

DENNIS TOWNSHIP SCHOOL DISTRICT



**SCIENCE
CURRICULUM**

APPROVED: AUGUST 27, 2014

Name of Course: Science
Grade Level: K-2

Core Competencies What will be studied in each unit?	Essential Questions These questions guide inquiry into the big ideas of the unit.	Enduring Understanding What specific, lasting and transferable understandings will result from the investigation?	Knowledge & Skills What will students be able to do as a result of instruction?	Common Core Standards & N.J.C.C.C.S	Instructional Strategies How will learning be structured?	Assessments What evidence will be collected that demonstrates that students have achieved the objectives?	21st Century Themes & Skills What 21 st Century skills will be covered?
Unit 1 Forces Inter-disciplinary Connections Technology Math Language Arts	Can forces be used to make objects move, change direction, or stop? Can there be a reaction between magnets and similar materials and those made of iron.	Students will understand that: Motion can be described as a change of position. Force moves objects with speed, direction and amount of force applied. Magnets can repel, attract	Students will be able to: Demonstrate through modeling that motion is a change in position over a period of time. Identify the force that starts something moving or	5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.2.4.E.1 5.2.4.E.2 5.2.4.E.3 5.2.4.E.4	Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion	Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio	Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities

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<p>How do magnets play a role in attracting and repelling materials? Is gravity a force and how does it impact matter?</p>	<p>and make things move without being touched. Gravity is a force which pulls objects to the earth, and the strength of the pull is determined by weight.</p>	<p>changes its speed or direction of motion Investigate and categorize materials based on their interaction with magnets. Investigate, construct, and list rules for the effect that force of gravity has on objects.</p>				
<p>Unit 2 Energy Inter-disciplinary Connections Math Technology</p>	<p>Students will understand that: Energy can be transferred from one object to another. Force is an energy that</p>	<p>Students will be able to: Distinguish among the different ways objects can move. Show that the position and</p>	<p>5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.2.2.C.1 5.2.2.C.2 5.2.2.C.3</p>	<p>Small Group Direct Instruction Smartboard</p>	<p>Teacher Observation Rubric Projects Group Discussion Portfolio/Lab</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration</p>

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	<p>moves objects in a variety of ways.</p>	<p>motion of an object can be changed by pushing or pulling the object.</p>	<p>5.2.2.D.1 5.2.2.E.1 5.2.2.E.2 5.2.2.E.3</p>		
<p>Unit 3 Living Organisms</p>	<p>Do all organisms have the same requirements for life?</p> <p>Do plants and animals need to interact to survive?</p> <p>Are traits shared within an organism and are they necessary for survival?</p>	<p>Students will understand that:</p> <p>Living organisms exchange nutrients and water with the environment, reproduce, and grow and develop in a predictable manner.</p> <p>A source of energy, water, and food are needed by animals.</p>	<p>Students will be able to:</p> <p>Group living things according to the characteristics that they share.</p> <p>Describe the requirements for the care of animals related to meeting their needs.</p> <p>Compare how different animals</p>	<p>5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.1.4.D.4 5.3.2.A.1 5.3.2.B.1 5.3.2.B.2 5.3.2.B.3 5.3.2.C.1 5.3.2.C.2 5.3.2.C.3 5.3.2.D.1 5.3.2.D.2 5.3.2.E.1 5.3.2.E.2 5.4.2.E.1 5.4.2.G.3</p>	<p>Small Group Direct Instruction Smartboard</p>
<p>Inter-disciplinary Connections Math Technology</p>				<p>Teacher Observation Rubric Projects Group Discussion Portfolio/Lab</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy</p>

