

First Grade Science

5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.

TSW = The Student Will

Objective(s)	NJCCCS Alignment	Essential Questions	Understandings	Suggested Assessment Activities
• TSW explore scientific questions	5.1.4.B	- What is science?	• Science includes observations, collection of data, and communication skills	Ongoing observation & questioning during class discussions and hands-on project work
• TSW measure evidence using tools and technologies	5.1.4.B	- How does science impact our life?	• Observation is a means of gathering information	Students keep an ongoing journal noting observations during an investigation
• TSW share scientific observations collaboratively	5.1.P/K.C	- What is an observation(s) and why are they important?	• Similarities and differences can be made by observing objects	Make predictions as they relate to an investigation discussing whether the prediction was accurate and why/why not
• TSW share findings from observations	5.1.4.D	- To what extent is math essential in science?	• There can be more than one way to solve a problem	
• TSW initiate scientific questions	5.1.4.D			
• TSW make scientific observations	5.1.4.D			
• TSW begin to understand the use of data	5.1.4.D			
• TSW make predictions in relation to scientific observations	5.1.4.D			

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5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

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<ul style="list-style-type: none"> • TSW describe objects based on physical properties • TSW identify objects as solids, liquids, or gases • TSW begin to understand that properties of matter can change as a result of processing (heating, cooling) • TSW begin to describe that matter can change form (liquid to solid) • TSW identify the Sun as a heat source • TSW have a basic knowledge of the principle of light (shadow) • TSW understand that objects can move in many different ways 	5.2.P/K.A 5.2.2.A 5.2.2.B 5.2.2.B 5.2.2.C 5.2.2.C 5.2.2.D	<ul style="list-style-type: none"> - Why do we sort objects? - What is an energy source? - What effect does force have on an object? - How can matter change? 	<ul style="list-style-type: none"> • Matter exists in different states • Matter can change forms • The Sun warms the land, air, and water • Motion is a change in position over a period of time 	Ongoing observation & questioning during class discussions and hands-on project work Illustrate how matter changes from a liquid to a solid Students describe various liquids by their properties (i.e. corn syrup, cooking oil, water, vinegar) Detect differences in color, odor, flow, and surface tension (Try to float a paper clip on the liquid) Record observations

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5.3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.

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<ul style="list-style-type: none"> • TSW compare the physical characteristics of plants, humans, and animals • TSW understand that living organism exchange nutrients and water with the environment • TSW describe the requirements for the care of plants and animals as it relates to energy • TSW describe adaptations of living organisms to their environment • TSW identify the needs of some living organisms • TSW identify the characteristics of a habitat that enable it to support growth • TSW understand that plants and animals often resemble their parents • TSW determine the similarities and differences between parents and their offspring 	5.3.P/K.A 5.3.2.A 5.3.2.B 5.3.2.C 5.3.2.C 5.3.2.C 5.3.2.D 5.3.2.E	<ul style="list-style-type: none"> - What are the similarities and differences among living and nonliving things? - What is needed for organisms to stay alive and grow? - How do living organisms obtain food and water? - What are the needs of living organisms? - What basic environmental needs are found in our surroundings? 	<ul style="list-style-type: none"> • All living things have basic environmental needs that must be met for them to survive • All living organisms have certain characteristics in common • Organisms change as they grow • Living organisms meet their basic needs in different ways 	Ongoing observation & questioning during class discussions and hands-on project work Discussion questions as they relate to an investigation (i.e. which piece of paper fell faster? Which toy moves faster) Students demonstrate and explain various object movements

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5.4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.

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<ul style="list-style-type: none"> • TSW understand that the Sun and the Moon are visible at different times • TSW describe characteristics of soil, rocks, water, and air. • TSW describe Earth's materials using appropriate terms • TSW describe the attributes of soil • TSW understand how the environment affects growth • TSW understand that weather conditions affect our daily lives • TSW observe and document daily weather conditions • TSW describe that water can disappear and collect on surfaces • TSW describe the many sources and uses of water • TSW describe that organisms have basic needs and they meet those needs within their environment 	5.4.2.A 5.4.2.C 5.4.2.C 5.4.2.C 5.4.2.E 5.4.2.F 5.4.2.F 5.4.2.G 5.4.2.G 5.4.2.G	<ul style="list-style-type: none"> - How does science help people understand the world around them? - What is the relationship between rocks and soil? - What affects weather? - How does the weather affect us? - What environmental factors can affect living organisms? 	<ul style="list-style-type: none"> • Daily weather is categorized by seasons • Weather conditions affect our lives • Water is essential for survival • Our environment affects growth 	Ongoing observation & questioning during class discussions and hands-on project work Create and act out stories about the water cycle Create a mural to distinguish between rocks and non rocks List sources and uses of water Research and share on daily vs. seasonal changes in weather