Science: Grade 5

Select a standard indicator in the left column to access the framework for that standard.

Physical Science				
Performance Expectation		Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
5-PS1-1 **Essential**	Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.]	**SEP.2:** Developing and Using Models	**PS1.A:** Structure and Properties of Matter	**CC.3:** Scale, Proportion, and Quantity
5-PS1-2	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.]	**SEP.5:** Using Mathematics and Computational Thinking	**PS1.A:** Structure and Properties of Matter **PS1.B:** Chemical Reactions	**CC.3:** Scale, Proportion, and Quantity

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5-PS1-3 **Essential**	Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.]	**SEP.3:** Planning and Carrying Out Investigations	**PS1.A:** Structure and Properties of Matter	**CC.3:** Scale, Proportion, and Quantity
5-PS1-4	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	**SEP.3:** Planning and Carrying Out Investigations	**PS1.B:** Chemical Reactions	**CC.2:** Cause and Effect
5-PS2-1	Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.]	**SEP.7:** Engaging in Argument from Evidence	**PS2.B:** Types of Interactions	**CC.2:** Cause and Effect
5-PS3-1	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. [Clarification Statement: Examples of models could include diagrams, and flow charts.]	**SEP.2:** Developing and Using Models	**PS3.D:** Energy in Chemical Processes and Everyday Life **LS1.C:** Organization for Matter and Energy Flow in Organisms	**CC.5:** Energy and Matter

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Life Science				
Performance Expectation		**Science and Engineering Practices**	**Disciplinary Core Ideas**	**Crosscutting Concepts**
5-LS1-1	Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]	**SEP.7:** Engaging in Argument from Evidence	**LS1.C:** Organization for Matter and Energy Flow in Organisms	**CC.5:** Energy and Matter
5-LS2-1 **Essential**	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.]	**SEP.2:** Developing and Using Models	**LS2.A:** Interdependent Relationships in Ecosystems **LS2.B:** Cycles of Matter and Energy Transfer in Ecosystems	**CC.4:** Systems and System Models
Earth and Space Science				
Performance Expectation		**Science and Engineering Practices**	**Disciplinary Core Ideas**	**Crosscutting Concepts**
5-ESS1-1	Support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth.	**SEP.7:** Engaging in Argument from Evidence	**ESS1.A:** The Universe and its Stars	**CC.3:** Scale, Proportion, and Quantity
5-ESS1-2	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the	**SEP.4:** Analyzing and	**ESS1.B:** Earth and the	**CC.1:** Patterns

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Essential	seasonal appearance of some stars in the night sky. [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.]	Interpreting Data	Solar System	
5-ESS2-1	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.]	**SEP.2:** Developing and Using Models	**ESS2.A:** Earth Materials and Systems	**CC.4:** Systems and System Models
5-ESS2-2	Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	**SEP.5:** Using Mathematics and Computational Thinking	**ESS2.C:** The Roles of Water in Earth's Surface Processes	**CC.3:** Scale, Proportion, and Quantity
5-ESS3-1 **Essential**	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	**SEP.8:** Obtaining, Evaluating, and Communicating Information	**ESS3.C:** Human Impacts on Earth Systems	**CC.4:** Systems and System Models

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Engineering, Technology, and Applications of Science				
Performance Expectation		**Science and Engineering Practices**	**Disciplinary Core Ideas**	**Crosscutting Concepts**
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	**SEP.1:** Asking Questions and Defining Problems	**ETS1.A:** Defining and Delimiting Engineering Problems	
3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**SEP.6:** Constructing Explanations and Designing Solutions	**ETS1.B:** Developing Possible Solutions	
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	**SEP.3:** Planning and Carrying Out Investigations	**ETS1.B:** Developing Possible Solutions **ETS1.C:** Optimizing the Design Solution	

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