



# **Delta Science Modules Program (DSM™) Grades K-8**

Correlation With



# ELEMENTARY SCHOOL, END OF PRIMARY GRADES (K-3)

## ***End of Primary (K-3)***

### **Structure and Transformation of Matter**

A basic understanding of matter is essential to the conceptual development of other big ideas in science. In the elementary years of conceptual development, students will be studying properties of matter and physical changes of matter at the macro level through direct observations, forming the foundation for subsequent learning. During the middle years, physical and chemical changes in matter are observed and students begin to relate these changes to the smaller constituents of matter—namely, atoms and molecules. By high school, students will be dealing with evidence from both direct and indirect observations (microscopic level and smaller) to consider theories related to change and conservation of matter. The use of models (and an understanding of their scales and limitations) is an effective means of learning about the structure of matter. Looking for patterns in properties is also critical to comparing and explaining differences in matter.

<b>Physical Science</b>	<b>Delta Science Readers (DSR)</b>
<p><b>SC-EP-1.1.1</b> Students will classify material objects by their properties providing evidence to support their classifications.</p> <p>Objects are made of one or more materials such as paper, wood and metal. Objects can be described by the properties of the materials from which they are made. Those properties and measurements of the objects can be used to separate or classify objects or materials. DOK 3</p>	<p><b>Properties DSR:</b> <i>DSR: What are Properties?(pgs. 3-4) What is a Gas?(pgs. 12-13) A Geologist (pg. 14);</i></p>
<p><b>SC-EP-1.1.2</b> Students will understand that objects have many observable properties such as size, mass, shape, color, temperature, magnetism and the ability to interact and/or to react with other substances. Some properties can be measured using tools such as metric rulers, balances and thermometers.</p>	<p><b>Properties DSR:</b> <i>What is Matter?(pg. 2); What are Properties? (pgs. 3-4); What is a Solid?(pgs. 5-8); What is a Liquid (pgs. 9-11); What is a Gas?(pgs. 12-13); A Geologist (pg. 14)</i></p>
<p><b>SC-EP-1.1.3</b> Students will describe the properties of water as it occurs as a solid, liquid or gas.</p> <p>Matter (water) can exist in different states--solid, liquid and gas. Properties of those states of matter can be used to describe and classify them. DOK 2</p>	<p><b>Investigating Water DSR:</b> <i>Water can Change (pgs. 4-5); Water can Freeze (pgs. 6-7); Water can Melt (pgs. 8-9); Water can Evaporate (pgs. 10-11);</i></p>

## Motion and Forces

Whether observing airplanes, baseballs, planets or people, the motion of all bodies is governed by the same basic rules. In the elementary years of conceptual development, students need multiple opportunities to experience, observe and describe (in words and pictures) motion, including factors (pushing and pulling) that affect motion. At the middle level, qualitative descriptions of the relationship between forces and motion will provide the foundation for quantitative applications of Newton's Laws. These ideas are more fully developed at the high school level along with the use of models to support evidence of motion in abstract or invisible phenomena such as electromagnetism.

Physical Science	Delta Science Readers (DSR)
<p><b>SC-EP-1.2.1</b> Students will describe and make inferences about the interactions of magnets with other magnets and other matter (e.g., magnets can make some things move without touching them).</p> <p>Magnets have observable properties that allow them to attract and repel each other and attract certain kinds of other materials (e.g., iron). Based on the knowledge of the basic properties of magnets, predictions can be made and conclusions drawn about their interactions with other common objects. DOK 3</p>	<p><b>Properties DSR: What is a Solid?(pgs. 5-8)</b></p>
<p><b>SC-EP-1.2.2</b> Students will describe the change in position over time (motion) of an object.</p> <p>An object's motion can be observed, described, compared and graphed by measuring its change in position over time. DOK 2</p>	<p><b>Sunshine and Shadows DSR: How do Shadows Change? (pg. 8)</b></p>
<p><b>SC-EP-1.2.3</b> Students will describe the position and motion of objects and predict changes in position and motion as related to the strength of pushes and pulls.</p> <p>The position and motion of objects can be changed by pushing or pulling, and can be explored in a variety of ways (such as rolling different objects down different ramps). The amount of change in position and motion is related to the strength of the push or pull (force). The force with which a ball is hit illustrates this principle. By examining cause and effect relationships related to forces and motions, consequences of change can be predicted. DOK 2</p>	<p><b>Force and Motion DSR: What is Force? (pg. 2), What is Motion? (pg. 3);</b></p>
<p><b>SC-EP-1.2.4</b> Students will understand that the position of an object can be described by locating it relative to another object or the background. The position</p>	<p><b>Where is it? Is it Moving? Delta First Reader Where is It? (pgs. 2-8); Is it moving? (pgs. 9-11);</b></p>

can be described using phrases such as to the right, to the left, 50 cm from the other object.	
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## The Earth and the Universe

Earth/Space Science	Delta Science Readers (DSR)
<p><b>SC-EP-2.3.1</b> Students will describe earth materials (solid rocks, soils, water and gases of the atmosphere) using their properties.</p> <p>Earth materials include solid rocks and soils, water and the gases of the atmosphere. Minerals that make up rocks have properties of color, luster and hardness. Soils have properties of color, texture, the capacity to retain water and the ability to support plant growth. Water on Earth and in the atmosphere can be a solid, liquid or gas. DOK 2</p>	<p><b>Soil Science; DSR:</b> <i>What is Soil?</i> (pg. 2) <i>How does Soil Form?</i> (pg. 4), <i>How are Soils Different?</i> (pg. 7);</p>
<p><b>SC-EP-2.3.2</b> Students will describe patterns in weather and weather data in order to make simple predictions based on those patterns discovered.</p> <p>Weather changes from day to day and over seasons. Weather can be described using observations and measurable quantities such as temperature, wind direction, wind speed and precipitation. Simple predictions can be made by analyzing collected data for patterns. DOK 2</p>	<p><b>Weather Instruments DSR:</b> <i>How Do We Measure Air Temperature?</i> (pg. 3), <i>How Do We Measure Air Pressure?</i> (pg.4), <i>How Do We Measure Air Wind?</i> (pg. 5), <i>How Do We Measure Precipitation?</i> (pg.8), <i>Other Weather Instruments</i> (pg.9);</p>
<p><b>SC-EP-2.3.3</b> Students will describe the properties, locations and real or apparent movements of objects in the sky (Sun, moon).</p> <p>Objects in the sky have properties, locations and real or apparent movements that can be observed and described. Observational data, patterns and models should be used to describe real or apparent movements. DOK 2</p>	<p><b>Sunshine and Shadows DSR:</b> <i>About Time and the Sun</i> (pg. 14)</p> <p><b>Finding the Moon DSR:</b> <i>What Do We See In the Sky?</i> (Pgs. 2-3), <i>What are the Moon Phases?</i> (Pgs. 6-10);</p>
<p><b>SC-EP-2.3.4</b> Students will describe the movement of the sun in the sky using evidence of interactions of the sun with the earth (e.g., shadows, position of sun relative to horizon) to identify patterns of movement.</p> <p>Changes in movement of objects in the sky have patterns that can be observed and described. The Sun appears to move across the sky in the same way every day, but the Sun's apparent path changes slowly over seasons. Recognizing relationships between</p>	<p><b>Sunshine and Shadows DSR:</b> <i>About Time and the Sun</i> (pg. 14)</p>

<p>movements of objects and resulting phenomena, such as shadows, provides information that can be used to make predictions and draw conclusions about those movements.</p> <p>DOK 2</p>	
<p><b>SC-EP-2.3.5</b> Students will understand that the moon appears to move across the sky on a daily basis much like the Sun. The observable shape of the moon can be described as it changes from day to day in a cycle that lasts about a month.</p>	<p><i><b>Finding the Moon, DSR: Why Does the Moon Shine? (Pgs. 4-5), What are the Moon Phases? (Pgs. 6-10)</b></i></p>

## Unity and Diversity

Biological Science	Delta Science Readers DSM
<p><b>SC-EP-3.4.1</b> Students will explain the basic needs of organisms.</p> <p>Organisms have basic needs. For example, animals need air, water and food; plants need air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met.</p> <p>DOK 2</p>	<p><i><b>From Seed to Plant, DSR: What Do Plants Need to Grow? (Pg. 12)</b></i></p>
<p><b>SC-EP-3.4.2</b> Students will understand that things in the environment are classified as living, nonliving and once living. Living things differ from nonliving things. Organisms are classified into groups by using various characteristics (e.g., body coverings, body structures).</p>	<p><i><b>Observing an Aquarium, DSR: What is an Aquarium? (pgs. 2-3)</b></i></p>
<p><b>SC-EP-3.4.3</b> Students will describe the basic structures and related functions of plants and animals that contribute to growth, reproduction and survival.</p> <p>Each plant or animal has observable structures that serve different functions in growth, survival and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking. These observable structures should be explored to sort, classify, compare and describe organisms.</p> <p>DOK 2</p>	<p><i><b>From Seed to Plant DSR: What is a Seed? (Pages 2-3); How Do Seeds Grow? (Pages 4-5); What are the Parts of a Plant? (Pgs. 6-9);</b></i></p>
<p><b>SC-EP-3.4.4</b> Students will describe a variety of plant and animal life cycles to understand patterns of the growth, development, reproduction and death of an organism.</p> <p>Plants and animals have life cycles that include the beginning of life, growth and development, reproduction and death. The details of a life</p>	<p><i><b>From Seed to Plant DSR: What is a Seed? (Pages 2-3), How Do Seeds Grow? (Pages 4-5);</b></i></p>

<p>cycle are different for different organisms. Observations of different life cycles should be made in order to identify patterns and recognize similarities and differences. DOK 2</p>	
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## Biological Change