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		<p>Animals have various ways to take in food and water.</p> <p>Organisms interact with each other and are independent in various ways.</p> <p>A habitat supports the growth of plants and animals by meeting their basic needs.</p> <p>Humans can change natural habitats in ways that can be helpful or harmful for the plants and animals that live there.</p> <p>Animals often</p>	<p>obtain food and water.</p> <p>Describe the ways in which organisms interact with each other and their habitats in order to meet their basic needs.</p> <p>Identify the characteristics of a habitat that enable the habitat to support the growth of many different plants and animals.</p> <p>Communicate ways that humans protect</p>				
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<p>Unit 4 Climate and Weather Inter-disciplinary Connections Math Technology</p>	<p>How are weather conditions described? Does weather affect our daily lives?</p>	<p>resemble their parents and have predictable characteristics at different stages of development. Variations exist within a group of the same kind of organism. Animals have features that help them survive in different environments</p> <p>Students will understand that: Weather conditions vary. Weather affects our daily lives.</p>	<p>habitats and/or improve conditions for growth of the plants and animals that live there, or ways that humans might harm habitats.</p> <p>Students will be able to: Observe and document daily weather conditions. Discuss how weather</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.4.2.F.1</p>	<p>Inquiry Based Instruction Direct Instruction Discussion Small Group</p>	<p>Teacher Observation Group Discussion Collect Data</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration</p>
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<p>Unit 5 Water Inter-disciplinary Connections Technology Math</p>	<p>Can water be found in different forms? What are the sources of water?</p>	<p>Students will understand that: Water can evaporate or condense There are many sources and uses of water</p>	<p>Students will be able to: Observe and discuss evaporation and condensation</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.4.2.G.1 5.4.2.G.2 5.4.2.G.3</p>	<p>Inquiry Based Instruction Direct Instruction Discussion Small Group</p>	<p>Teacher Observation Group Discussion Collect Data</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration</p>
<p>Unit 6 Natural Resources Inter-disciplinary Connections Math</p>	<p>What is a natural resource and are there ways in which they can be used?</p>	<p>Students will understand that: Natural resources are obtained from the Earth.</p>	<p>Students will be able to: Identify the natural resources used in the process of</p>	<p>5.1.4.D.1 5.1.4.D.2 5.4.2.G.4</p>	<p>Inquiry Based Instruction Direct Instruction Discussion</p>	<p>Teacher Observation Group Discussion Collect Data</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration</p>

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		Natural resources have a variety of uses.	making various manufactured products.		Small Group		
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<p>Mid & End - Year Benchmarks What should students be able to do at this point in the year?</p>	<p>Midterm - End of Year</p> <ul style="list-style-type: none"> • Review progress indicators: • Portfolio • Projects • Rubrics/Group Activities
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Name of Course: Science
Grade Levels: 3 & 4

Core Competencies What will be studied in each unit? Inter-disciplinary Connections What other domains of knowledge does this unit connect to?	Essential Questions These questions guide inquiry into the big ideas of the unit.	Enduring Understanding What specific, lasting and transferable understandings will result from the investigation?	Knowledge & Skills What will students be able to do as a result of instruction?	Common Core Standards & N.J.C.C.C.S	Instructional Strategies How will learning be structured?	Assessments What evidence will be collected that demonstrates that students have achieved the objectives?	21st Century Themes & Skills What 21 st Century skills will be covered?
Unit 1 Matter Inter-disciplinary Connections Technology Math Language Arts	What is matter? How can matter be affected or changed?	Students will understand that: Objects can be composed of one or more substances with unique properties that can be measured. States of matter, objects, and substances have properties	Students will be able to: Identify objects by their compositions using simple tools. Identify properties of different states of mater Plan and carry out an	5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.2.4.A.1 5.2.4.A.2 5.2.4.A.3 5.2.4.A.4 5.2.4.B.1	Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion	Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio	Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities

Name of Course: Science
Grade Levels: 3 & 4

					that include weight, volume, and shape.			
					Objects vary in the extent to which they absorb and reflect light and conduct heat and electricity.			
					Many substances can be changed from one state to state to another by heating and cooling.			
						investigation to distinguish solids, liquids and gases.		
						Objects and substances have properties of weight and volume that can be measured.		
						Categorize objects based on ability to absorb or reflect light and conduct heat or electricity.		
						Predict and explain what happens when a common substance is heated to melting and then cooled to		

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<p>Unit 2 Forms of Energy Inter-disciplinary Connections Technology Math Language Arts</p>	<p>What are the physical science principles which help us understand the forms of energy? How can thermal energy exist? How does light travel?</p>	<p>Students will understand that: Heat, electricity, light, and sound are forms of energy. Thermal energy results from the burning of substances, friction, and electricity. Energy is required to increase the temperature of a substance.</p>	<p>a solid.</p> <p>Students will be able to: Compare various forms of energy and describe their applications. Compare the flow of energy through metals and non-metals by taking and analyzing measurements. Draw and label diagrams showing several ways that energy</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.2.4.C.1 5.2.4.C.2 5.2.4.C.3 5.2.4.C.4 5.2.4.D.1</p>	<p>Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion</p>	<p>Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities</p>
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Grade Levels: 3 & 4

			Heat energy can be transferred from one place to another. Light travels in straight lines and can change direction. Electrical currents require a complete loop through conducting materials in which an electrical current can pass.	can be transferred from one place to another. Illustrate and explain what happens when light travels from air into water. Create an electrical current by completing a closed loop.				
Unit 3 Forces Inter-disciplinary Connections Technology Math Language Arts	How do objects move? How do magnets make things move? What is	Students will understand that: Motion can be described as a change of position. Force moves	Students will be able to: Demonstrate through modeling that motion is a change in position over a period of time.	5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2	Experiments Inquiry-based instruction Small Group Direct Instruction	Teacher Observation Rubrics Projects Unit Tests Tests	Critical Thinking and Problem Solving Communicate and Collaboration Information	

