge  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Systems in the Body, Ch 1 Les 1, Ch 12 Les 3 & 4  [http://www.rockingham.k12.va.us/resources /elementary/2science](http://www.rockingham.k12.va.us/resources%20/elementary/2science)  www.proteacher.org/c/461-Human-Body-Systems.html | system  cells |
| **Strand 3: Science in Personal and Social Perspectives**  **Concept 2:**  Science and Technology in Society | **S3C2PO** **1.** Analyze how various technologies impact aspects of people’s lives (e.g.*,* entertainment, medicine,transportation,  communication).  **I** | I can analyze how various technologies impact aspects of people’s lives. | Analysis  Knowledge  Comprehension | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, pp. 3 – 148  www.macmillanmh.com/tlxnews/.../how-does-technology-affect-life-2 | technologies  impact |
| **Strand 3: Science in Personal and Social Perspectives**  **Concept 2:**  Science and Technology in Society | **S3C2PO** **3.** Identify a simple problem that could be solved by using a suitable tool.  **I** | I can identify a simple problem that could be solved by using a suitable tool. | Knowledge  Analysis  Application | MacMillan/McGraw-Hill, Science- A Closer Look, grade 2, pp. 3 – 148  [www.coe.uh.edu/archive/science/science.../finalhome.htm](http://www.coe.uh.edu/archive/science/science.../finalhome.htm)  [www.mos.org/sin/Leonardo/inventorsToolbox.html](http://www.mos.org/sin/Leonardo/inventorsToolbox.html)  [www.wired.com/wiredscience/2011/04/orangutan-tools-fishing/](http://www.wired.com/wiredscience/2011/04/orangutan-tools-fishing/) | simple problem  solved  suitable tool |
| **Strand 4: Life Science**  **Concept 1:** Characteristics of Organisms | **S4C1PO 1**. Identify animal structures that serve different functions (e.g.,sensory,defense, locomotion).  **I** | I can identify animal structures that serve different functions. | Knowledge  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science R8 – R11  [*https://www.middletownschools.org/uploaded/Curriculum/Curriculum\_Office/Gr\_1\_Plants\_and\_Animals.pdf*](https://www.middletownschools.org/uploaded/Curriculum/Curriculum_Office/Gr_1_Plants_and_Animals.pdf)  [*https://www.middletownschools.org/uploaded/Curriculum/Curriculum\_Office/Gr\_1\_Life\_Cycles.pdf*](https://www.middletownschools.org/uploaded/Curriculum/Curriculum_Office/Gr_1_Life_Cycles.pdf)  [*http://www.exploringnature.org/db/main\_index.php*](http://www.exploringnature.org/db/main_index.php) | animal structures  serve  functions |
| **Strand 4: Life Science**  **Concept 1:** Characteristics of Organisms | **S4C1PO 2**. Identify the following major parts of:   * the digestive system – mouth, esophagus, stomach, small and large intestines * respiratory system – nose, trachea, lungs, diaphragm   circulatory system – heart, arteries, veins, blood  **I** | I can identify major parts of the digestive, respiratory, and circulatory systems. | Knowledge  Comprehension  Analysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science R8 – R11  [www.sciencenetlinks.com/interactives/systems.html](http://www.sciencenetlinks.com/interactives/systems.html)  <http://www.kidsbiology.com/human_biology/>  <http://www.exploringnature.org/db/main_index.php> | digestive system  esophagus stomach intestines  respiratory system  trachea  lungs diaphragm circulatory system  heart  arteries  veins  blood |
| **Strand 4: Life Science**  **Concept 1:** Characteristics of Organisms | **S4C1PO 3**. Describe the basic functions of the following systems:   * digestive – breakdown and absorption of food, disposal of waste * respiratory – exchange of oxygen and carbon dioxide * circulatory – transportation of nutrients and oxygen throughout the body   **I** | I can describe the basic functions of the digestive, respiratory and circulatory systems. | Comprehen-sion  Analysis  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science R8 – R11  [www.sciencenetlinks.com/interactives/systems.html](http://www.sciencenetlinks.com/interactives/systems.html)  <http://www.kidsbiology.com/human_biology/>  <http://www.exploringnature.org/db/main_index.php> | functions  systems  digestive absorption disposal of waste respiratory exchange oxygen  carbon dioxide circulatory transportation nutrients  oxygen |
| **Strand 4: Life Science**  **Concept 2:**  Life Cycles | **S4C2PO 1**. Describe the life cycles of various insects  **I** | I can describe the life cycles of various insects. | Comprehen-sion  Analysis  Application | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2  www.utahbugclub.org/lifec*enchantedlearning.com/subjects/insects/printouts.shtml* -  kidzone.ws/animals/  <http://www.exploringnature.org/db/main_index.php> | life cycles insects |
| **Strand 4: Life Science**  **Concept 2:**  Life Cycles | **S4C2PO 2**. Describe the life cycles of various mammals.  **I** | I can describe the life cycles of various mammals. | Comprehen-sion  Analysis  Evaluation | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2  kidzone.ws/animals/  [www.enotes.com/.../animal-life-cycles-mammals-reptiles-20813](http://www.enotes.com/.../animal-life-cycles-mammals-reptiles-20813)  <http://www.exploringnature.org/db/main_index.php> | life cycles mammals |
| **Strand 4: Life Science**  **Concept 2:**  Life Cycles | **S4C2PO 3.** Compare the life cycles of various organisms.  **I** | I can compare the life cycles of various organisms. | Comprehen-sion  Analysis  Evaluation | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2  kidzone.ws/animals/  [www.enotes.com/.../animal-life-cycles-mammals-reptiles-20813](http://www.enotes.com/.../animal-life-cycles-mammals-reptiles-20813)  <http://www.exploringnature.org/db/main_index.php> | life cycles  organisms |