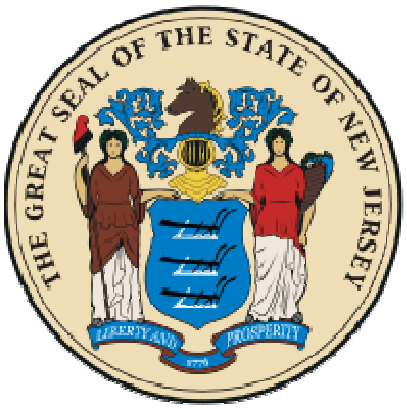
Delta Science Modules

Grades K-8

Correlation with

New Jersey
Core Curriculum Content Standards for Science



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DSM Science Module Correlation

to the

2009 New Jersey CCCS for Science

and Cumulative Progress Indicators

DSM modules are inquiry-based. The fundamentals of scientific inquiry are imbedded in all DSM modules. The following correlation of the New Jersey Science Standards to Delta Science Modules (DSM) is to show representative examples of investigations from DSM that address the content standards. A citation does not reflect all of the investigations or activities from DSM that might address a particular standard.

DSM Science Module Correlation

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

Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Who, what, when, where, why, and how questions form the basis for young learners' investigations during sensory explorations, experimentation, and focused inquiry.	5.1.P.A.1 Display curiosity about science objects, materials, activities, and longer-term investigations in progress.	The DSM Program is inquiry based and the activities and investigations provide ample opportunity to address this standard. See for example: **From Seed to Plant** Activity 1-6, pp. 15-58 **How Do We Learn** Activity 1-4, pp. 13-41
4	Fundamental scientific concepts and principles and the links between them are more useful than discrete facts.	5.1.4.A.1 Demonstrate understanding of the interrelationships among fundamental concepts in the physical, life, and Earth systems sciences.	The DSM Program is developed to include topics from the life, Earth and physical sciences at all grade levels.
4	Connections developed between fundamental concepts are used to explain, interpret, build, and refine explanations, models, and theories.	5.1.4.A.2 Use outcomes of investigations to build and refine questions, models, and explanations.	The DSM Program activities provide the opportunity to address these standards. See for example: **Force and Motion** Activity 4-5, pp. 41-55 **Food Chains and Webs** Activity 2-3, pp. 23-37
4	Outcomes of investigations are used to build and refine questions, models, and explanations.	5.1.4.A.3 Use scientific facts, measurements, observations, and patterns in nature to build and critique scientific arguments.	The DSM Program activities provide the opportunity to address these standards. See for example: **States of Matter** Activity 7, 11, pp. 57-63, 89-96 **Sound** Activity 8-11, pp. 67-98
8	Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	5.1.8. A. ! Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.	The DSM Program provides the opportunity to address these standards. See for example: **Electromagnetism** Activity 6-7, pp. 43-56 **Plants in Our World** Activity 4-6, pp. 41-62
8	Results of observation and	5.1.8.A.2 Use	The DSM Program provides

	measurement can be used to build conceptual-based models and to search for core explanations.	mathematical, physical, and computational tools to build conceptual-based models and to pose theories.	the opportunity to address these standards. See for example: **Simple Machines** Activity 2-4, pp. 19-37 **Newton's Toy box** Activity 7-9, pp. 49-65
8	Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	5.1.8.A.3 Use scientific principles and models to frame and synthesize scientific arguments and pose theories.	The DSM Program provides the opportunity to address these standards. See for example: **Oceans** Activity 5-7, pp. 55-88 **Earth Processes** Activity 12-13, pp. 105-120