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	<p>gravity and how might it impact matter?</p> <p>objects with speed, direction and amount of force applied.</p> <p>Magnets can repel, attract and make things move without being touched.</p> <p>Gravity is a force which pulls objects to the earth, and the strength of the pull is determined by weight.</p>	<p>Identify the force that starts something moving or changes its speed or direction of motion</p> <p>Investigate and categorize materials based on their interaction with magnets.</p> <p>Investigate, construct, and list rules for the effect that force of gravity has on objects.</p>	<p>5.1.4.D.3 5.2.4.E.1 5.2.4.E.2 5.2.4.E.3 5.2.4.E.4</p>	<p>Smart-Board Class Discussion</p>	<p>Quiz Portfolio</p>	<p>Literacy Leadership and Responsibilities</p>
<p>Unit 4 Living Organisms Inter-disciplinary</p>	<p>What evidence of a natural order can be seen by observing the physical</p> <p>Students will understand that: Living organisms</p>	<p>Students will be able to: Compare and contrast structures that</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4</p>	<p>Experiments Inquiry-based instruction Small group</p>	<p>Teacher Observation Rubrics Projects</p>	<p>Critical Thinking and Problem Solving Communicate</p>

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<p>Connections Technology Math Language Arts</p>	<p>world? What do living things have in common?</p>	<p>exchange nutrients and water with the environment, reproduce, and grow and develop in a predictable manner. Specialized structures in plants and animals maintain their essential functions. Species may differ in their characteristics and may affect their ability to survive in their environment.</p>	<p>have similar functions in various organisms. Diagram and explain various organisms. Compare the physical characteristics of the different stages of a life cycle of a living organism, and compare the characteristics of life stages among species. Explain how functions may be carried out by structures that have different</p>	<p>5.1.4.C.1 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.1.4.D.4 5.3.4.A.1 5.3.4.A.2 5.3.4.D.1 5.3.4.E.1 5.3.4.E.2</p>	<p>Direct instruction Smart-Board Class discussion</p>	<p>Unit Tests Tests Quiz Portfolio</p>	<p>and Collaboration Information Literacy Leadership and Responsibilities</p>
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<p>Unit 5 Human Body Inter-disciplinary Connections Technology Math Language Arts</p>	<p>What role do the human body systems play in carrying out everyday life activities?</p>	<p>Students will understand that: Seven specialized systems carry out the essential functions of the human body.</p>	<p>Students will be able to: Describe the interaction of systems involved in carrying out everyday activities.</p>	<p>5.1.4.A.1 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.3.4.A.3</p>	<p>Experiments Smart-Board Class Discussion</p>	<p>Teacher Observation Rubrics Projects Unit Tests Tests Quiz</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and</p>
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Unit 6		Students will understand that:	Students will be able to:	5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.1.4.D.4 5.3.4.B.1 5.3.4.C.1 5.3.4.C.2	Experiments	Portfolio	Responsibilities
Ecosystems	How do organisms interact with each other and the nonliving environment?	Organisms can only survive in environments in which their means are met.	Predict the affect living and nonliving components have on an organism's habitat.		Inquiry-based instruction	Teacher Observation	Critical Thinking and Problem Solving
Inter-disciplinary Connections	Technology	Math	Organisms interact with, and are dependent on their physical and living environment.		Small Group	Rubrics	Communicate and Collaboration
Language Arts	How do changes in the ecosystems affect life forms?	Within ecosystems, organisms interact with, and are dependent on their physical and living environment.	Understand that organisms have ranges of tolerance for environmental factors.		Direct Instruction	Projects	Information Literacy
		Slow and or rapid changes can affect life forms.	Identify sources of energy/food in a variety of settings.		Smart-Board	Unit Tests	Leadership and Responsibilities
		Almost all energy and matter can be traced to the sun.	Create a model of a food chain/food web.		Class Discussion	Tests Quiz Portfolio	