Biological Science	Delta Science Readers (DSM)
<p><b>SC-EP-3.5.1</b> Students will describe fossils as evidence of organisms that lived long ago, some of which may be similar to others that are alive today.</p> <p>Fossils found in Earth materials provide evidence about organisms that lived long ago and the nature of the environment at that time. Representations of fossils provide the basis for describing and drawing conclusions about the organisms and basic environments represented by them. DOK 3</p>	<p><b>Dinosaurs and Fossils DSR:</b> <i>What is a Dinosaur? (Pgs. 2-3); What is a Fossil?(pgs. 4-5); What were Dinosaurs Like?(Pgs. 6-7); Why Did Dinosaurs become Extinct?(pg. 12)</i></p>

## Energy Transformations

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-EP-4.6.1</b> Students will describe basic relationships of plants and animals in an ecosystem (food chains).</p> <p>Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants. Basic relationships and connections between organisms in food chains can be used to discover patterns within ecosystems. DOK 2</p>	<p><b>Plant and Animal Populations DSR:</b> <i>What Do Plants Need? (pgs. 4-5); What Do Animals Need? (pgs. 6-7); What is an Ecosystem? (pgs. 8-9); What are Predators and Prey? (pgs. 10-11); What is a Food Chain? (pgs. 12-13)</i></p> <p><b>Food Chains and Webs DSR:</b> <i>What is a Pond Ecosystem? (pgs. 2-3); Living Things Interact (pgs. 4-5); Food Chains (pg. 7); Food Webs (pg. 8); Energy Pyramids (pg. 9); How Do Ecosystems Change? (pg. 10); About Wolves and Moose on Isle Royale (pg. 14); About Mountain Ecosystems (pg. 15);</i></p>
<p><b>SC-EP-4.6.2</b> Students will describe evidence of the sun providing light and heat to the Earth.</p> <p>Simple observations and investigations begin to reveal that the Sun provides the light and heat necessary to maintain the temperature of Earth. Based on those experiences, the conclusion can be drawn that the Sun's light and heat are necessary to sustain life on Earth. DOK 2</p>	<p><b>Weather Instruments DSR:</b> <i>How Do We Measure Air Temperature? (pg. 3);</i></p>
<p><b>SC-EP-4.6.3</b> Students will analyze models of basic electrical</p>	<p><b>Electrical Circuits, DSR:</b> <i>What is a</i></p>

<p>circuits using batteries, bulbs and wires, in order to determine whether a simple circuit is open or closed.</p> <p>Electricity in circuits can produce light. Describing and comparing models demonstrates basic understanding of circuits. DOK 2</p>	<p><i>Circuit?(pg.7); What are Circuit Diagrams (pg. 10);</i></p>
<p><b>SC-EP-4.6.4</b> Students will describe light as traveling in a straight line until it strikes an object.</p> <p>Light can be observed and described as it travels in a straight line until it strikes an object. DOK 2</p>	<p><b><i>Sunshine and Shadows, DSR: What is sunshine (pg. 2)</i></b> <b><i>Color and Light, DSR: What is Light? (pgs. 2-3)</i></b></p>

## Interdependence

<b>Unifying Concepts</b>	<b>Delta Science Readers(DSR)</b>
<p><b>SC-EP-4.7.1</b> Students will describe the cause and effect relationships existing between organisms and their environments.</p> <p>The world has many different environments. Organisms require an environment in which their needs can be met. When the environment changes some plants and animals survive and reproduce and others die or move to new locations. DOK 2</p>	<p><b><i>Plant and Animal Populations,</i></b> <b><i>DSR: What is an Ecosystem? (pgs. 8-9);</i></b> <b><i>What are Predators and Prey? (pgs. 10-11);</i></b> <b><i>What is a Food Chain? (pgs. 12-13); About Endangered Species (pg. 15)</i></b> <b><i>Food Chains and Web DSR: Living Things Interact (pgs. 4-5); Energy in an Ecosystem (pg. 6); Food Chains (pg. 7); Food Webs (pg. 8); How Do Ecosystems Change? (pg. 10); About Wolves and Moose on Isle Royale (pg. 14); About Mountain Ecosystems (pg. 15);</i></b></p>

# ELEMENTARY SCHOOL GRADES 4-5

## Grade 4

### Structure and Transformation of Matter

Physical Science	Delta Science Modules (DSM)
<p><b>SC-04-1.1.1</b> Students will explain how matter, including water, can be changed from one state to another.</p> <p>Materials can exist in different states--solid, liquid and gas. Some common materials, such as water, can be changed from one state to another by heating or cooling. Resulting cause and effect relationships should be explored, described and predicted.</p>	<p><b>States of Matter, DSR:</b> <i>What is Matter? (pgs. 2-3); What are solids, Liquids, and Gases? (pgs. 4-6); What are Physical Changes? (pgs. 5-11);</i></p> <p><b>Investigating Water, DSR:</b> <i>Water can Change (pgs. 4-5); Water can Freeze (pgs. 6-7); Water can Melt (pgs. 8-9) Water can Evaporate (pgs. 10-11)</i></p> <p><b>Weather Watching, DSR:</b> <i>What is the Water Cycle (pgs. 4-5);</i></p> <p><b>Weather Instruments, DSR:</b> <i>How is Weather Data Gathered? (pgs 3-5);</i></p> <p><b>Matter, Delta First Reader</b> <i>What are three kinds of matter? (pgs. 9-11); How can matter change? (pgs. 12-15)</i></p> <p><b>Water Cycle, DSR:</b> <i>How Water Changes Form (pg. 8); What is the Water Cycle? (pgs. 9-12)</i></p>

### Motion and Forces

Whether observing airplanes, baseballs, planets or people, the motion of all bodies is governed by the same basic rules. In the elementary years of conceptual development, students need multiple opportunities to experience, observe and describe (in words and pictures) motion, including factors (pushing and pulling) that affect motion. At the middle level, qualitative descriptions of the relationship between forces and motion will provide the foundation for quantitative applications of Newton's Laws. These ideas are more fully developed at the high school level along with the use of models to support evidence of motion in abstract or invisible phenomena such as electromagnetism.

Physical Science	Delta Science Modules (DSM)
<p><b>SC-04-1.2.1</b> Students will interpret or represent data related to an object's straight-line motion in order to make inferences and predictions of changes in position and/or time.</p> <p>An object's motion can be described by measuring its change in position over time such as rolling different objects (e.g., spheres, toy cars) down a ramp. Collecting and representing data related to an object's motion</p>	<p><b>Force and Motion, DSR:</b> <i>What is Force? (pg. 2); What is Motion?</i></p> <p><b>Simple Machines, DSR:</b> <i>What Makes Things Move? (pg. 2);</i></p>

<p>provides the opportunity to make comparisons and draw conclusions. DOK 3</p>	
<p><b>SC-04-1.2.2</b> Students will infer causes and effects of pushes and pulls (forces) on objects based on representations or interpretations of straight-line movement/motion in charts, graphs and qualitative comparisons.</p> <p>The position and motion of objects can be changed by pushing or pulling. The amount of change is related to the force (defined as the strength of the push or pull) and the mass of the object(s) used. The force with which a ball is hit illustrates this principle. Cause and effect relationships, along with predicted consequences related to the strength of pushes and pulls (force) on an object's position and motion should be explored and qualitatively compared. DOK 3</p>	<p><b>Force and Motion, DSR:</b> <i>What is Force? (pg. 2); What is Motion? (pg. 3); Energy and Work (pg. 4); What are Simple Machines? (pg. 5)</i></p> <p><b>Simple Machines, DSR:</b> <i>What Makes Things Move? (pg. 2); How Are Work and Energy Related? (pg. 3)</i></p>
<p><b>SC-04-1.2.3</b> Students will:</p> <ul style="list-style-type: none"> <li>• explain that sound is a result of vibrations, a type of motion;</li> <li>• describe pitch ( high, low) as a difference in sounds that are produced and relate that to the rate of vibration.</li> </ul> <p>Vibration is a type of motion that can be observed, described, measured and compared. Sound is produced by vibrating objects. The pitch of the sound can be varied by changing the rate of vibration. The relationship between rates of vibration and produced sounds can be described and graphed. DOK 3</p>	<p><b>Using Your Senses, Hearing (pgs. 6-7);</b></p> <p><b>Sound, DSR:</b> <i>What Causes Sound? Pgs.2-3; How are Sounds Different? Pgs.6-7; How is Sound Absorbed and Reflected? Pg.8;</i></p>

## The Earth and the Universe

Earth/Space Science	Delta Science Readers (DSM)
<p><b>SC-04-2.3.1</b> Students will:</p> <ul style="list-style-type: none"> <li>• classify earth materials by the ways that they are used;</li> <li>• explain how their properties make them useful for different purposes.</li> </ul> <p>Earth materials provide many of the resources humans use. The varied materials have different physical properties that can be used to describe, separate, sort and classify them. Inferences about the unique properties of the earth materials yield ideas about their usefulness. For example, some are useful as</p>	<p><b>Soil Science DSR:</b> <i>Soil is a Resource (pg. 10)</i></p> <p><b>Oceans, DSR:</b> <i>Ocean Resources (pg. 12);</i></p>