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Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form young learners' understandings of science concepts	5.1.P.B.1 Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations.	The DSM Program provides the opportunity for students to be involved in a variety of science processes in their investigations. See for example: **Investigating Water** Activity 3-8, pp. 27-69 **Sunshine and Shadows** Activity 5-7, pp. 43-63
P	Experiments and explorations provide opportunities for young learners to use science vocabulary and scientific terms	5.1.P.B.2 Use basic science terms and topic-related science vocabulary.	All DSM modules integrate scientific terminology and readers that include terms and vocabulary that correlate with investigations.
P	Experiments and explorations give young learners opportunities to use science tools and technology.	5.1.P.B.3 Identify and use basic tools and technology to extend exploration in conjunction with science investigations.	The DSM Program activities provide the opportunity to use tools and technology. See for example: **Observing an Aquarium** Activity 3-6, pp. 31-67 **How Do We Learn** Activity 4-12, pp. 37-101
4	Building and refining models and explanations requires generation and evaluation of evidence.	5.1.4.B.1 Design and follow simple plans using systematic observations to explore questions and	The DSM Program activities provide the opportunity to address these standards. See for example:

		predictions.	**Force and Motion** Activity 4-5, pp. 41-55 **Magnets** Activity 10, pp. 65-70
4	Tools and technology are used to gather, analyze, and communicate results.	5.1.4. B.2 Measure, gather, evaluate, and share evidence using tools and technologies.	The DSM Program activities provide the opportunity to address these standards. See for example: **Weather Watching** Activity 2-5, pp. 21-50 **Dinosaurs and Fossils** Activity 6-7, pp. 47-60
4	Evidence is used to construct and defend arguments.	5.1.4.B.3 Formulate explanations from evidence.	The DSM Program activities provide the opportunity to address these standards. See for example: **Soil Science** Activity 10-12, pp. 91-114 **Electrical Circuits** Activity 26-7, pp. 51-62
4	Reasoning is used to support scientific conclusions.	5.1.4.B.4 Communicate and justify explanations with reasonable and logical arguments.	The DSM Program activities provide the opportunity to address these standards. See for example: **States of Matter** Activity 8-10, pp. 65-88 **Food Chains and Webs** Activity 2-3, pp. 23-37
8	Evidence is generated and evaluated as part of building and refining models and explanations.	5.1.8.B.1 Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	The DSM Program activities provide the opportunity to address these standards. See for example: **Erosion** Activity 7-8, pp. 59-73 **Newton's Toy Box** Activity 7-9, pp. 49-65
8	Mathematics and technology are used to gather, analyze, and communicate results	5.1.8.B.2 Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.	The DSM Program activities provide the opportunity to address these standards. See for example: **Electromagnetism** Activity 6, pp. 43-48 **Matter and Change** Activity 2, pp. 21-27
8	Carefully collected evidence is used to construct and defend arguments.	5.1.8.B.3 Use qualitative and quantitative evidence to develop evidence-based arguments.	The DSM Program activities provide the opportunity to address these standards. See for example: **You and Your Body** Activity 45, pp. 41-48 **Electrical Connections** Activity 8-9, pp. 67-80
8	Scientific reasoning is used to support scientific conclusions.	5.1.8.B.4 Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing	The DSM Program activities provide the opportunity to address these standards. See for example: **Pollution**

		explanations.	Activity 10, pp. 71-76 **Plants in Our World** Activity 5, pp. 49-55