**Name of Course: Science
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<p>Unit 7 Astronomy Inter-disciplinary Connections Technology Math Language Arts</p>	<p>How does a celestial system and its components function?</p>	<p>Students will understand that: The Sun, Moon, and planets have patterns of movements. The observable shape of the Moon changes from day to day in a cycle that lasts 29.5 days. Objects fall towards the center of the Earth because of the pull of the force of gravity. Earth is the third planet from the Sun.</p>	<p>Students will be able to: Explain how the Earth, Moon, and Sun rotate in relation to each other. Analyze and evaluate data from the nighttime sky. Identify patterns and make predictions of the moon's future appearance. Model the affects that the gravitational pull has on Earth's objects.</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.4 5.1.4.C.1 5.1.4.C.2 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.4.4.A.1 5.4.4.A.2 5.4.4.A.3 5.4.4.A.4</p>	<p>Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion</p>	<p>Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities</p>
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<p>Unit 8 Earth's Materials Inter-disciplinary Connections Technology Math Language Arts</p>	<p>What are the materials of the Earth and how do scientists classify them? How does Earth absorb the Sun's energy? What evidence do we have of past organisms living on the Earth?</p>	<p>Students will understand that: Earth materials include rocks, minerals, soils (broken down rocks), water and gases. Earth materials can be identified by the attributes of rocks and minerals. Fossils provide evidence about the plants and animals that lived long ago. Land, air, and water absorb the Sun's energy at different rates.</p>	<p>Students will be able to: Create a model to represent how soil is formed. Categorize unknown samples as either rocks or minerals. Use data gathered from observations of fossils to discuss whether a given fossil is terrestrial or marine in origin. Predict temperature changes of Earth's materials, such as water,</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.4.4.B.1 5.4.4.C.1 5.4.4.C.2 5.4.4.E.1</p>	<p>Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion</p>	<p>Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities</p>
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Name of Course: Science
Grade Levels: 3 & 4

<p>Unit 9 Weather Inter-disciplinary Connections Technology Math Language Arts</p>	<p>What are the changes of weather and how can they be measured?</p>	<p>Students will understand that: Weather conditions change over time. Weather observations can be organized and compared. The Sun heats Earth's land, air, and water at different rates. Precipitation is found in many forms. Most of the</p>	<p>Students will be able to: Use basic weather instruments to identify patterns in data collected. Instruments include: -Thermometer -Weather Vane -Anemometer -Rain Gauge Explain how clouds form by creating a model or a diagram. Observe daily cloud patterns, types of</p>	<p>soil, and sand, when placed in the Sun and the shade.</p>	<p>5.1.4.A.1 5.1.4.A.2 5.1.4.A.3 5.1.4.B.1 5.1.4.B.2 5.1.4.B.3 5.1.4.B.4 5.1.4.C.3 5.1.4.D.1 5.1.4.D.2 5.1.4.D.3 5.4.4.F.1 5.4.4.G.1 5.4.4.G.2 5.4.4.G.3 5.4.4.G.4</p>	<p>Experiments Inquiry-based instruction Small Group Direct Instruction Smart-Board Class Discussion</p>	<p>Teacher Observation Rubrics Projects Unit Tests Tests Quiz Portfolio</p>	<p>Critical Thinking and Problem Solving Communicate and Collaboration Information Literacy Leadership and Responsibilities</p>
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Name of Course: Physical Science (5.2)

Grade Level: 5-8

<p>Core Competencies What will be studied in each unit? Inter-disciplinary Connections What other domains of knowledge does this unit connect to?</p>	<p>Essential Questions These questions guide inquiry into the big ideas of the unit.</p>	<p>Enduring Understanding What specific, lasting and transferable understandings will result from the investigation?</p>	<p>Knowledge & Skills What will students be able to do as a result of instruction?</p>	<p>N.J.C.C.C.S.</p>	<p>Instructional Strategies How will learning be structured?</p>	<p>Assessments What evidence will be collected that demonstrates that students have achieved the objectives?</p>	<p>21st Century Themes & Skills What 21st Century skills will be covered?</p>
<p>Unit 1 Properties of Matter Interdisciplinary Connections Math Technology Social Studies</p>	<p>How do the properties of materials determine their use? What are the implications of the ongoing development of atomic theory?</p>	<p>Students will understand that: The structures of materials determine their physical and chemical properties. What constitutes an atom, an element, and a substance The properties of solids, liquids, and gases are</p>	<p>Students will be able to: Calculate the density of materials from measured properties. Use various methods including water displacement to determine the volume of an object. matter, such as solubility,</p>	<p>5.2.6A.1 5.2.6A.2 5.2.6A.3 5.2.8.A.1 5.2.8.A.2 5.2.8.A.3 5.2.8.A.4 5.2.8.A.5 5.2.8.A.6 5.2.8.A.7 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations</p>	<p>Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>