<p>building materials (e.g., stone, clay, marble), some as sources of fuel (e.g., petroleum, natural gas), or some for growing the plants we use as food. DOK 2</p>	
<p><b>SC-04-2.3.2</b> Students will describe and explain consequences of changes to the surface of the Earth, including some common fast changes (e.g., landslides, volcanic eruptions, earthquakes), and some common slow changes (e.g., erosion, weathering).</p> <p>The surface of the Earth changes. Some changes are due to slow processes such as erosion or weathering. Some changes are due to rapid processes such as landslides, volcanic eruptions and earthquakes. Analyzing the changes to identify cause and effect relationships helps to define and understand the consequences. DOK 3</p>	<p><b>Soil Science DSR:</b> <i>What is Erosion?</i> (pg. 9) <b>Earth Movements, DSR:</b> <i>What Forces shape the Earth's Surface?</i> (pg.6); <i>Plates in Motion</i> (pg. 6-8); <i>Earthquakes</i> (pg. 9-10); <i>Volcanoes</i> <i>Ring of Fire</i> (pgs. 10-11); <i>Weathering and Erosion</i> (pgs. 12-13)</p> <p><b>Erosion, DSR:</b> <i>What is Weathering?</i> (pgs. 5-7): <i>Physical Weathering; Chemical Weathering; Soil Formation; What Causes Erosion and Deposition</i> (pgs. 8-13) <i>Running water; Waves; Gravity and mass movement; Groundwater; Wind</i> <i>Glaciers</i></p>
<p><b>SC-04-2.3.3</b> Students will make generalizations and/or predictions about weather changes from day to day and over seasons based on weather data.</p> <p>Weather changes from day to day and over seasons. Weather can be described by observations and measurable quantities such as temperature, wind direction, wind speed and precipitation. Data can be displayed and used to make predictions. DOK 3</p>	<p><b>Weather Instruments DSR:</b> <i>How Do We Measure Air Temperature?</i> (pg. 3), <i>How Do We Measure Air Pressure?</i> (pg.4), <i>How Do We Measure Air Wind?</i> (pg. 5), <i>How Do We Measure Precipitation?</i> (pg.8), <i>Other Weather Instruments</i> (pg.9);</p>
<p><b>SC-04-2.3.4</b> Students will identify patterns, recognize relationships and draw conclusions about the Earth-Sun system by interpreting a variety of representations/models (e.g., diagrams, sundials, distance of sun above horizon) of the sun's apparent movement in the sky.</p> <p>Changes in movement of objects in the sky have patterns that can be observed, described and modeled. The Sun appears to move across the sky in the same way every day, but the Sun's apparent path changes slowly over seasons. Data collected can be used to identify patterns, recognize relationships and draw conclusions about the Earth and Sun system. DOK 3</p>	<p><b>Solar System DSR:</b> <i>Our Solar System</i> (pg. 2), <i>What is the Sun Like</i> (pg. 3)</p>
<p><b>SC-04-2.3.5</b> Students will understand that the moon appears to move across the sky on a daily basis much like the Sun. The observable shape</p>	<p><b>Finding the Moon, DSR:</b> <i>Why Does the Moon Shine?</i> (Pgs. 4-5), <i>What are the Moon Phases?</i> (Pgs. 6-10)</p>

of the moon can be described as it changes from day to day in a cycle that lasts about a month.	
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## Unity and Diversity

Biological Science	Delta Science Modules (DSM)
<p><b>SC-04-3.4.1</b> Students will:</p> <ul style="list-style-type: none"> <li>compare the different structures and functions of plants and animals that contribute to the growth, survival and reproduction of the organisms;</li> <li>make inferences about the relationship between structure and function in organisms.</li> </ul> <p>Each plant or animal has structures that serve different functions in growth, survival and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking. Evidence about the relationship between structure and function should be used to make inferences and draw conclusions. DOK 3</p>	<p><b>Food Chains and Webs DSR:</b> <i>Living Things Interact</i> (pgs. 4-5); <i>Energy in an Ecosystem</i> (pg. 6);,</p>
<p><b>SC-04-3.4.2</b> Students will understand that things in the environment are classified as living, nonliving and once living. Living things differ from nonliving things. Organisms are classified into groups by using various characteristics (e.g., body coverings, body structures).</p>	<p><b>Food Chains and Webs, DSR:</b> <i>What is a Pond Ecosystem?</i> (pgs. 2-3), <i>Living Things Interact</i> (pgs. 4-5), <i>Ecologists</i> (pg. 13)</p>
<p><b>SC-04-3.4.3</b> Students will compare a variety of life cycles of plants and animals in order to classify and make inferences about an organism.</p> <p>Plants and animals have life cycles that include the beginning of life, growth and development, reproduction and death. The details of a life cycle are different for different organisms. Models of organisms' life cycles should be used to classify and make inferences about an organism. DOK 3</p>	<p><b>Butterflies and Moths, DSR:</b> <i>Life Cycle of Butterflies and Moths</i> ( Pgs. 8- 11); <i>Other Insect Life Cycles</i> (Pg. 13);</p> <p><b>Plant and Animal Life Cycles, DSR:</b> <i>What is a Life Cycle?</i>(pg. 2); <i>Plant Life Cycles</i> <i>Plants from seeds</i>(pg. 3); <i>Inside a Flower</i> (pgs. 4-5); <i>Plants from Spores</i> (pg. 6); <i>Animal Life Cycles</i> <i>Birds</i>(pg.7); <i>Mammals</i> (pg. 8); <i>Insects</i> (pg.9); <i>Amphibians</i> (pg. 10); <i>Fish</i> (pg. 11); <i>Reptiles</i>(pg. 12); <i>Fungus Life Cycles</i></p>
<p><b>SC-04-3.4.4</b> Students will identify some characteristics of organisms that are inherited from the parents and others that are learned from interactions with the environment.</p> <p>Observations of plants and animals yield the conclusion that organisms closely resemble their parents at some time in their life cycle. Some characteristics (e.g., the color of flowers,</p>	<p><b>Plant and Animal Life Cycles, DSR,</b> <i>Birds</i> (pg.7); <i>Mammals</i> (pg. 8); <i>Insects</i> (pg.9); <i>Amphibians</i> (pg. 10); <i>Fish</i> (pg. 11);</p>

<p>the number of appendages) are passed to offspring. Other characteristics are learned from interactions with the environment, such as the ability to ride a bicycle, and these cannot be passed on to the next generation. Explorations related to inherited versus learned characteristics should offer opportunities to collect data and draw conclusions about various groups of organisms.</p> <p>DOK 2</p>	
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## Biological Change

Biological Science	Delta Science Modules (DSM)
<p><b>SC-04-3.5.1</b> Students will use representations of fossils to:</p> <ul style="list-style-type: none"> <li>draw conclusions about the nature of the organisms and the basic environments that existed at the time;</li> <li>make inferences about the relationships to organisms that are alive today.</li> </ul> <p>Fossils found in Earth materials provide evidence about organisms that lived long ago and the nature of the environment at that time. Representations of fossils provide the basis for describing and drawing conclusions about the organisms and basic environments represented by them.</p> <p>DOK 3</p>	<p><b><i>Dinosaurs and Fossils DSR: What is a Fossil?(pgs. 4-5);</i></b></p>

## Energy Transformations

Energy transformations are inherent in almost every system in the universe—from tangible examples at the elementary level, such as heat production in simple earth and physical systems to more abstract ideas beginning at middle school, such as those transformations involved in the growth, dying and decay of living systems. The use of models to illustrate the often invisible and abstract notions of energy transfer will aid in conceptualization, especially as students move from the macroscopic level of observation and evidence (primarily elementary school) to the microscopic interactions at the atomic level (middle and high school levels). Students in high school expand their understanding of constancy through the study of a variety of phenomena. Conceptual understanding and application of the laws of thermodynamics connect ideas about matter with energy transformations within all living, physical and earth systems.

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-04-4.6.1</b> Students will analyze patterns and make generalizations about the basic relationships of plants and animals in an ecosystem (food chain).</p> <p>Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants. Basic relationships and connections</p>	<p><b><i>Plant and Animal Populations DSR: What Do Plants Need? (pgs. 4-5); What Do Animals Need? (pgs. 6-7); What is an Ecosystem? (pgs. 8-9); What are Predators and Prey? (pgs. 10-11); What is a Food Chain? (pgs. 12-13)</i></b></p> <p><b><i>Food Chains and Webs DSR: What is a Pond Ecosystem? (pgs. 2-3); Living Things Interact (pgs. 4-5); Food Chains (pg. 7); Food Webs (pg. 8); Energy Pyramids (pg. 9); How</i></b></p>

<p>between organisms in food chains, including the flow of energy, can be used to discover patterns within ecosystems. DOK 2</p>	<p><i>Do Ecosystems Change? (pg. 10); About Wolves and Moose on Isle Royale (pg. 14); About Mountain Ecosystems (pg. 15);</i></p>
<p><b>SC-04-4.6.2</b> Students will:</p> <ul style="list-style-type: none"> <li>analyze data/evidence of the Sun providing light and heat to earth;</li> <li>use data/evidence to substantiate the conclusion that the Sun's light and heat are necessary to sustaining life on Earth.</li> </ul> <p>Simple observations, experiments and data collection begin to reveal that the Sun provides the light and heat necessary to maintain the temperature of Earth. Evidence collected and analyzed should be used to substantiate the conclusion that the sun's light and heat are necessary to sustain life on Earth. DOK 3</p>	<p><b>Solar System DSR:</b> <i>Our Solar System (pg. 2); What is the Sun Like (pg. 3);</i></p> <p><b>Food Chains and Webs DSR:</b> <i>Energy in an Ecosystem (pg. 6);</i></p>
<p><b>SC-04-4.6.3</b> Students will evaluate a variety of models/representations of electrical circuits (open, closed, series, and/or parallel) to:</p> <ul style="list-style-type: none"> <li>make predictions related to changes in the system;</li> <li>compare the properties of conducting and non-conducting materials.</li> </ul> <p>Electricity in circuits can produce light, heat and sound. Electrical circuits require a complete conducting path through which an electrical current can pass. Analysis of a variety of circuit models creates an opportunity to make predictions about circuits, as well as to demonstrate an understanding of the concepts of open and closed circuits and basic conducting and non-conducting materials. DOK 3</p>	<p><b>Electrical Circuits, DSR:</b> <i>What Are Series Circuits? (pg. 8); What are Parallel Circuits? (pg. 9)</i></p>
<p><b>SC-04-4.6.4</b> Students will:</p> <ul style="list-style-type: none"> <li>analyze models/representations of light in order to generalize about the behavior of light;</li> <li>represent the path of light as it interacts with a variety of surfaces (reflecting, refracting, absorbing).</li> </ul> <p>Light can be observed as traveling in a straight line until it strikes an object. Light can be reflected by a shiny object (e.g., mirror, spoon), refracted by a lens (e.g., magnifying glass, eyeglasses), or absorbed by an object (e.g., dark surface). DOK 3</p>	<p><b>Color and Light DSR:</b> <i>What is Light? (pgs. 2-3); Reflection of light (pg. 4); Absorption of Light (pg. 4); Refraction of Light (pgs. 5-6)</i></p>