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Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Interacting with peers and adults to share questions and explorations about the natural world builds young learners' scientific knowledge.	5.1.P.C.1 Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions.	The DSM Program activities provide the opportunity to communicate about their investigations See for example: **Weather and Sky** Activity 1-2, pp. 13-21 **Finding the Moon** Activity 8-9, pp. 71-84
4	Scientific understanding changes over time as new evidence and updated arguments emerge.	5.1.4.C.1 Monitor and reflect on one's own knowledge regarding how ideas change over time.	The DSM Program activities provide the opportunity for students to reflect on the knowledge gained through investigations.
4	Revisions of predictions and explanations occur when new arguments emerge that account more completely for available evidence.	5.1.4.C.2 Revise predictions or explanations on the basis of learning new information.	The DSM Program activities and discussions provide the opportunity to address these standards.
4	Scientific knowledge is a particular kind of knowledge with its own sources, justifications, and uncertainties.	5.1.4.C.3 Present evidence to interpret and/or predict cause-and-effect outcomes of investigations.	The DSM Program activities provide the opportunity to address these standards. See for example: **Force and Motion** Activity 4-5, pp. 41-55 **Food Chains and Webs** Activity 2-3, pp. 23-37
8	Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	5.1.8.C.1 Monitor one's own thinking as understandings of scientific concepts are refined.	The DSM Program activities and discussions provide the opportunity for students to address these standards.
8	Predictions and explanations are revised to account more completely for available evidence.	5.1.8.C.2 Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.	The DSM Program activities and discussions provide the opportunity for students to address these standards.
8	Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	5.1.8.C.3 Generate new and productive questions to evaluate and refine core explanations.	The DSM Program activities and discussions provide the opportunity for students to address these standards.

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Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which are social practices that are governed by a core set of values and norms.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Science practices include drawing or "writing" on observation clipboards, making rubbings, or charting the growth of plants.	5.1.P.D.1 Represent observations and work through drawing, recording data, and "writing."	The DSM Program activities provide students the opportunity to record observations. See for example: **From Seed to Plant** Activity 7-8, pp. 59-72 **Finding the Moon** Activity 3-5, pp. 229-54
4	Science has unique norms for participation. These include adopting a critical stance, demonstrating a willingness to ask questions and seek help, and developing a sense of trust and skepticism.	5.1.4.D.1 Actively participate in discussions about student data, questions, and understandings.	The DSM Program activities provide the opportunity for students to communicate about their investigations See for example: **Classroom Plants** Activity 5-6, pp. 47-64 **Weather Instruments** Activity 8-9, pp. 67-80
4	In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., scientific argumentation and representation).	5.1.4.D.2 Work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories.	DSM activities use collaborative working groups to facilitate student learning. See for example; **Using Your Senses** Activity 1-2, pp. 13-30 **Magnets** Activity 4-5, pp. 29-40
4	Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	5.1.4.D.3 Demonstrate how to safely use tools, instruments, and supplies.	Safety is an important consideration throughout the DSM Program. See for example: **States of Matter** pp. 58, 62 **Electrical Circuits** pp. 15, 64, 118
4	Organisms are treated humanely, responsibly, and ethically.	5.1.4.D.4 Handle and treat organisms humanely, responsibly, and ethically.	The DSM program promotes the safe handling of organisms in the classroom. See for example: **Butterflies and Moths** Activity 5, 9, pp. 47-52, 79-87 **Food Chains and Webs**

			Activity 4-5, pp. 31-45
8	Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	5.1.8.D.1 Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.	The DSM Program activities provide students the opportunity communicate in a variety of ways about their investigations See for example: **Color and Light** Activity 4-5, pp. 37-52 **DNA-From Genes to Proteins** Activity 6-7, pp. 51-66
8	In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	5.1.8.D.2 Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.	The DSM Program activities provide students the opportunity communicate in a variety of ways about their investigations See for example: **Weather Forecasting** Activity 5-6, pp. 41-54 **Earth, Moon and Sun** Activity 9-10, pp. 81-101
8	Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	5.1.8.D.3 Demonstrate how to safely use tools, instruments, and supplies.	Safety is an important consideration throughout the DSM Program. See for example: **Flight and Rocketry** pp. 30, 126, 154 **Electrical Connections** pp. 61, 102
8	Organisms are treated humanely, responsibly, and ethically.	5.1.8.D.4 Handle and treat organisms humanely, responsibly, and ethically.	The DSM program promotes the safe handling of organisms in the classroom. See for example: **Food Chains and Webs** pp. 50, 55 **Plants in Our world** pp. 122, # 11.