Name of Course: Physical Science (5.2)
Grade Level: 5-8

<p>Unit 2 Changes of Matter Interdisciplinary Connections Math Technology</p>	<p>How does conservation of mass apply to the interaction of materials in a closed system?</p>	<p>Students will understand that: When materials interact within a closed system, the total mass of the system remains the same. Physical and chemical properties of substances change as a result of a chemical reaction.</p>	<p>acids and bases as indicated by the pH scale. Students will be able to: Carry out an investigation to show that mass is conserved when substances undergo a chemical change. Balance simple chemical equations. Identify the products and reactants of a chemical equation. Recognize the characteristics of endothermic and exothermic reactions.</p>	<p>5.2.6.B.1 5.2.8.B.1 5.2.8.B.2 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
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Name of Course: Physical Science (5.2)

Grade Level: 5-8

<p>Unit 3 Forms of Energy</p>	<p>Is the sky blue? How does the transfer of energy from the sun influence Earth's weather?</p>	<p>Students will understand that: Light can be absorbed, reflected and refracted. Visible light from the sun is a mixture of all colors of light. Thermal energy can be transferred via conduction, convection, and radiation Earth's weather is affected by energy from the sun.</p>	<p>Students will be able to: Identify the parts of a wave. Interpret a diagram of the electromagnetic spectrum and identify uses of various segments of the spectrum. Describe the behavior of light as it passes from one medium to another. Calculate the angle of reflection from the angle of incidence.</p>	<p>5.2.6.C.1 5.2.6.C.2 5.2.6.C.3 5.2.8.C.1 5.2.8.C.2 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
<p>Unit 4 Energy Transformation and Conservation</p>	<p>How can energy be transferred from one material to another? What</p>	<p>Students will understand that: The flow of electricity in a circuit depends on the</p>	<p>Students will be able to: Build a series and parallel circuit and predict the direction of the flow of</p>	<p>5.2.6.D.1 5.2.8.D.1 5.2.8.D.2 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion</p>	<p>Rubrics Assessments Lab Reports Classroom participation</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication</p>

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Math Technology	happens to a material when energy is transferred to it?	arrangement of the components of that circuit such as in series or parallel. Electricity flowing through an electrical circuit produces magnetic effects in the wires. There is a relationship between potential and kinetic energy. Energy is conserved in a closed system.	electricity. Demonstrate the magnetic affects of the flow of electricity. Describe the flow of energy from the Sun to the fuel tank of an automobile. Relate the kinetic and potential energies of a roller coaster or similar device at various points on its path.	Projects Multimedia projects and presentations Web-based research Demonstrations Note taking	Presentations Homework Group Work	and collaboration ICT literacy Productivity and accountability Leadership and responsibility
Unit 5 Forces and Motion Interdisciplinary Connections Math Social Studies	Can Newton's Laws be used to describe the motion of all matter?	Students will understand that: The description of an object's motion varies depending upon the observer's vantage point.	Students will be able to: Describe the motion of an object from various vantage points. Demonstrate the effect of forces	Direct Instruction Lab Activities Classroom Discussion Projects Multimedia	Rubrics Assessments Lab Reports Classroom participation Presentations	Creativity and Innovation Critical thinking and problem solving Communication and collaboration

Name of Course: Physical Science (5.2)
Grade Level: 5-8

					<p>acting at a distance (gravity, magnetism).</p> <p>Demonstrate and explain the frictional force acting on an object with the use of a physical model.</p> <p>Calculate the speed of an object when given distance and time.</p> <p>Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.</p> <p>Describe the forces that determine whether an object will float or sink.</p>	<p>projects and presentations</p> <p>Web-based research</p> <p>Demonstrations</p> <p>Note taking</p>	<p>Homework</p> <p>Group Work</p>	<p>ICT literacy</p> <p>Productivity and accountability</p> <p>Leadership and responsibility</p>
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Name of Course: Physical Science (5.2)
Grade Level: 5-8

<p>Mid & End - Year Benchmarks What should students be able to do at this point in the year?</p>	<p>Mid & End Year Benchmarks will measure students' knowledge and skills related to the essential questions of the units assessed to date.</p>
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Name of Course: Life Science (5.3)
Grade Level: 5-8

Core Competencies What will be studied in each unit? Inter-disciplinary Connections To what other domains of knowledge does this unit connect?	Essential Questions These questions guide inquiry into the big ideas of the unit.	Enduring Understanding What specific, lasting and transferable understandings will result from the investigation?	Knowledge & Skills What will students be able to do as a result of instruction?	N.J.C.C.C.S.	Instructional Strategies How will learning be structured?	Assessments What evidence will be collected that demonstrates that students have achieved the objectives?	21st Century Themes & Skills What 21 st Century skills will be covered?
Unit 1 Cellular Organization and Development Interdisciplinary Connections Social Studies Technology	What do all living things have in common?	Students will understand that: Cells are the building blocks of all living things. Cells perform specialized functions within multi-cellular organisms Cells are made up of organelles, each with its own function in cell processes.	Students will be able to: Describe the cellular process of respiration. Construct and label a model of mitosis. Construct a model of a plant or animal cell and label its parts. Describe the function of the parts of a cell.	5.3.6.A.1 5.3.6.A.2 5.3.8.A.1 5.3.8.A.2 5.3.8.B.1 5.1	Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking	Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work	Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility

Name of Course: Life Science (5.3)
Grade Level: 5-8

<p>Unit 2 Energy Flow in Living Systems</p> <p>Interdisciplinary Connections Technology</p>	<p>Is the sun the source of all the energy that humans need?</p>	<p>Tissues, organs, and organ systems are composed of cells and function to serve the needs of cells for food, oxygen, and waste removal.</p> <p>Students will understand that:</p> <p>Food is required for energy and building cellular materials.</p> <p>Organisms in an ecosystem have different ways of obtaining food.</p>	<p>Students will be able to:</p> <p>Describe how producers and consumers obtain their food.</p> <p>Describe the process of photosynthesis.</p> <p>Construct and label a food web and trace the flow of energy throughout.</p>	<p>5.3.6.B.1 5.3.6.B.2 5.3.8.B.2 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
<p>Unit 3 Interdependence</p>	<p>In what ways do organisms</p>	<p>Students will understand that:</p>	<p>Students will be able to:</p>	<p>5.3.6.C.1 5.3.6.C.2</p>	<p>Direct Instruction</p>	<p>Rubrics</p>	<p>Creativity and Innovation</p>

Name of Course: Life Science (5.3)
Grade Level: 5-8

<p>Interdisciplinary Connections Math Technology Social Studies</p>	<p>interact within ecosystems?</p>	<p>The population of any organism in an ecosystem is dependent upon the supply of abiotic and biotic resources within that ecosystem.</p> <p>There can be interdependent relationships between organisms in an ecosystem.</p>	<p>Distinguish among the three different types of symbiotic relationships between organisms.</p> <p>Predict the effects that changes in an ecosystem will have on a given population.</p> <p>Perform an investigation of an environmental issue and explore the scientific causes and possible solutions.</p>	<p>5.3.6.C.3 5.3.8.C.1 5.3.6.E.1 5.4.8.E.1 5.4.6.C.1 5.4.6.G.2 5.4.6.G.3 5.4.8.G.2 5.1</p>	<p>Lab Activities</p> <p>Classroom Discussion</p> <p>Projects</p> <p>Multimedia projects and presentations</p> <p>Web-based research</p> <p>Demonstrations</p> <p>Note taking</p>	<p>Assessments</p> <p>Lab Reports</p> <p>Classroom participation</p> <p>Presentations</p> <p>Homework</p> <p>Group Work</p>	<p>Critical thinking and problem solving</p> <p>Communication and collaboration</p> <p>ICT literacy</p> <p>Productivity and accountability</p> <p>Leadership and responsibility</p>
<p>Unit 4 Heredity and Reproduction</p> <p>Interdisciplinary Connections Social Studies</p>	<p>Why do we all look different?</p>	<p>Students will understand that:</p> <p>Organisms reproduce either asexually or sexually.</p>	<p>Students will be able to:</p> <p>Predict traits of offspring when given parent traits using a Punnett Square.</p>	<p>5.3.6.D.1 5.3.6.D.2 5.3.6.D.3 5.3.8.D.1 5.3.8.D.2 5.3.8.D.3 5.1</p>	<p>Direct Instruction</p> <p>Lab Activities</p> <p>Classroom Discussion</p>	<p>Rubrics</p> <p>Assessments</p> <p>Lab Reports</p> <p>Classroom participation</p>	<p>Creativity and Innovation</p> <p>Critical thinking and problem solving</p> <p>Communication</p>

Name of Course: Life Science (5.3)
Grade Level: 5-8

Math		Sexual reproduction leads to variation within a species. Certain traits are inherited via genes passed on from parents and others traits can be affected by environmental factors. Variation within a species increases its chance of survival. DNA has structure and its contribution to heredity.	Distinguish between asexual and sexual reproduction and identify the advantages of each. Explain the source of variation among siblings. Describe environmental factors that can cause mutations within the genetic makeup of an organism.		Projects Multimedia projects and presentations Web-based research Demonstrations Note taking	Presentations Homework Group Work	and collaboration ICT literacy Productivity and accountability Leadership and responsibility
Unit 5 Evolution and Diversity Interdisciplinary Connections Social Studies Technology	In what ways might the skeleton of a horse found 5000 years ago look the same as a horse skeleton found 5000	Students will understand that: Species with certain adaptations are better suited for survival in a particular	Students will be able to: Identify various adaptations of a species and explain how those adaptations help	5.3.8.E.1 5.1	Direct Instruction Lab Activities Classroom Discussion Projects	Rubrics Assessments Lab Reports Classroom participation	Creativity and Innovation Critical thinking and problem solving Communication and