<p><b>SC-04-4.6.5</b> Students will:</p> <ul style="list-style-type: none"> <li>• identify ways that heat can be produced (e.g. burning, rubbing) and properties of materials that conduct heat better than others;</li> <li>• describe the movement of heat between objects.</li> </ul> <p>Heat can be produced in many ways such as burning or rubbing. Heat moves from a warmer object to a cooler one by contact (conduction) or at a distance. Some materials absorb and conduct heat better than others. Simple investigations can illustrate that metal objects conduct heat better than wooden objects. DOK 2</p>	<p><b>Electrical Circuits DSR:</b> <i>What is Electric Current?(pg. 6);</i></p>
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## Interdependence

<b>Unifying Concepts</b>	<b>Delta Science Readers (DSR)</b>
<p><b>SC-04-4.7.1</b> Students will make predictions and/or inferences based on patterns of evidence related to the survival and reproductive success of organisms in particular environments.</p> <p>The world has many different environments. Distinct environments support the lives of different types of organisms. When the environment changes some plants and animals survive and reproduce and others die or move to new locations. Examples of environmental changes resulting in either increase or decrease in numbers of a particular organism should be explored in order to discover patterns and resulting cause and effect relationships between organisms and their environments (e.g., structures and behaviors that make an organism suited to a particular environment). Connections and conclusions should be made based on the data. DOK 3</p>	<p><b>Plant and Animal Populations,</b> <b>DSR:</b> <i>What is an Ecosystem? (pgs. 8-9); What are Predators and Prey? (pgs. 10-11); What is a Food Chain? (pgs. 12-13); About Endangered Species (pg. 15)</i></p> <p><b>Food Chains and Webs, DSR:</b> <i>Living Things Interact (pgs. 4-5); Energy in an Ecosystem (pg. 6); Food Chains (pg. 7); Food Webs (pg. 8); How Do Ecosystems Change? (pg. 10); About Wolves and Moose on Isle Royale (pg. 14); About Mountain Ecosystems (pg. 15);</i></p>
<p><b>SC-04-4.7.2</b> Students will:</p> <ul style="list-style-type: none"> <li>• describe human interactions in the environment where they live;</li> <li>• classify the interactions as beneficial or harmful to the environment using data/evidence to support conclusions.</li> </ul> <p>All organisms, including humans, cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; other changes</p>	<p><b>Sound, DSR:</b> <i>What is Noise Pollution? Pg.9;</i></p> <p><b>Pollution, DSR:</b> <i>What is Pollution? (pg. 2) Land pollution (pg. 3-5); Air Pollution (pgs. 6-8);Water Pollution (pg. 9-12); Noise and Light Pollution (pg. 13); About Alternative Energy</i></p>

are beneficial (e.g., dams benefit some aquatic organisms but are detrimental to others). By evaluating the consequences of change using cause and effect relationships, solutions to real life situations/dilemmas can be proposed. DOK 3	<i>Sources (pg. 15);</i> <b>Soil Science, DSR:</b> <i>Soil is a Resource (pg. 10);</i> <b>Erosion: DSR:</b> <i>Soil Conservationists (pg. 14);</i> <b>Food Chains and Webs, DSR:</b> <i>How Do Ecosystems Change? (pg. 10)</i>
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## Grade 5

### Structure and Transformation of Matter

Physical Science	Delta Science Readers (DSR)
<p><b>SC-05-1.1.1</b> Students will describe the physical properties of substances (e.g., boiling point, solubility, density).</p> <p>A substance has characteristic physical properties (e.g., boiling point, solubility, density) that are independent of the amount of the sample. DOK 2</p>	<p><b>Oceans DSR:</b> <i>Ocean Water (pg. 3);</i> <b>Rocks and Minerals, DSR:</b> <i>Mineral Properties (Pg. 4-6);</i> <b>Water Cycle, DSR:</b> <i>Why is Earth Called the Water Planet? (pg. 2); Salt Water (pg. 3);</i></p>

### Motion and Forces

Whether observing airplanes, baseballs, planets or people, the motion of all bodies is governed by the same basic rules. In the elementary years of conceptual development, students need multiple opportunities to experience, observe and describe (in words and pictures) motion, including factors (pushing and pulling) that affect motion. At the middle level, qualitative descriptions of the relationship between forces and motion will provide the foundation for quantitative applications of Newton's Laws. These ideas are more fully developed at the high school level along with the use of models to support evidence of motion in abstract or invisible phenomena such as electromagnetism.

Physical Science	Delta Science Modules (DSM)
<p><b>SC-05-1.2.1</b> Students will interpret data in order to make qualitative (e.g., fast, slow, forward, backward) and quantitative descriptions and predictions about the straight-line motion of an object.</p> <p>The motion of an object can be described by its relative position, direction of motion and speed. That motion can be measured and represented on a graph. DOK 3</p>	<p><b>Newton's Toy Box DSR:</b> <i>Motion and Speed Changing Position; Speed and Velocity (pgs. 2-3); Forces and Motion (pgs. 4-9)</i></p> <p><b>Flight and Rocketry, DSR:</b> <i>What is Flight? (Pgs. 2-3); Forces in Flight (Pg. 7);</i></p>
<p><b>SC-05-1.2.2</b> Students will understand that forces are pushes and pulls, and that these pushes and pulls may be invisible (e.g., gravity, magnetism) or visible (e.g., friction, collisions).</p>	<p><b>Simple Machines DSR:</b> <i>What Makes Things Move? (pg. 2); How Are Work and Energy Related? (pg. 3); Pulley (pg. 8)</i></p> <p><b>Newton's Toy Box DSR:</b> <i>Forces and Motion (pgs. 4-9); Newton's Laws of Motion (pgs. 10-13)</i></p>

## The Earth and the Universe

Earth/Space Science	Delta Science Modules (DSM)
<p><b>SC-05-2.3.1</b> Students will:</p> <ul style="list-style-type: none"> <li>describe the circulation of water (evaporation and condensation) from the surface of the Earth, through the crust, oceans and atmosphere (water cycle);</li> <li>explain how matter is conserved in this cycle.</li> </ul> <p>Water, which covers the majority of the Earth's surface, circulates through the crust, oceans and atmosphere in what is known as the water cycle. This cycle maintains the world's supply of fresh water. Students should have experiences that contribute to the understanding of evaporation, condensation and the conservation of matter. DOK 2</p>	<p><b>Oceans DSR:</b> <i>Why Is Earth the Water Planet?</i> (pg. 2); <i>How Do Oceans Affect Weather and Climate?</i>(pg. 10)</p> <p><b>Water Cycle, DSR:</b> <i>Why is Earth Called the Water Planet?</i> (pg. 2);<i>Salt Water</i> (pg. 3); <i>Fresh Water on Earth's Surface</i> (pg. 4);<i>Fresh Water in the Ground</i> (pg. 5);<i>Fresh Water in Plants</i> (pg. 6);<i>Fresh Water in the Atmosphere</i> (pg. 7); <i>How Water Changes Form</i> (pg. 8); <i>What is the Water Cycle?</i> (pgs. 9-12)</p> <p><b>Weather Instruments, DSR:</b> <i>What Causes Clouds and Precipitation?</i> (pg. 6); <i>How Do We Measure Air Humidity?</i>(pg.7); <i>How Do We Measure Precipitation?</i> (pg.8)</p> <p><b>Weather Forecasting, DSR:</b> <i>How is Weather Data Gathered?</i> (pgs 3-5)</p>
<p><b>SC-05-2.3.2</b> Students will explain interactions of water with Earth materials and results of those interactions (e.g., dissolving minerals, moving minerals and gases).</p> <p>Water dissolves minerals and gases and may carry them to the oceans. DOK 3</p>	<p><b>Earth Processes, DSR</b> <i>Weathering, Erosion, and Deposition: Water; Living Things; Ice and Glaciers; Wind; Gravity;</i>(pgs. 11-15); <i>How Do Rocks and Soil Form?: Rock Formation; The Rock Cycle; Soil Formation; Conserving Soil;</i>(pgs. 16-20);</p> <p><b>Earth Movements, DSR:</b> <i>Weathering and Erosion</i> (pgs. 12-13); <i>About the Rock Cycle</i> (pg. 15);</p> <p><b>Erosion, DSR:</b> <i>What is Weathering?</i> (pgs. 5-7): <i>Physical Weathering; Chemical Weathering; Soil Formation</i></p> <p><b>Oceans, DSR:</b> <i>Ocean Water</i> (pg. 3);</p>
<p><b>SC-05-2.3.3</b> Students will:</p> <ul style="list-style-type: none"> <li>describe Earth's atmosphere as a relatively thin blanket of air consisting of a mixture of nitrogen, oxygen and trace gases, including water vapor;</li> <li>analyze atmospheric data in order to draw conclusions about real life phenomena related to atmospheric changes and conditions.</li> </ul> <p>Earth is surrounded by a relatively thin blanket of air called the atmosphere. The atmosphere is a mixture of nitrogen, oxygen and trace gases that include water vapor. The atmosphere has different properties at different elevations. Conclusions based on the interpretation of atmospheric data can be used to explain real life phenomena (e.g.,</p>	<p><b>Weather Forecasting, DSR:</b> <i>Why Do We Predict the Weather?</i> (pg. 2); <b>DSR:</b> <i>How is Weather Data Gathered?</i> (pgs 3-5); <i>What do Weather Maps Show?</i> (pg. 6); <i>How are Weather Forecasts Made?</i> (pg. 7);</p> <p><b>Weather Instruments, DSR:</b> <i>What Causes earth's Weather?</i> (pg.2); <i>How Do We Measure Air Pressure?</i> (pg.4)</p>

