Science Competencies-Grade 4		
Competency	**I Can Statements** *"I can statements" are examples of what educators may see in performance tasks when students demonstrate their increasing understanding and use of the competencies*	**Standards** Performance Expectations Coded to National Crosscutting Concepts
1. Competency Statements for Nature of Science and Engineering Students will work collaboratively and individually to generate testable questions or to define problems in terms of a given situation; research, plan, and conduct investigations or apply engineering design practices*; analyze and interpret data; and construct and communicate evidence-based explanations or best possible solutions.	1. I can develop testable questions, make logical predictions, collect and analyze data, and use specific evidence to interpret, draw conclusions and communicate findings from an investigation. 2. I can develop a plan to improve or solve authentic problems using evidence. 3. I can apply science and engineering practices to design and build systems	4-PS4-1, 4-PS4-3, 4-ESS1-1, 4-ESS2-2,
2. Competency Statements for Patterns Students will sort and classify natural and designed phenomena*, identifying similarities and differences, in order to recognize and use patterns.	1. I can recognize patterns and use them to describe phenomena. 2. I can use patterns as evidence (e.g., observations of patterns that can be predicted such as force and interactions, waves, inheritance and variation of traits, weather and climate, Earth's systems, space systems, patterns related to time, including simple rates of change and cycles). 3. I can develop models to communicate about and describe patterns to make predictions.	4-PS4-1, 4-PS4-3, 4-ESS1-1, 4-ESS2-2,
3. Competency Statements for Cause & Effect Students will investigate cause and effect relationships to make predictions and support evidenced-based explanations or claims about change.	1. I can verify that events that occur together might or might not share a cause. 2. I can use observational data to predict or draw conclusions about cause and effect relationships (e.g., forces and interactions, properties of matter, energy, interdependent relationships in ecosystems). 3. I can locate and use evidence from a variety of sources to	4-PS4-2, 4-ESS2-1, 4-ESS3-1, 4-ESS3-2,

	develop and support explanations or claims about cause-effect relationships (e.g., inheritance and variation of traits, weather and climate, Earth's systems, space systems).	
4. Competency Statements for Scale, Proportion, and Quantity Students will use relative scale and quantity to describe, compare, or represent data in order to answer questions about observable and nonobservable phenomena, create investigations, and solve problems.	1. I can represent natural objects from the very small to immensely large (e.g., structure and properties of matter, space systems). 2. I can analyze and interpret data to provide evidence that observable phenomena exist from very short to very long time periods and very small to vast distances (e.g., interdependent relationships in ecosystems, space systems). 3. I can describe or compare physical quantities (weight, time, temperature, volume) when answering questions about structure and properties of matter, Earth's systems, etc., using appropriate tools and standard units (e.g., measurement tools, visual displays, graphs, tables).	
5. Competency Statements for Systems and System Models Students will investigate and use models of natural or human-designed systems in order to describe a system, how its parts function together, and how internal and external factors affect the system or its parts.	1. I can develop a model to describe how a natural system functions in terms of its components and their interactions (e.g., matter and energy within organisms or ecosystems, Earth's systems). 2. I can design solutions to address internal and external factors that affect a natural or human-designed system (e.g., interdependent relationships in ecosystems, Earth's systems).	Grade 4 Science Next Gen. Systems & System Models
6. Competency Statements for Energy and Matter in Systems Students will investigate and use models to make predictions and support evidence based explanations about the cycling of matter and flow of energy within and between systems.	1. I can explain how matter is conserved and transported into, out of, and within systems (e.g. matter & energy in organisms and ecosystems). 2. I can explain how energy can be transferred in various ways (e.g., sound, light, heat, electrical currents - energy). 3. I can demonstrate that energy can be transferred between objects (e.g., object speed and collision - energy). 4. I can demonstrate how energy can be transformed from one form to another (e.g., passive solar heater converting light into heat, electrical currents converting electrical energy into motion energy), using a model I create myself.	4-PS3-1, 4-PS3-2, 4-PS3-3, 4-PS3-4,

7. Competency Statements for Structure and Function Students will investigate the structure, substructure, and function of organisms and human-designed objects in order to analyze relationships and support evidence-based explanations about survival or performance.	1. I can use observations from investigations or models to support explanations of how structures of plants or animals function to support survival and/or performance. 2. I can use investigations and engineering processes to redesign structures of human-made products to enhance or change performance.	4-LS1-1, 4-LS1-2, 4-PS4-2, 3-5-ETS1-2, 3-5-ETS1-2, 3-5-ETS1-3 (no cross-cutting listed on site)
8. Competency Statements for Stability and Change of Systems Students will investigate natural or designed systems in order to make predictions, analyze, and explain how slow or rapid changes may affect the stability of a system over time.	1. I can explain simple rates of change for natural phenomena (e.g. space systems). 2. I can use evidence from observations, data, and maps to make predictions and support evidence-based explanations about how systems change over time (e.g., weather and climate, Earth's systems).	4-ESS1-1, 4-ESS2-1, (no cross-cutting listed on site)