Name of Course: Life Science (5.3)
Grade Level: 5-8

	years from now?	environment. Environmental changes can lead to the extinction of a species.	that species to survive. Distinguish between physical, behavioral, and chemical adaptations.		Multimedia projects and presentations Web-based research Demonstrations Note taking	Presentations Homework Group Work	collaboration ICT literacy Productivity and accountability Leadership and responsibility
Unit 6 Classification Interdisciplinary Connections Technology	Why aren't I a fungi? What information do scientists use to classify things?	Students will understand that: Living things are organized based on similar physical characteristics and evolutionary history.	Students will be able to: Identify characteristics of an organism based on its classification. Distinguish between invertebrates and vertebrates.	5.3.8.E.2 5.4.8.B.1 5.1	Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking	Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work	Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility

Name of Course: Life Science (5.3)
Grade Level: 5-8

<p>Mid & End - Year Benchmarks What should students be able to do at this point in the year?</p>	<p>Mid & End Year Benchmarks will measure students' knowledge and skills related to the essential questions of the units assessed to date.</p>
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Name of Course: Earth Science (5.4)
Grade Level: 5-8

Core Competencies What will be studied in each unit? Inter-disciplinary Connections What other domains of knowledge does this unit connect to?	Essential Questions These questions guide inquiry into the big ideas of the unit.	Enduring Understanding What specific, lasting and transferable understandings will result from the investigation?	Knowledge & Skills What will students be able to do as a result of instruction?	N.J.C.C.C.S.	Instructional Strategies How will learning be structured?	Assessments What evidence will be collected that demonstrates that students have achieved the objectives?	21st Century Themes & Skills What 21 st Century skills will be covered?
Unit 1 Objects in the Universe Interdisciplinary Connections Math Technology Social studies	What causes the predictable and observable patterns that occur as a result of the interaction between the Earth, Moon, and Sun?	Students will understand that: Our system of time is based on observable patterns in the Earth-Sun system. Seasons result from the Earth's tilt and revolution around the Sun. The Sun's gravity holds planets and other objects in the solar system in orbit, and	Students will be able to: Identify and predict moon phases based on a diagram of the earth – moon – sun system. Explain what causes day/night, years, and seasons. Differentiate between a lunar eclipse and	5.4.6.B.1 5.4.6.B.2 5.4.6.B.3 5.4.6.B.4 5.1	Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations	Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work	Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility

Name of Course: Earth Science (5.4)

Grade Level: 5-8

<p>Unit 2 History of Earth Interdisciplinary Connections Social Studies Technology Math</p>	<p>How do geologic events occurring today provide insight into Earth's past?</p>	<p>planets' gravity holds moons in orbit. The Sun is the central and most massive body in our solar system, which includes eight planets and their moons, dwarf planets, asteroids, and comets. The relative positions and motions of the Sun, Earth, and Moon result in the phases of the moon, eclipses, and the daily and monthly cycle of tides.</p>	<p>solar eclipse. Identify the forces that hold planets and moons in orbit. Understand the relationship between moon phase and tides. Identify what celestial bodies comprise our solar system.</p>	<p>5.4.6.B.1 5.4.6.B.2 5.4.6.B.3 5.4.6.B.4 5.4.8.B.2 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion</p>	<p>Rubrics Assessments Lab Reports Classroom participation</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication</p>
<p>Note taking</p>							

Name of Course: Earth Science (5.4)
Grade Level: 5-8

		<p>factual story of the age, history, changing life forms, and geology of Earth.</p> <p>Earth's current structure has been influenced by both sporadic and gradual events.</p> <p>Earth's surface is shaped by erosion from wind, water, and ice.</p> <p>There is a relationship between soil and erosion.</p> <p>Fossils provide evidence of how life and environmental conditions have changed.</p>	<p>wind, water, and/or ice) based on evidence in pictures, video, and/or maps.</p> <p>Describe the results of erosion and deposition.</p> <p>Describe dating techniques used to determine the age of fossils.</p> <p>Interpret a representation of a rock layer sequence to establish oldest and youngest layers, geologic events, and changing life forms.</p>		<p>Projects</p> <p>Multimedia projects and presentations</p> <p>Web-based research</p> <p>Demonstrations</p> <p>Note taking</p>	<p>Presentations</p> <p>Homework</p> <p>Group Work</p>	<p>and collaboration</p> <p>ICT literacy</p> <p>Productivity and accountability</p> <p>Leadership and responsibility</p>
<p>Unit 3 Earth's materials Interdisciplinary Connections</p>	<p>In what ways do the Earth's systems obey the Law of Conservation</p>	<p>Students will understand that:</p> <p>The Earth is a closed system of</p>	<p>Students will be able to:</p> <p>Describe the rock cycle as a</p>	<p>5.4.6.C.2 5.4.6.C.3 5.4.8.C.1 5.4.8.C.2 5.4.8.C.3</p>	<p>Direct Instruction</p> <p>Lab Activities</p>	<p>Rubrics</p> <p>Assessments</p> <p>Lab Reports</p>	<p>Creativity and Innovation</p> <p>Critical thinking and problem</p>

