

Third 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
<ul style="list-style-type: none"> • TSW demonstrate understanding of the interrelationships among fundamental concepts in the physical, life and Earth systems sciences • TSW design and follow simple plans using systematic observations to explore questions and predictions • TSW formulate explanations from evidence • TSW communicate explanations with reasonable and logical arguments • TSW monitor and reflect on one's own knowledge regarding how ideas change over time • TSW revise predictions on the basis of learning new information • TSW demonstrate how to safely use tools, instruments and supplies 	5.1.4.A 5.1.4.B 5.1.4.B 5.1.4.B 5.1.4.C 5.1.4.C 5.1.4.D	<ul style="list-style-type: none"> - How is data organized? - What is a prediction? - What can be proved? What cannot be proved? - What is important in an observation? - Why do ideas change? - What does it mean to be safe? 	<ul style="list-style-type: none"> • Science includes observations, collection of data, and communication skills • Questions and predictions can be addressed by conducting investigations • Mathematical relationships among variables are represented by using graphs and tables • Descriptions, explanations, predictions, and models are developed using evidence 	<p>Ongoing observation & questioning during class discussions and hands-on project work</p> <p>Write daily weather conditions in journals that include readings from instrumentation, observations, and weather conditions from the internet</p> <p>Classroom mural depicting safety procedures as they relate to science</p>

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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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Objective(s)	NJCCCS Alignment	Essential Questions	Understandings	Suggested Assessment Activities
<ul style="list-style-type: none"> • TSW identify objects that are composed of a single substance and those that are composed of more than one substance using simple tools found in the classroom 	5.2.4.A	<ul style="list-style-type: none"> - In what way (s) does matter change? - How do we measure matter? - In what way(s) do properties help us identify matter? - What is energy? - How are force and motion connected? - How do forces affect the motion of objects? 	<ul style="list-style-type: none"> • Matter is neither created nor destroyed, though it may change form • Matter can be described according to physical properties • The amount of force used can change an object's speed and distance traveled • No matter how much force us used, work is only done when an object moves • A force is a push or a pull 	<p>Ongoing observation & questioning during class discussions and hands-on project work</p> <p>Describe common properties of various items</p> <p>Illustrate and describe the effects of a chemical reaction</p> <p>Sort objects by their density</p> <p>Measure the temperature of ice and water mixtures</p> <p>Design a ramp that will control speed and direction</p> <p>Investigate with devices that show electricity producing heat, light, sound, and magnetic effects</p>
<ul style="list-style-type: none"> • TSW demonstrate the weight and volume of common objects using appropriate tools 	5.2.4.A			
<ul style="list-style-type: none"> • TSW predict what will happen with a common substance that is heated and then cooled 	5.2.4.B			
<ul style="list-style-type: none"> • TSW compare various forms of energy as observed in everyday life and describe their applications 	5.2.4.C			
<ul style="list-style-type: none"> • TSW draw and label diagrams showing several ways that energy can be transferred from one place to another 	5.2.4.C			
<ul style="list-style-type: none"> • TSW understand the basics of creating a simple electric circuit 	5.2.4.D			
<ul style="list-style-type: none"> • TSW demonstrate through modeling that motion is a change in position over a period of time 	5.2.4.E			
<ul style="list-style-type: none"> • TSW identify the force that starts something moving or changes its speed or direction of motion 	5.2.4.E			

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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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Objective(s)	NJCCCS Alignment	Essential Questions	Understandings	Suggested Assessment Activities
<ul style="list-style-type: none"> • TSW develop and use evidence based criteria to determine if an unfamiliar object is living or nonliving • TSW understand that almost all energy (food) and matter can be traced to the Sun • TSW understand that some changes in ecosystems occur slowly, while others occur rapidly and that changes can affect life forms • TSW compare the physical characteristics of the different stages of the life cycle of an individual organism • TSW realize that plants and animals have life cycles • TSW evaluate similar populations in an ecosystem with regard to their ability to thrive and grow 	<p>5.3.4.A</p> <p>5.3.4.B</p> <p>5.3.4.C</p> <p>5.3.4.D</p> <p>5.3.4.D</p> <p>5.3.4.E</p>	<ul style="list-style-type: none"> - Why do we sort objects? - How are organisms of the same kind different from each other? - How do organisms change as they grow? - How do people and other living organisms depend on each other? 	<ul style="list-style-type: none"> • All living things have basic environmental needs that must be met for them to survive • Organisms change as they grow • Humans have an impact on the survival of living organisms 	<p>Ongoing observation & questioning during class discussions and hands-on project work</p> <p>List human behaviors that affect the local environment</p> <p>Create a compost pile to study what animals grow in it, how fast they grow, and what happens to the material that the was originally used</p> <p>Create a classroom aquarium or terrarium to provide a visual example of food chains</p>

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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 formulate a general description of the daily motion of the Sun across the sky based on shadow observations • TSW identify patterns of the Moon's appearance and make predictions about its future appearance based on observational data • TSW realize that fossils provide evidence and tell an environmental story • TSW create a model to represent how soil is formed • TSW predict temperature changes of Earth's materials dependant on placement of the Sun • TSW begin to identify patterns in data collected from basic weather instruments • TSW explain how clouds form • TSW observe daily cloud patterns, precipitation, temperature and categorize clouds by conditions 	<p>5.4.4.A</p> <p>5.4.4.A</p> <p>5.4.4.B</p> <p>5.4.4.C</p> <p>5.4.4.E</p> <p>5.4.4.F</p> <p>5.4.4.G</p> <p>5.4.4.G</p>	<ul style="list-style-type: none"> - What are minerals? - How are fossils formed? - How are water sources formed? - What is precipitation and in what ways is it measurable? - How does participation contribute to erosion and weathering? - What is a physical feature? - How do you make a shadow? - What characteristics does our Sun share with other stars? 	<ul style="list-style-type: none"> • The composite of rocks and soil vary • Precipitation contributes to changes in our Earth • Physical features distinguish one area from another • Some changes on the Earth's surface happen slowly, other changes are rapid • Shadows caused by sunlight determine the time of day • The Sun is a star that is the source of Earth's heat and light 	<p>Ongoing observation & questioning during class discussions and hands-on project work</p> <p>Illustrate the process of erosion and weathering</p> <p>Identify the composite of rocks and soil by mineral and/or substance</p> <p>Have students draw pictures of day and night sky. Record observations pictorially, orally, and in writing</p> <p>Draw a map illustrating local physical features</p> <p>Students keep moon journals depicting date and time of observation, drawing of the moon, moon in relation to a fixed point, and weather condition</p>