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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 createquestions about the properties of objects, organisms, and events in the environment | ComprehensionSynthesis | 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) | organismenvironmentobservationsquestionshypothesis |
| **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. | ApplicationComprehensionKnowledgeSynthesis | 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) | predictresultslife cyclesphaseswater 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. | ApplicationComprehension | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16Classroom Rules <http://www.rockingham.k12.va.us/curriculum-resources.html>[www.sciencebuddies.org](http://www.sciencebuddies.org) | safe behaviorproceduresinstrumentsmaterialsorganisms |
| **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. | ApplicationComprehensionAnalysis | 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) | investigationslifephysicalEarthspace 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. | ApplicationAnalysisSynthesis | 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) | toolsrulersthermometersmagnifiersbalancesdata |
| **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 inan organized format. | ApplicationSynthesisComprehension | 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 datainvestigationslab book lognotebook |
| **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. | ApplicationComprehensionKnowledge | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Inquiry Process, pages 3-16, 141Interactive Science Notebook<http://www.rockingham.k12.va.us/curriculum-resources.html>[www.sciencebuddies.org](http://www.sciencebuddies.org) | analysisconclusionsgraphs pictographtablesjournals  |
| **Strand 1: Inquiry Process****Concept 3:** Analysis and Conclusions | **S1C3PO** **2.** Construct reasonableexplanations 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. | ApplicationComprehensionSynthesis | 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 explanationsobservations  |
| **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. | ComprehensionAnalysisEvaluation | 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) | investigationpredictionsprior |
| **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. | SynthesisApplicationKnowledge | 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) | generatefuture investigationconclusions |
| **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. | KnowledgeComprehensionApplication | 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 resultsconclusions verbal drawnwritten |
| **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. | KnowledgeComprehensionApplication | 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) | communicateresults 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 | KnowledgeComprehensionApplication | 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 | diversescientific 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 | KnowledgeComprehensionApplication | 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 | careeropportunities |
| 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. | KnowledgeComprehensionAnalysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Systems in the Body, pages R8 – R11Kidshealth.org>Kids>How the Body Workswww.kidskonnect.com/subject...31/...337-human-body.html | componentssystemsorgansdigestive |
| **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 | KnowledgeComprehensionAnalysis | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Systems in the Body, pages R8 – R11Kidshealth.org>Kids>How the Body Workswww.kidskonnect.com/subject...31/...337-human-body.html | systemmultiple partssubsystemsinterdependently |
| **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. | KnowledgeComprehensionAnalysis | 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 | systemcells |
| **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. | AnalysisKnowledgeComprehension | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, pp. 3 – 148 www.macmillanmh.com/tlxnews/.../how-does-technology-affect-life-2 | technologiesimpact |
| **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. | KnowledgeAnalysisApplication | 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 problemsolvedsuitable 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. | KnowledgeComprehensionAnalysis | 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 structuresservefunctions |
| **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. | KnowledgeComprehensionAnalysis | 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 systemesophagus stomach intestinesrespiratory systemtrachea 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-sionAnalysisApplication | 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-sionAnalysisApplication | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2www.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-sionAnalysisEvaluation | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2kidzone.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-sionAnalysisEvaluation | MacMillan/McGraw-Hill, Science – A Closer Look, grade 2, Life Science Chapters 1 & 2kidzone.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 cyclesorganisms |