Name of Course: Earth Science (5.4)
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<p>Technology</p>	<p>of Matter?</p>	<p>material that is continually changing from one form to another Rocks are continually changing from one form to another over a long period of time. Soils are often found in layers, each having a different chemical composition and texture. Earth's atmosphere is a mixture of nitrogen, oxygen, and trace gases that interacts with the lithosphere.</p>	<p>dynamic system. Describe the layers of a soil sample and identify the biotic and abiotic factors that contribute towards its composition. Identify the processes by which the Earth's atmosphere interacts with the lithosphere particularly the water and nitrogen cycles.</p>	<p>5.1</p>	<p>Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Classroom participation Presentations Homework Group Work</p>	<p>solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
<p>Unit 4 Tectonics Interdisciplinary Connections</p>	<p>To what extent does the exchange of energy within the</p>	<p>Students will understand that: Flow of energy and movement of</p>	<p>Students will be able to: Identify the causes of</p>	<p>5.4.6.D.1 5.4.6.D.2 5.4.6.D.3 5.4.8.D.1 5.4.8.D.2</p>	<p>Direct Instruction Lab Activities</p>	<p>Rubrics Assessments Lab Reports</p>	<p>Creativity and Innovation Critical thinking and problem</p>

Name of Course: Earth Science (5.4)
Grade Level: 5-8

<p>Social Studies Technology</p>	<p>Earth drive geologic events on the surface?</p>	<p>material from the Earth's interior causes geologic events on the Earth's surface. The earth consists of plates that are constantly in motion which results in changes to the earth's surface. Earth's magnetic field has north and south poles. The lines of force between them are used for navigation. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.</p>	<p>earthquakes, formation of volcanoes, and the process of sea-floor spreading. Present evidence to support arguments for the theory of plate motion. Describe the tectonic activity that results in the Pacific Ring of Fire. Explain why geomagnetic north and geographic north are at different locations. Model the interactions between the layers of Earth.</p>	<p>5.4.8.D.3 5.1</p>	<p>Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Classroom participation Presentations Homework Group Work</p>	<p>solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
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Name of Course: Earth Science (5.4)
Grade Level: 5-8

<p>Unit 5 Climate and Weather Interdisciplinary Connections Technology Math</p>	<p>How do changes in one part of an Earth system affect other parts of the system?</p>	<p>Students will understand that: Global patterns of atmospheric movement influence local weather as seen in variations of temperature, humidity, and air pressure. The uneven heating of the earth by the Sun results in global wind patterns. Climate is influenced locally and globally by atmospheric interactions with land masses and bodies of water. Weather and climate involve the transfer of energy and water in and out of the atmosphere.</p>	<p>Students will be able to: Differentiate between weather and climate. Determine the origin of local weather by interpreting national weather maps. Explain the relationship between daily temperature, air pressure, and relative humidity data. Identify the factors that lead to localized climates.</p>	<p>5.4.6.E.1 5.4.8.E.1 5.4.6.F.1 5.4.6.F.2 5.4.8.F.1 5.4.8.F.2 5.4.8.F.3 5.4.8.G.1 5.1</p>	<p>Direct Instruction Lab Activities Classroom Discussion Projects Multimedia projects and presentations Web-based research Demonstrations Note taking</p>	<p>Rubrics Assessments Lab Reports Classroom participation Presentations Homework Group Work</p>	<p>Creativity and Innovation Critical thinking and problem solving Communication and collaboration ICT literacy Productivity and accountability Leadership and responsibility</p>
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Name of Course: Earth Science (5.4)
Grade Level: 5-8

					<p>The movement of water in the oceans is a factor in weather and climate.</p> <p>The movement of water in the oceans is a result of water composition and energy from the Sun.</p>			

<p>Mid & End - Year Benchmarks What should students be able to do at this point in the year?</p>	<p>Mid & End Year Benchmarks will measure students' knowledge and skills related to the essential questions of the units assessed to date.</p>
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