| SCIENTIFIC INQUIRY AND KNOWLEDGE | |
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| Grade 5 | |
| **Standard 1: Science Concepts** | |
| | Make connections showing how the concepts of matter and energy; change, cause and effect; and structure and function can be observed across the science domains. |
| | **Performance Indicators:** |
| a. | Develop a model to describe that matter is made of particles too small to be seen. |
| b. | Determine whether the mixing of two or more substances results in new substances and understand that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. |
| c. | Make observations and measurements to identify materials based on their properties. |
| d. | Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. |
| e. | Support an argument that plants get the materials they need for growth, energy, and body repair chiefly from air and water. |
| f. | Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment, and the role of each organism in maintaining a balanced ecosystem. |
| g. | Describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. |
| h. | Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. |
| i. | Support an argument that the gravitational force exerted by Earth on objects is directed down. |
| j. | Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. |

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| k. | Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. |
| l. | Obtain and communicate information about ways individual communities use science ideas to protect the Earth's resources and environment. |
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| **Standard 2: Scientific Practices** | |
| | Design investigations that generate data to provide evidence that supports claims they make about phenomena. |
| | **Performance Indicators (3rd-5th):** |
| a. | Questioning: Ask a scientific question about what would happen if a variable changed ("What if…?"). |
| b. | Variables: Identify variables in order to make a fair test using grade level content. |
| c. | Making Hypotheses: Make reasonable predictions about what would happen if a variable changes, based on prior knowledge and patterns, such as cause and effect relationships. |
| d. | Carrying Out Investigations: Evaluate appropriate methods and/or tools for collecting data. Carry out an investigation using appropriate tools and/or measurements to collect and record data based on grade level content. |
| e. | Designing Investigations: Design an investigation collaboratively based on grade level content to produce data to provide evidence to support claims. |
| f. | Analyzing Data: Analyze and interpret grade level appropriate data to draw conclusions using evidence. |
| g. | Error Analysis: Compare and contrast class data to discuss similarities and differences. |
| **Standard 3: Engineering** | |
| | Engage in an iterative cycle of design to develop solutions to human |

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| | problems. |
| | **Performance Indicators (3rd-5th):** |
| a. | Engineering Design Process: Identify a simple design problem reflecting a need or a want. |
| b. | Criteria and Constraints: Brainstorm and compare multiple possible solutions, based on given criteria and constraints (i.e. materials, time, cost). |
| c. | Designing a Solution: Design a solution, using math and science, based on given criteria and constraints. |
| d. | Analyze Design Solutions: After testing, analyze data to determine how well the solution solved the problem. |
| e. | Evaluate Solutions: Evaluate multiple design solutions based on criteria to determine which is most effective. |