<p>pressurized cabins in airplanes, mountain-climber's need for oxygen). DOK 3</p>	
<p><b>SC-05-2.3.4</b> Students will:</p> <ul style="list-style-type: none"> <li>analyze global patterns of atmospheric movement;</li> <li>explain the basic relationships of patterns of atmospheric movement to local weather.</li> </ul> <p>Global patterns of atmospheric movement can be observed and/or analyzed by interpreting patterns within data. Atmospheric movements influence local weather. Oceans have a major effect on climate, because water in the oceans holds a large amount of heat. Related data can be used to predict change in weather and climate. DOK 3</p>	<p><b>Oceans DSR:</b> <i>Currents (pg. 8); How Do Oceans Affect Weather and Climate?(pg. 10)</i> <b>Weather Forecasting, DSR:</b> <i>Why Do We Predict the Weather? (pg. 2); DSR: How is Weather Data Gathered? (pgs 3-5); What do Weather Maps Show? (pg. 6); How are Weather Forecasts Made? (pg. 7);</i></p>
<p><b>SC-05-2.3.5</b> Students will compare components of our solar system, including using models/representations that illustrate the system.</p> <p>Earth is the third planet from the Sun in a system that includes the moon, the Sun, eight other planets and their moons, and smaller objects. The Sun, an average star, is the central and largest body in the solar system. Models/diagrams provide understanding of scale within the solar system. DOK 2</p>	<p><b>Solar System DSR:</b> <i>Our Solar System (pg. 2) What is the Sun Like (pg. 3) The Inner Planets (pgs. 4-8) Mercury, Venus, Earth, Mars The Outer Planets: Jupiter, Saturn, Uranus, Neptune, Pluto (pgs. 9-12) Other Objects in the Solar System(pg. 13)</i> <b>Earth, Moon &amp; Sun DSR:</b> <i>Where is Earth in Space? (pgs. 2-5): What is the Sun Like? (pgs. 6-7) About the Planets (pgs. 21-23)</i></p>

## Unity and Diversity

Biological Science	Delta Science Readers (DSR)
<p><b>SC-05-3.4.1</b> Students will describe and compare living systems to understand the complementary nature of structure and function.</p> <p>Observations and comparisons of living systems at all levels of organization illustrate the complementary nature of structure and function. Important levels of organization for structure and function include cells, tissues, organs, organ systems, organisms (e.g., bacteria, protists, fungi, plants, animals), and ecosystems. Examining the relationship between structure and function provides a basis for comparisons and classification schemes. DOK 2</p>	<p><b>You and Your Body DSR</b> <i>Skeletal system (pg. 4) Muscular System (pg. 5) Circulatory System (pgs. 6-7) Respiratory System (pg. 8) Digestive System (pg. 9) Nervous System (pg. 10) Other Body Systems (pg. 11)</i></p>
<p><b>SC-05-3.4.2</b> Students will explain the essential functions of</p>	<p><b>You and Your Body DSR: Body Building</b></p>

<p>cells necessary to sustain life.</p> <p>Cells carry on the many functions needed to sustain life. Models of cells, both physical and analogical, promote understanding of their structures and functions. Cells grow and divide, thereby producing more cells. This requires that they take in nutrients, which provide energy for the work that cells do and make the materials that a cell needs.</p> <p>DOK 2</p>	<p><i>Blocks (pgs. 2-3)</i></p> <p><b>DNA – From Genes to Proteins DSR</b> <i>What are Cells? (pgs 2-3); What is Inside a Cell (pgs. 4-7); How Do Cells Carry Out Life Processes? (pgs. 8-11); How Do Cells Grow and Reproduce? (pgs. 12-14);</i></p>
<p><b>SC-05-3.4.3</b></p> <p>Students will understand that all organisms are composed of cells, the fundamental unit of life. Most organisms are single cells; other organisms, including plants and animals are multicellular.</p>	<p><b>Plants in Our World DSR</b> <i>What is a Plant? (pg. 2)</i></p> <p><b>You and Your Body, DSR:</b> <i>Body Building Blocks (pgs. 2-3); Circulatory System (pgs. 6-7); DSR: Muscular System (pg. 5)</i></p>

## Biological Change

Biological Science	Delta Science Readers (DSR)
<p><b>SC-05-3.5.1</b></p> <p>Students will describe cause and effect relationships between enhanced survival/reproductive success and particular biological adaptations (e.g., changes in structures, behaviors, and/or physiology) to generalize about the diversity of populations of organisms.</p> <p>Biological change over time accounts for the diversity of populations developed through gradual processes over many generations. Examining cause and effect relationships between enhanced survival/reproductive success and biological adaptations (e.g., changes in structures, behaviors, and/or physiology), based on evidence gathered, creates the basis for explaining diversity.</p> <p>DOK 2</p>	<p><b>Oceans DSR:</b> <i>Ocean Habitats (pgs. 12-13);</i></p>
<p><b>SC-05-3.5.2</b></p> <p>Students will understand that all organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment</p>	<p><b>Food Chains and Webs, DSR:</b> <i>Living Things Interact (pgs. 4-5); How Do Ecosystems Change? (pg. 10); About Wolves and Moose on Isle Royale (pg. 14); About Mountain Ecosystems (pg. 15);</i></p> <p><b>Oceans; DSR:</b> <i>Where Ocean Meets Land (pg. 6) Ocean Habitats (pgs. 12-13);</i></p>

## Energy Transformations

Unifying Concepts	Delta Science Readers (DSR)
<p><b>SC-05-4.6.1</b></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• classify energy phenomena as kinetic or</li> </ul>	<p><b>Newton's Toy Box, DSR:</b> <i>Motion and Speed Changing Position; Speed and Velocity (pgs. 2-</i></p>

<p>potential;</p> <ul style="list-style-type: none"> <li>describe the transfer of energy occurring in simple systems or related data.</li> </ul> <p>Energy can be classified as kinetic or potential. Energy is a property of many substances and energy can be found in several different forms. For example, chemical energy as found in food we eat or in the gasoline we burn in our car. Heat, light (solar), sound, electrical energy and the energy associated with motion (called kinetic energy) are examples of other forms of energy. Objects can have energy simply by virtue of their position, called potential energy. Energy is transferred in many ways. Analyzing simple systems can provide the basis for describing the transfer of energy occurring within the system.</p> <p>DOK 2</p>	<p>3); <i>Work, Energy and Power</i> (pg. 14);</p> <p><b>Simple Machines, DSR:</b> <i>How Are Work and Energy Related?</i> (pg. 3) : <i>How a Roller Coaster Works</i> (pg. 15)</p>
<p><b>SC-05-4.6.2</b></p> <p>Students will understand that the Sun is a major source of energy for changes on Earth's surface. The Sun loses energy by emitting light. A tiny fraction of that light reaches Earth, transferring energy from the Sun to Earth.</p>	<p><b>DSR: Solar System, Our Solar System</b> (pg. 2); <i>What is the Sun Like</i> (pg. 3)</p>
<p><b>SC-05-4.6.3</b></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>draw conclusions about the transfer of energy within models/representations of electrical circuits as evidenced by the heat, light, sound and magnetic effects that are produced;</li> <li>describe changes within the system that would affect the transfer of energy.</li> </ul> <p>Electrical circuits provide a means of transferring electrical energy. This transfer can be observed and described as heat, light, sound and magnetic effects are produced. Models and diagrams can be used to support conclusions and predict consequences of change within an electrical circuit.</p> <p>DOK 3</p>	<p><b>Electrical Circuits, DSR:</b> <i>What is Electric Current?</i>(pg. 6); <i>What is a Circuit?</i>(pg.7); <i>What Are Series Circuits?</i>(pg. 8); <i>What Are Parallel Circuits?</i>(pg. 9);</p> <p><b>Electromagnetism, DSR:</b> <i>What is Electricity?</i> (pg.2); <i>Electric Circuits</i> (pgs. 4-5);</p>
<p><b>SC-05-4.6.4</b></p> <p>Students will identify predictable patterns and make generalizations about light and matter interactions using data/evidence.</p> <p>Light energy interacts with matter by transmission (including refraction), absorption, or scattering (including reflection).</p>	<p><b>Color and Light, DSR:</b> <i>What is Light?</i> (pgs. 2-3);<i>Reflection of light</i> (pg. 4);<i>Absorption of Light</i> (pg. 4); <i>Refraction of Light</i> (pgs. 5-6;; <i>What Happens When Light Hits Different Materials?</i> (pg. 7) )</p>
<p><b>SC-05-4.6.5</b></p> <p>Students will understand that heat energy moves in predictable ways, flowing from</p>	<p><b>Oceans, DSR:</b> <i>Currents</i> (pg. 8) <i>How Do Oceans Affect Weather and Climate?</i>(pg. 10)</p>

warmer objects to cooler ones, until both objects reach the same temperature. By examining cause and effect relationships, consequences of heat movement and conduction can be predicted and inferred.	
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## Interdependence

Unifying Concepts	Delta Science Readers (DSR)
<p><b>SC-05-4.7.1</b> Students will:</p> <ul style="list-style-type: none"> <li>describe and categorize populations of organisms according to the function they serve in an ecosystem (e.g., producers, consumers, decomposers);</li> <li>draw conclusions about the effects of changes to populations in an ecosystem.</li> </ul> <p>Populations of organisms can be categorized by the function they serve in an ecosystem. Plants and some microorganisms are producers because they make their own food. All animals, including humans, are consumers, and obtain their food by eating other organisms. Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food. Food webs identify the relationships among producers, consumers and decomposers in an ecosystem. Using data gained from observing interacting components within an ecosystem, the effects of changes can be predicted. DOK 3</p>	<p><b><i>Plants in Our World, DSR: What is a Plant? (pg. 2)</i></b></p> <p><b><i>Food Chains and Webs DSR: Energy in an Ecosystem (pg. 6); Food Chains (pg. 7) Food Webs (pg. 8) Energy Pyramids (pg. 9)</i></b></p>
<p><b>SC-05-4.7.2</b> Students will understand that a population consists of all individuals of a species that occur together at a given place and time. All populations living together and the physical factors with which they interact compose an ecosystem.</p>	<p><b><i>Plants in Our World, DSR: What is a Plant? (pg. 2)</i></b></p> <p><b><i>Food Chains and Webs DSR: Energy in an Ecosystem (pg. 6); Food Chains (pg. 7) Food Webs (pg. 8) Energy Pyramids (pg. 9)</i></b></p>

