

Grade: Sixth Grade

Course: Science

Year: 2019-2020



Mission Statement

In partnership with our families and community, Lakewood City Schools will develop responsible citizens, who are critical and creative thinkers, committed to life-long learning, invested in a diverse society, and prepared for technological and global opportunities.

Thinking Skills - The student demonstrates:

1. Critical Thinking Skills include the ability to analyze, criticize, advocate ideas, reason inductively and deductively, and to reach factual and judgemental conclusions.
2. Creative Problem Solving by identifying and analyzing a problem, thinking divergently and evaluating the implementation of possible solutions.
3. Research skills by compiling, evaluating and presenting data.
4. Communication Skills

Suggested Pacing	Content Standards	Learning and Performance Expectations	Vocabulary	Assessment of Learning Options	Learning Resources Options
6-9 Weeks	<p>Nature of Science</p> <ul style="list-style-type: none"> ● Students will follow scientific processes, with appropriate lab safety techniques, to construct knowledge and understanding in all content areas: 	<p>I Can Statements</p> <ul style="list-style-type: none"> ● Identify questions that can be answered through scientific investigations; ● Design and conduct a scientific investigation; ● Use appropriate mathematics, tools and techniques to gather data and information; ● Analyze and interpret data; ● Develop descriptions, models, explanations and predictions; ● Think critically and logically to connect evidence and explanations; ● Recognize and analyze 	<p>Classify Communicate Compare Conclude Cycle Data Design Engineer Evidence Infer Interpret Investigate Justify Measure Observe Organize Predict / Hypothesis</p>	<p>Quizzes Tests Exit Slips Labs "No Opt Out" Edulastic</p>	<p>Prentice Hall Science Book The Nature Of Science and Technology</p> <p>Explore Learning.com Gizmos</p> <p>Activities:</p> <p>Scientific Method: How many books can 4 raw eggs (8 bottle caps) hold?</p>

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		alternative explanations and predictions; and <ul style="list-style-type: none"> Communicate scientific procedures and explanations. 	Question Record Relate Science Variable		M and M Lab Quantitative/Qualitative Observations Dead Bug Day
					Measuring Liquid Volume Lab-Test Tubes/Food Coloring Activities: Use of Materials:triple-beam balance,beakers ,graduated cylinders,pipettes,thermometers, meter sticks,test tubes Quizlet for vocabulary Kahoot Socrative

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6-9 Weeks	Matter and Motion				
	<p>All matter is made up of small particles called atoms.(6.PS.1)</p>	<p>I Can Statements</p> <ul style="list-style-type: none"> • The students can recognize that all matter is made up of atoms. • The students can explain that atoms take up space, have mass, and are in constant motion. • The students can create models of elements, compounds, and molecules to show atomic differences. • The students can describe the composition of substances in terms of elements and/or compounds. • The students can measure the mass and volume of a substance, and calculate density by dividing mass by the volume. • The students can compare substances by the amount of mass a substance has in a given amount of volume (density). • The students can construct and interpret mass vs. volume graphs. 	<p>Matter Mass Atom Molecule</p> <p>Element Substance Compound</p> <p>Solution Mixture</p> <p>Heterogeneous Mixture</p> <p>Homogeneous Mixture</p> <p>Volume Density Solid Liquid Gas Temperature Chemistry Formula</p> <p>Physical Properties</p> <p>Chemical Properties</p>	<p>Admit/Exit slips</p> <p>Quizzes</p> <p>Tests</p> <p>Labs</p> <p>“No Opt Out”</p> <p>Edulastic</p>	<p>Prentice Hall Chemical Building Blocks Science book</p> <p>Exploring Learning.com - Gizmos</p> <p>Activities: Density Cubes</p> <p>Density Gummy Bear</p> <p>Volume Blocks/ Water Displacement Marble/Grape</p> <p>Density Demonstration/ Candy Bars Will it sink or float?</p> <p>Is it a chemical or physical change? (making glue)</p> <p>Exothermic/Elep hant Toothpaste</p>

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			Physical Changes Chemical Changes Kinetic Energy Potential Energy Thermal Energy		Mad Scientist Lab
	Changes of state are explained by a model of matter composed of particles that are in motion.(6.PS.2)	I Can Statements <ul style="list-style-type: none"> ● Explain that thermal energy is a measure of the motion of the atoms and molecules (kinetic energy) in a substance. ● Describe the factors that affect thermal energy. ● Investigate temperature change in order to infer changes in thermal energy. ● Describe solids, liquids, and gases in terms of motion and spacing and attractions between particles. ● Model and explain how mass is conserved when substances undergo a change of state. 			Element Project Dry Ice Steve Spangler Videos
	There are two	I Can Statements			

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	categories of energy: kinetic and potential. (6.PS.3)	<ul style="list-style-type: none"> Explain that objects and substances in motion have kinetic energy. Explain that objects and substances can have energy as a result of their position. Explore, investigate, and provide examples of potential and kinetic energy. 			
	An object's motion can be described by its speed and direction in which it is moving. (6.PS.4)	I Can Statements <ul style="list-style-type: none"> Describe an object's motion in relation to a reference point. Calculate an object's speed based on the amount of time it takes to travel a certain distance. Analyze and interpret position vs. time and speed vs. time graphs in order to describe an object's motion. 			Graphs: Speed (Vertical Axis) Time(Horizontal Axis)
	Rocks and Minerals				
	Minerals have specific, quantifiable properties. Minerals are naturally occurring, inorganic solids that have a defined chemical	I Can Statements <ul style="list-style-type: none"> Identify minerals by testing their properties; Use mineral properties to identify minerals. 	Cleavage Density Fracture Hardness Luster Mineral	Tests Quizzes Labs Exit/Admit Slips Edulastic	Prentice Hall Inside Earth Science Book Activities:

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	<p>composition. Minerals have properties that can be observed and measured. Minerals form in specific environments. (6.ESS.1)</p>		<p>Streak</p>		<p>Mineral Profile Sheets (mineral samples)</p> <p><u>Stories In Stone</u>-Resource Book</p>
	<p>Igneous, metamorphic and sedimentary rocks have unique characteristics that can be used for identification and/or classification. (6.ESS.2)</p>	<p>I Can Statements</p> <ul style="list-style-type: none"> Identify the unique characteristics to classify rocks; Describe the formation of igneous, metamorphic, and sedimentary rocks. Use the unique characteristics of sedimentary rocks to identify and classify sedimentary rocks. 	<p>Chemical Sedimentary Rock Clastic Sedimentary rock Density Extrusive Igneous Rock Fracture High Silica Igneous Intrusive Igneous rock Lava Low Silica Magma Mineral Non Foliated Organic Sedimentary Rock Rock Sedimentary</p>		<p>Rock Identification (rock samples)</p> <p>Create Google Slide Presentation</p> <p>Grow a Crystal (alum)</p>

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			Texture		
	Igneous, metamorphic and sedimentary rocks form in different ways. (6.ESS.3)	<p>I Can Statements</p> <ul style="list-style-type: none"> Describe the formation of igneous, sedimentary and metamorphic rocks. Explain and describe the different pathways that rocks can take in the rock cycle. 	Extrusive Igneous Intrusive Metamorphic Rock Rock Cycle Sedimentary		
	Soil is unconsolidated material that contains nutrient matter and weathered rock. (6.ESS.4)	<p>I Can Statements</p> <ul style="list-style-type: none"> Investigate how soil forms at different rates and has different measurable properties through soil sampling. Explain how soil is formed into layers called horizons based on measurable properties. 	Minerals Soil Horizon Soil Profile Soil Properties Soil Region		Soil Samples
	Rocks, minerals and soils have common and practical uses. (6.ESS.5:)	<p>I Can Statements</p> <ul style="list-style-type: none"> Identify examples of different ways the soil, rock and minerals can be used. Recognize the characteristics of soil, rock and minerals to determine how they can be used. 	Nonrenewable Open-pit Ore Quarries Reclamation Strip Mining Subsurface Mining Surface Mining		Birdseed Mining Lab

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6-9 Weeks	Cells				
	Cells are the fundamental unit of life. (6LS.1)	<p>I Can Statements</p> <ul style="list-style-type: none"> Explain the interdependence of cell's organelles and tell why these relationships are necessary for the survival of the cell. Explain that cells are the basic unit of structure and function of all living things. Differentiate between the organelles of a cell and explain the function of each. Devise analogies which compare organelles to other things based on their functions in the cell. Demonstrate the proper usage of a microscope 	Cell Cell Membrane Cell Wall Chloroplast Eubacteria Fungi Lysosome Mitochondria Nucleus Organelles Plasma Membrane Protista Ribosome Single-Cellular Vacuoles Microscope	Quizzes Tests Exit Slips No Opt Out Microscope - Informal Assessments Edulastic	Book: Prentice Hall - Cells and Hereditary ExploreLearning .com - Gizmos : Cell Structure, Cell Types Microscope - Pond Water, Prepared Slides, Elodea Animal/Plant cell project Egg Experiment- in different liquids
	All cells come from pre-existing cells. (6LS.2)	<p>I Can Statements</p> <ul style="list-style-type: none"> Compare the cells of a variety of organisms. Create a timeline of the Modern Cell Theory. Explain how cells 	Modern Cell Theory Mitosis Cell division Chromosome Parent Cell		

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		reproduce and that traits are passed from one generation to the next through chromosomes.			
	Cells carry on specific functions that sustain life. (6.LS.3)	<p>I Can Statements</p> <ul style="list-style-type: none"> • Show that multicellular living things are organized in levels by cells, tissue, organ, and organ systems. • Explain the many basic functions of organisms occur in cells. • Explain that cells take in nutrients and energy to perform work. • Explain that within cells there are specialized part for the transport of materials, energy capture and release, protein building, waste disposal, information feedback and movement. 	<p>Energy transformation/En ergy Transfer Homeostasis Cells Tissues Organs Organ Systems Gas exchange Molecules Synthesis Waste disposal</p>		
	Living systems at all levels or organization demonstrate the complementary nature of structure and function. (6.LS.4)	<p>I Can Statements</p> <ul style="list-style-type: none"> • Identify the corresponding structure in the bodies of different classes of living things • Make observations of physical characteristics from picture of species and 	<p>Cells Internal Structures Organs Organ Systems Adaptation Traits</p>		

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		<p>classify them into groups based on share traits</p> <ul style="list-style-type: none">● Infer the habitats of species based on how their adaptations can help them survive in specific environments.			
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