# MIDDLE SCHOOL GRADES 6-8

## Grade 6

### Structure and Transformation of Matter

Physical Science	Delta Science Modules (DSM)
<p><b>SC-M6 1.1.1</b> Students will explain how or why mixtures can be separated using physical properties.</p> <p>A mixture of substances often can be separated into the original substances by using one or more of its characteristic physical properties. DOK 2</p>	<p><b>Matter and Change, DSR:</b> <i>How Does Matter Behave?</i> (pgs. 9-12); <i>Kinetic Theory of Matter</i> (pg. 9); <i>States of Matter</i> (pg. 10); <i>Matter and Thermal Energy</i> (pgs. 11-12); <i>What are Physical Properties and Changes?</i> (pgs. 13-15); <i>Physical Properties</i> (pgs. 13-14); <i>Physical Changes</i> (pgs. 14-15);</p>
<p><b>SC-06-1.1.2</b> Students will identify and describe evidence of chemical and physical changes in matter.</p> <p>In chemical reactions, the total mass is conserved. Substances are often classified into groups if they react in similar ways. The patterns that allow classification can be used to infer or understand real life applications for those substances. DOK 2</p>	<p><b>Matter and Change, DSR:</b> <i>What are Chemical Properties and Changes?</i> (pgs. 16-20); <i>Chemical Properties</i> (pg. 16); <i>Chemical Changes</i> (pg. 17-20)</p>

### Motion and Forces

Physical Science	Delta Science Modules (DSM)
<p><b>SC-06-1.2.1</b> Students will describe friction and make inferences about its effects on the motion of an object.</p> <p>When an unbalanced force (friction) acts on an object, the change in speed or direction depends on the size and direction of the force. DOK 3</p>	<p><b>Simple Machines DSR:</b> <i>What Makes Things Move?</i> (pg. 2); <i>How Are Work and Energy Related?</i> (pg. 3); <i>Pulley</i> (pg. 8);</p>

### The Earth and the Universe

Earth and Space	Delta Science Modules (DSM)
<p><b>SC-06-2.3.1</b> Students will explain and predict phenomena (e.g., day, year, moon phases, eclipses) based on models/representations or data related to the motion of objects in the solar system (e.g., earth, sun, moon).</p>	<p><b>Earth, Moon, and Sun, DSR:</b> <i>What is the Moon like?</i> (pgs. 13-15) <i>Maria and Highlands, Craters, Exploring the Moon, Moon Phases; What Causes Tides</i> (pgs. 16-17); <i>What Causes Eclipses</i> (pgs. 18-19);</p>

<p>Observations and investigations of patterns indicate that most objects in the solar system are in regular and predictable motion. Evaluation of this data explains such phenomena as the day, the year, phases of the moon and eclipses. DOK 3</p>	
<p><b>SC-06-2.3.2</b> Students will explain cause and effect relationships in the Rock cycle.</p> <p>Materials found in the lithosphere and mantle are changed in a continuous process called the rock cycle, which can be investigated using a variety of models. DOK 2</p>	<p><b>Earth Processes DSR: How Do Rocks and Soil Form?:</b> <i>Rock Formation; The Rock Cycle; Soil Formation; Conserving Soil;</i>(pgs. 16-20);</p> <p><b>Rocks and Minerals, DSR: What are minerals?</b> (pg. 2); <i>Crystals</i> (pg. 3); <i>Mineral Properties</i> (Pg. 4-6); <i>Mineral Resources</i> (pg. 7-8); <i>What are Rocks?; Sedimentary Rocks</i> (pg. 10-11); <i>Sedimentary Rocks</i> (pg. 10-11);<i>What is the Rock Cycle</i> (pg. 13)</p>
<p><b>SC-06-2.3.3</b> Students will compare constructive and destructive forces on Earth in order to make predictions about the nature of landforms.</p> <p>Landforms are a result of a combination of constructive and destructive forces. Collection and analysis of data indicates that constructive forces include crustal deformation, faulting, volcanic eruption and deposition of sediment, while destructive forces include weathering and erosion. DOK 2</p>	<p><b>Earth Processes DSR: How Has Earth's Surface Changed Over Time?:</b> <i>Theory of Continental Drift; Plate Tectonics; Sea-Floor Spreading;</i> (pgs. 4-7); <i>Weathering, Erosion, and Deposition: Water; Living Things; Ice and Glaciers; Wind; Gravity;</i>(pgs. 11-15);</p> <p><b>Oceans, DSR: Where Ocean Meets Land</b> (pg. 6);</p> <p><b>Erosion, DSR: What is Earth's Structure?</b> (pgs. 2-4) <i>Layers; Moving Plates; Earthquakes and volcanoes ; What is Weathering?</i> (pgs. 5-7): <i>Physical Weathering; Chemical Weathering; Soil Formation; What Causes Erosion and Deposition</i> (pgs. 8-13) <i>Running water; Waves; Gravity and mass movement; Groundwater; Wind Glaciers</i></p>

## Unity and Diversity

Biological Science	Delta Science Modules (DSM)
<p><b>SC-06-3.4.1</b> Students will describe the relationship between cells, tissues and organs in order to explain their function in multicellular organisms.</p> <p>Specialized cells perform specialized functions in multicellular organisms. Groups of specialized cells cooperate to form tissues. Different tissues are, in turn, grouped together</p>	<p><b>You and Your Body DSR: Body Building Blocks</b> (pgs. 2-3) <i>What are the Body's Main Systems?</i> (pg. 4) <i>Skeletal system</i> (pg. 4) <i>Muscular System</i> (pg. 5) <i>Circulatory System</i> (pgs. 6-7) <i>Respiratory System</i> (pg. 8) <i>Digestive System</i> (pg. 9) <i>Nervous System</i> (pg. 10) <i>Muscular System</i> (pg. 5)</p> <p><b>Plants in Our World DSR: What is a Plant?</b> (pg. 2); <i>How Do Plants Grow Survive, and Reproduce?</i> (pgs 3-9);<i>Vascular Plants</i> (pgs. 11-12);<i>Seed Plants</i> (pgs. 13-20)</p>

<p>to form larger functional units called organs. Examination of cells, tissues and organs reveals that each type has a distinct structure and set of functions that serve the organism. DOK 3</p>	
<p><b>SC-06-3.4.2</b> Students will make inferences about the factors influencing behavior based on data/evidence of various organism's behaviors.</p> <p>Behavior is one kind of response an organism may make to an internal or environmental stimulus. Observations of organisms, data collection/analysis, support generalizations/conclusions that a behavioral response is a set of actions determined in part by heredity and in part from experience. A behavioral response requires coordination and communication at many levels including cells, organ systems and organisms. DOK 2</p>	

## Biological Change

Biological Science	Delta Science Modules (DSM)
<p><b>SC-06-3.5.1</b> Students will explain that biological change over time accounts for the diversity of species developed through gradual processes over many generations.</p> <p>Biological adaptations include changes in structures, behaviors, or physiology that enhance survival and reproductive success in a particular environment. DOK 2</p>	<p><i>Oceans DSR: Ocean Habitats (pgs. 12-13); DNA-From Genes to Proteins DSR: Heredity and Genetics (pgs. 15-20):</i></p>
<p><b>SC-06-3.5.2</b> Students will understand that regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required to survive. Maintaining a stable internal environment is essential for an organism's survival.</p>	<p><i>You and Your Body, DSR: Nervous System (pg. 10); How Reflex works (pg. 14)</i></p>

## Energy Transformations

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-06-4.6.1</b> Students will describe or explain the cause and effect relationships between oceans and climate.</p> <p>Oceans have a major effect on climate, because water in the oceans holds a large amount of heat.</p>	<p><i>Oceans DSR: Currents (pg. 8); How Do Oceans Affect Weather and Climate?(pg. 10)</i></p>

DOK 2	
<p><b>SC-06-4.6.2</b> Students will describe:</p> <ul style="list-style-type: none"> <li>• the effect of the Sun's energy on the Earth system;</li> <li>• the connection/relationship between the Sun's energy and seasons.</li> </ul> <p>The Sun is the major source of energy for Earth. The water cycle, winds, ocean currents and growth of plants are affected by the Sun's energy. Seasons result from variations in the amount of the Sun's energy hitting Earth's surface.</p> <p>DOK 3</p>	<p><b>Earth, Moon &amp; Sun DSR: What Causes Seasons (pgs. 11-12)</b> <i>What Causes Seasons (pgs. 11-12) Note: covered in 5<sup>th</sup> grade</i></p>
<p><b>SC-06-4.6.3</b> Students will understand that, on its own, heat travels only from higher temperature object/region to lower temperature object or region. Heat will continue to flow in this manner until the objects reach the same temperature. For example, a cup of hot water will continue to cool down until it comes to the same temperature as the surrounding area. Usually when heat is transferred to or from an object, the temperature changes. The temperature increases if heat is added and the temperature decreases if the heat is removed.</p>	<p><b>Earth Processes, DSR: What is inside Earth? (pgs. 2-3)</b></p>

## Interdependence

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-06-4.7.1</b> Students will describe the consequences of change in one or more abiotic factors on a population within an ecosystem.</p> <p>The number of organisms an ecosystem can support depends on the resources available and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition).</p> <p>DOK 2</p>	

## Grade 7

### Structure and Transformation of Matter

Physical Science	Delta Science Modules (DSM)
<p><b>SC-07-1.1.1</b> Students will:</p> <ul style="list-style-type: none"> <li>• classify substances according to their chemical/reactive properties;</li> <li>• infer real life applications for substances based on chemical/reactive properties.</li> </ul> <p>In chemical reactions, the total mass is</p>	<p><b>Matter and Change DSR: What are Chemical Properties and Changes? (pg. 17-20);</b></p>

<p>conserved. Substances are often classified into groups if they react in similar ways. The patterns, which allow classification, can be used to infer or understand real life applications for those substances.</p> <p>DOK 3</p>	
<p><b>SC-07-1.1.2</b> Students will:</p> <ul style="list-style-type: none"> <li>• classify elements and compounds according to their properties;</li> <li>• compare properties of different combinations of elements.</li> </ul> <p>Observations of simple experiments illustrate that the atoms of chemical elements do not break down during normal laboratory reactions such as heating, exposure to electric currents, or reaction with acids. Elements combine in many ways to produce compounds. Common patterns emerge when comparing and contrasting the properties of compounds to the elements from which they are made. Understanding of these patterns allows for evidence-based predictions of new or different combinations of elements/compounds.</p> <p>DOK 2</p>	<p><b>Matter and Change DSR: Elements</b> (pgs. 4-5); <b>Compounds</b> (pgs. 6-8)</p>

## Motion and Forces

Physical Science	Delta Science Modules (DSM)
<p><b>SC-07-1.2.1</b> Students will explain the cause and effect relationship between simple observable motion and unbalanced forces.</p> <p>An object remains at rest or maintains a constant speed and direction of motion unless an unbalanced force acts on it (e.g., gravity). When an unbalanced force acts on an object, the change in speed or direction depends on the size and direction of the force.</p> <p>DOK 3</p>	<p><b>Newton's Toy Box DSR: Motion and Speed Changing Position; Speed and Velocity</b> (pgs. 2-3); <b>Forces and Motion</b> (pgs. 4-9)</p>

## The Earth and the Universe

Earth and Space	Delta Science Modules (DSM)
<p><b>SC-07-2.3.1</b> Students will make inferences and predictions related to changes in the Earth's surface or atmosphere based on data/evidence.</p> <p>The Earth's processes we see today, including erosion, movement of lithospheric plates and changes in atmospheric composition, are predictable and similar to those that occurred in the past. Analysis of evidence from Earth's</p>	

<p>history substantiates the conclusion that the planet has also been influenced by occasional catastrophes <b>such as the impact of an asteroid or comet.</b></p> <p><b>DOK 3</b></p>	
<p><b>SC-07-2.3.2</b></p> <p>Students will explain the layers of the Earth and their interactions.</p> <p>The use of models/diagrams/graphs helps illustrate that the Earth is layered. The lithosphere is the thin crust and the upper part of the mantle. Lithospheric plates move slowly in response to movements in the mantle. There is a dense core at the center of the Earth.</p> <p><b>DOK 2</b></p>	<p><b>Earth Processes DSR:</b> <i>What is inside Earth? (pgs. 2-3) How Has Earth's Surface Changed Over Time?: Theory of Continental Drift; Plate Tectonics; Sea-Floor Spreading; (pgs. 4-7) Plate Movements :Plate boundaries, Stresses and Faults; Earthquakes; Volcanoes; (pgs. 7-10) Weathering, Erosion, and Deposition: Water; Living Things; Ice and Glaciers; Wind; Gravity;(pgs. 11-15)</i></p> <p><i>Note: Covered in 6<sup>th</sup> Grade</i></p>
<p><b>SC-07-2.3.3</b></p> <p>Students will describe the concept of gravity and the effect of gravitational force between the sun, moon and Earth.</p> <p>The gravitational pull of the Sun and moon on Earth's oceans as the major cause of tides can be understood from generalizations based on evidence.</p> <p><b>DOK 2</b></p>	<p><b>Oceans DSR:</b> <i>Tides (pg. 9)</i></p> <p><b>Earth, Moon and Sun DSR:</b> <i>Where is Earth in Space? (pgs. 2-5): What Causes Tides (pgs. 16-17)</i></p>

## Unity and Diversity

Biological Science	Delta Science Modules (DSM)
<p><b>SC-07-3.4.1</b></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>describe the role of genes/chromosomes in the passing of information from one generation to another (heredity);</li> <li>compare inherited and learned traits.</li> </ul> <p>Every organism requires a set of instructions for specifying its traits. This information is contained in genes located in the chromosomes of each cell that can be illustrated through the use of models. Heredity is the passage of these instructions from one generation to another and should be distinguished from learned traits.</p> <p><b>DOK 2</b></p>	<p><b>DNA – From Genes to Proteins DSR:</b> <i>How Do Cells Grow and Reproduce? (pgs. 12-14); Heredity and Genetics (pgs. 15-20):</i></p>
<p><b>SC-07-3.4.2</b></p> <p>Students will describe and compare sexual and asexual reproduction.</p> <p>Reproduction is a characteristic of all living systems and is essential to the continuation of every species as evidenced through observable patterns. A distinction should be</p>	<p><b>DNA – From Genes to Proteins DSR:</b> <i>How Do Cells Grow and Reproduce? (pgs. 12-14); Heredity and Genetics (pgs. 15-20):</i></p>

made between organisms that reproduce asexually and those that reproduce sexually. In species that reproduce sexually, including humans and plants, male and female sex cells carrying genetic information unite to begin the development of a new individual. DOK 2	
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## Biological Change

Biological Science	Delta Science Modules (DSM)
<p><b>SC-07-3.5.1</b> Students will:</p> <ul style="list-style-type: none"> <li>describe the usefulness of fossil information to make conclusions about past life forms and environmental conditions;</li> <li>explain the cause and effect relationship of the extinction of a species and environmental changes.</li> </ul> <p>Extinction of species is common and occurs when the adaptive characteristics of a species are insufficient to allow its survival. Most of the species that have lived on Earth no longer exist. Fossils provide evidence of how environmental conditions and life have changed. DOK 3</p>	<p><b><i>Dinosaurs and Fossils DSR: What is a Fossil?</i></b> (pg. 4) <b><i>What were Dinosaurs Like?</i></b> (pg. 6) <b><i>Why did Dinosaurs Become Extinct?</i></b> (pg. 12)</p> <p><b><i>Earth Processes, DSR: Geologic Time</i></b> (pg. 22)</p> <p><b><i>Dinosaurs and Fossils DSR: Why did Dinosaurs Become Extinct?</i></b> (pg. 12)</p>

## Energy Transformations

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-07-4.6.1</b> Students will understand that Earth systems have sources of energy that are internal and external to the Earth. The Sun is the major external source of energy</p>	<p><b><i>Plants in Our World DSR: How Do Plants Grow Survive, and Reproduce?</i></b> (pgs 3-9)</p>
<p><b>SC-07-4.6.2</b> Students will:</p> <ul style="list-style-type: none"> <li>describe the transfer and/or transformations of energy which occur in examples that involve several different forms of energy (e.g., heat, electrical, light, motion of objects and chemical).</li> <li>Explain, qualitatively or quantitatively, that heat lost by hot object equals the heat gained by cold object.</li> </ul> <p>The transfer and transformation of energy can be examined in a variety of real life examples. Models are an appropriate way to convey the abstract/invisible transfer of energy in a system. Heat energy is the disorderly motion of molecules. Heat can be transferred through</p>	

<p>materials by the collisions of atoms or across space by radiation. If the material is fluid, currents will be set up in it that aid the transfer of heat. To change something's speed, to bend or stretch things, to heat or cool them, to push things together, to expand or contract them or tear them apart all require transfers (and some transformations) of energy. Heat lost by hot object equals the heat gained by cold object. This is an energy conservation statement. Whenever hot and cold objects are put in contact, heat energy always transfers from the hot object to the cold object and this continues until all the mass is at the same temperature. Students should understand that heat produced by burning comes from the release of chemical energy of the substance. DOK 3</p>	
<p><b>SC-07-4.6.3</b> Students will understand that waves are one way that energy is transferred. Types of waves include sound, light, earthquake, ocean and electromagnetic.</p>	<p><b>Oceans DSR:</b> <i>Why Is Earth the Water Planet?</i> (pg. 2) <i>Waves</i> (pg. 7) <i>How Do Oceans Affect Weather and Climate?</i>(pg. 10)</p> <p><b>Earth Processes, DSR:</b> <i>Plate Movements</i> :Plate boundaries, Stresses and Faults; Earthquakes; Volcanoes; (pgs. 7-10);</p>
<p><b>SC-07-4.6.4</b> Students will describe or represent the flow of energy in ecosystems, using data to draw conclusions about the role of organisms in an ecosystem.</p> <p>For most ecosystems, the major source of energy is sunlight. Energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis. That energy then passes from organism in food webs. DOK 3</p>	<p><b>Plants in Our World DSR:</b> <i>How Do Plants Grow Survive, and Reproduce?</i> (pgs 3-9</p>

## Interdependence

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-07-4.7.1</b> Students will compare abiotic and biotic factors in an ecosystem in order to explain consequences of change in one or more factors.</p> <p>The number of organisms an ecosystem can support depends on the resources available and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition). Given adequate biotic and abiotic resources and no diseases or predators,</p>	

populations (including humans) increase at rapid rates. Lack of resources and other factors, such as predation and climate, limit the growth of populations in specific niches in the ecosystem. DOK 3	
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## Grade 8

### Structure and Transformation of Matter

Physical Science	Delta Science Modules (DSM)
<p><b>SC-08-1.1.1</b> Students will:</p> <ul style="list-style-type: none"> <li>interpret models/representations of elements;</li> <li>classify elements based upon patterns in their physical (e.g., density, boiling point, solubility) and chemical (e.g., flammability, reactivity) properties.</li> </ul> <p>Models enhance understanding that an element is composed of a single type of atom. Organization/interpretation of data illustrates that when elements are listed according to the number of protons, repeating patterns of physical (e.g., density, boiling point, solubility) and chemical properties (e.g., flammability, reactivity), can be used to identify families of elements with similar properties. DOK 2</p>	<p><b>Matter and Change DSR: What Makes up Matter?</b> (pgs. 2-8) <b>Atoms</b> (pg. 2-3); <b>Elements</b> (pg. 4-5); <b>Compounds</b> (pg. 5-8);</p>
<p><b>SC-08-1.1.2</b> Students will understand that matter is made of minute particles called atoms, and atoms are composed of even smaller components. The components of an atom have measurable properties such as mass and electrical charge. Each atom has a positively charged nucleus surrounded by negatively charged electrons. The electric force between the nucleus and the electrons holds the atom together.</p>	<p><b>Matter and Change Matter and Change DSR: What Makes up Matter?</b> (pgs. 2-8) <b>Atoms</b> (pg. 2-3);</p>
<p><b>SC-08-1.1.3</b> Students will understand that the atom's nucleus is composed of protons and neutrons that are much more massive than electrons.</p>	<p><b>Matter and Change Matter and Change DSR: What Makes up Matter?</b> (pgs. 2-8) <b>Atoms</b> (pg. 2-3);</p>
<p><b>SC-08-1.1.4</b> Students will describe interactions which cause the movement of each element among the solid Earth, oceans, atmosphere and organisms (biogeochemical cycles).</p> <p>Earth is a system containing essentially a fixed amount of each stable chemical atom or element that can exist in several different</p>	

reservoirs. The interactions within the earth system cause the movement of each element among reservoirs in the solid Earth, oceans, atmosphere and organisms as part of biogeochemical cycles. DOK 2	
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## Motion and Forces

Physical Science	Delta Science Modules (DSM)
<p><b>SC-08-1.2.1</b> Students will describe and explain the effects of balanced and unbalanced forces on motion as found in real-life phenomena.</p> <p>Objects change their motion only when a net force is applied. Newton's Laws of Motion are used to describe the effects of forces on the motion of objects. DOK 3</p>	<p><b>Newton's Toy Box</b> <b>DSR:</b> <i>Forces and Motion (pgs. 4-9) What are Forces? How Do Forces Affect Objects?</i></p>

## The Earth and the Universe

Earth and Space Science	Delta Science Modules (DSM)
<p><b>SC-08-2.3.1</b> Students will describe various techniques for estimating geological time (radioactive dating, observing rock sequences, comparing fossils).</p> <p>Techniques used to estimate geological time include using radioactive dating, observing rock sequences and comparing fossils to correlate the rock sequences at various locations. Deductions can be made based on available data and observation of models as to the age of rocks/fossils. DOK 2</p>	<p><b>Earth Processes DSR:</b> <i>Geologic Time (pg. 22)</i></p>
<p><b>SC-08-2.3.2</b> Students will understand that earthquakes and volcanic eruptions can be observed on a human time scale, but many processes, such as mountain building and plate movements, take place over hundreds of millions of years.</p>	<p><b>Earth Processes DSR:</b> <i>Geologic Time (pg. 22; How Has Earth's Surface Changed Over Time?: Theory of Continental Drift; Plate Tectonics; Sea-Floor Spreading; (pgs. 4-7); Plate Movements :Plate boundaries, Stresses and Faults; Earthquakes; Volcanoes; (pgs. 7-10)</i></p>
<p><b>SC-08-2.3.3</b> Students will:</p> <ul style="list-style-type: none"> <li>explain the transfer of Earth's internal heat in the mantle (crustal movement, hotspots, geysers);</li> <li>describe the interacting components (convection currents) within the Earth's system.</li> </ul> <p>The outward transfer of Earth's internal heat drives convection circulation in the mantle. This</p>	<p><b>Earth Processes DSR:</b> <i>What is inside Earth? (pgs. 2-3; : How Has Earth's Surface Changed Over Time?: Theory of Continental Drift; Plate Tectonics; Sea-Floor Spreading; (pgs. 4-7) Plate Movements :Plate boundaries, Stresses and Faults; Earthquakes; Volcanoes; (pgs. 7-10));</i></p>

causes the crustal plates to move on the face of the Earth. DOK 2	
<b>SC-08-2.3.4</b> Students will understand that the Sun, Earth and the rest of the solar system formed approximately 4.6 billion years ago.	<b>Earth Processes DSR:</b> <i>Geologic Time (pg. 22)</i>

## Unity and Diversity

Biological Science	Delta Science Modules (DSM)
<p><b>SC-08-3.4.1</b> Students will explain the relationship between structure and function of the cell components using a variety of representations.</p> <p>Observations of cells and analysis of cell representations point out that cells have particular structures that underlie their function. Every cell is surrounded by a membrane that separates it from the outside world. Inside the cell is a concentrated mixture of thousands of different molecules that form a variety of specialized structures. These structures carry out specific cell functions.</p> <p>DOK 3</p>	<p><b>DNA – From Genes to Proteins DSR:</b> <i>What are Cells? (pgs 2-3); What is Inside a Cell (pgs. 4-7);. How Do Cells Carry Out Life Processes? (pgs. 8-11); How Do Cells Grow and Reproduce? (pgs. 12-14);</i></p>
<p><b>SC-08-3.4.2</b> Students will understand that in the development of multicellular organisms, cells multiply (mitosis) and differentiate to form many specialized cells, tissues and organs. This differentiation is regulated through the expression of different genes.</p>	<p><b>DNA-From Genes to Proteins DSR:</b> <i>What are Cells? (pgs 2-3);Discovery of Cells (pg. 2);Levels of Organization in Living Things (pg. 3);</i></p>
<p><b>SC-08-3.4.3</b> Students will form or justify conclusions as to whether a response is innate or learned using data/evidence on behavioral responses to internal and external stimuli.</p> <p>Behavioral responses to internal changes and external stimuli can be innate or learned. Responses to external stimuli can result from interactions with the organism’s own species or other species, as well as environmental changes.</p> <p>DOK 3</p>	
<p><b>SC-08-3.4.4</b> Students will describe and explain patterns found within groups of organisms in order to make biological classifications of those organisms.</p> <p>Observations and patterns found within groups of organisms allow for biological classifications based on how organisms are related.</p> <p>DOK 2</p>	

<p><b>SC-08-3.4.5</b> Students will understand that multicellular animals have nervous systems that generate behavior. Nerve cells communicate with each other by secreting specific molecules.</p>	
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## Biological Change

Biological Science	Delta Science Modules (DSM)
<p><b>SC-08-3.5.1</b> Students will draw conclusions and make inferences about the consequences of change over time that can account for the similarities among diverse species.</p> <p>The consequences of change over time provide a scientific explanation for the fossil record of ancient life forms and for the striking molecular similarities observed among the diverse species of living organisms. DOK 3</p>	<p><b>Earth Processes DSR:</b> <i>Geologic Time</i> (pg. 22);</p> <p><b>DNA-From Genes to Proteins DSR:</b> <i>How Do Cells Grow and Reproduce?</i> (pgs. 12-14); <i>Interphase</i> (pg. 12-13); <i>Mitosis and Cytokinesis</i> (pg. 14); <i>Heredity and Genetics</i> (pgs. 15-20); <i>Mendel's Experiments</i> (pgs. 15-16); <i>How Are Traits Inherited?</i> (pgs. 16-19); <i>Variations within Species</i> (pgs. 19-20); <i>The Effect of Environment</i> (pg. 20)</p>

## Energy Transformations

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-08-4.6.1</b> Students will:</p> <ul style="list-style-type: none"> <li>• explain the cause and effect relationships between global climate and energy transfer;</li> <li>• use evidence to make inferences or predictions about global climate issues.</li> </ul> <p>Global climate is determined by energy transfer from the Sun at and near Earth's surface. DOK 3</p>	
<p><b>SC-08-4.6.2</b> Students will:</p> <ul style="list-style-type: none"> <li>• describe or explain energy transfer and energy conservation;</li> <li>• evaluate alternative solutions to energy problems.</li> </ul> <p>Energy can be transferred in many ways, but it can neither be created nor destroyed. DOK 3</p>	<p><b>Newton's Toy Box, DSR:</b> <i>Forces and Motion</i> (pgs. 4-9); <i>Work, Energy and Power</i> (pg. 14);</p>
<p><b>SC-08-4.6.3</b> Students will understand that all energy can be considered to be kinetic energy, potential energy, or energy contained by a field (e.g., electric, magnetic, gravitational).</p>	<p><b>Newton's Toy Box DSR:</b> <i>Work, Energy and Power</i> (pg. 14);</p>
<p><b>SC-08-4.6.4</b> Students will:</p> <ul style="list-style-type: none"> <li>• analyze information/data about waves and energy transfer;</li> </ul>	<p><b>Oceans DSR:</b> <i>Waves</i> (pg. 7)</p>

<ul style="list-style-type: none"> <li>describe the transfer of energy via waves in real life phenomena.</li> </ul> <p>Waves, including sound and seismic waves, waves on water and electromagnetic waves, can transfer energy when they interact with matter.</p> <p>DOK 2</p>	
<p><b>SC-08-4.6.5</b> Students will:</p> <ul style="list-style-type: none"> <li>describe the relationships between organisms and energy flow in ecosystems (food chains and energy pyramids);</li> <li>explain the effects of change to any component of the ecosystem.</li> </ul> <p>Energy flows through ecosystems in one direction from photosynthetic organisms to herbivores to carnivores and decomposers.</p> <p>DOK 2</p>	

## Interdependence

Unifying Concepts	Delta Science Modules (DSM)
<p><b>SC-08-4.7.1</b> Students will describe the interrelationships and interdependencies within an ecosystem and predict the effects of change on one or more components within an ecosystem.</p> <p>Organisms both cooperate and compete in ecosystems. Often changes in one component of an ecosystem will have effects on the entire system that are difficult to predict. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years.</p> <p>DOK 3</p>	<p><b>Oceans DSR:</b> <i>Where Ocean Meets Land</i> (pg. 6), <i>Ocean Habitats</i> (pgs. 12-13)</p>
<p><b>SC-08-4.7.2</b> Students will:</p> <ul style="list-style-type: none"> <li>explain the interactions of the components of the Earth system (e.g., solid Earth, oceans, atmosphere, living organisms);</li> <li>propose solutions to detrimental interactions.</li> </ul> <p>Interactions among the solid Earth, the oceans, the atmosphere and living things have resulted in the ongoing development of a changing Earth system.</p> <p>DOK 3</p>	