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

Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form a basis for young learners' understanding of the properties of matter.	5.2.P.A.1 Observe, manipulate, sort, and describe objects and materials (e.g., water, sand, clay, paint, glue, various	**Properties** Activity 1-13, pp. 13-100 **How Do We Learn** Activity 2-3, pp. 23-35 **Investigating Water**

		types of blocks, collections of objects, simple household items that can be taken apart, or objects made of wood, metal, or cloth) in the classroom and outdoor environment based on size, shape, color, texture, and weight.	Activity 1-2, 5, pp. 13-26, 41-46
2	Living and nonliving things are made of parts and can be described in terms of the materials of which they are made and their physical properties.	5.2.2.A.1 Sort and describe objects based on the materials of which they are made and their physical properties.	**Properties** Activity 6-7, 10-12, pp. 47-60, 75-93 **Investigating Water** Activity 5, 7, pp. 41-46, 55-69 **Soil Science** Activity 1-4, 7, pp. 15-44, 59-67 **Sink or Float** Activity 1, pp. 13-19
2	Matter exists in several different states; the most commonly encountered are solids, liquids, and gases. Liquids take the shape of the part of the container they occupy. Solids retain their shape regardless of the container they occupy.	5.2.2.A. 2 Identify common objects as solids, liquids, or gases.	**Properties** Activity 7-9, pp. 53-73 Reader, pp. 5-13 **States of Matter** Activity 1-3, pp. 13-34 Reader, pp. 4-6 **Sink or Float** Reader, pp. 5-6
4	Some objects are composed of a single substance; others are composed of more than one substance.	5.2.4.A.1 Identify objects that are composed of a single substance and those that are composed of more than one substance using simple tools found in the classroom...	**Soil Science** Activity 1-4, 7, pp. 15-37, 59-67
4	Each state of matter has unique properties (e.g., gases can be compressed, while solids and liquids cannot; the shape of a solid is independent of its container; liquids and gases take the shape of their containers).	5.2.4.A.2 Plan and carry out an investigation to distinguish among solids, liquids, and gasses.	**States of Matter** Activity 1-3, 8-10, pp. 13-34, 65-88
4	Objects and substances have properties, such as weight and volume that can be measured using appropriate tools. Unknown substances can sometimes be identified by their properties.	5.2.4.A.3 Determine the weight and volume of common objects using appropriate tools.	
4	Objects vary in the extent to which they absorb and reflect light and conduct heat (thermal energy) and electricity.	5.2.4.A.4 Categorize objects based on the ability to absorb or reflect light and conduct heat or electricity.	**Electrical Circuits** Activity 6-7, pp. 51-62 (for conducting electricity)
6	The volume of some objects	5.2.6.A.1 Determine the	**Matter and Change**

	can be determined using liquid (water) displacement.	volume of common objects using water displacement methods.	Activity 1, Science Challenge, p. 19
6	The density of an object can be determined from its volume and mass.	5.2.6.A.2 Calculate the density of objects or substances after determining volume and mass.	**Matter and Change** Activity 1, pp. 13-19
6	Pure substances have characteristic intrinsic properties, such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.	5.2.6.A.3 Determine the identity of an unknown substance using data about intrinsic properties.	**Rocks and Minerals** Activity 3-6, pp. 29-54
8	All matter is made of atoms. Matter made of only one type of atom is called an element.	5.2.8.A.1 Explain that all matter is made of atoms, and give examples of common elements.	**Matter and Change** Activity 4-7, pp. 37-68 Reader, pp. 2-5
8	All substances are composed of one or more of approximately 100 elements.	5.2.8.A.2 Analyze and explain the implications of the statement "all substances are composed of elements."	**Matter and Change** Activity 4-9, pp. 37-83 Reader, pp. 4-8
8	Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	5.2.8.A.3 Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.	**Matter and Change** Reader, pp. 10-12
8	The Periodic Table organizes the elements into families of elements with similar properties.	5.2.8.A.4 Predict the physical and chemical properties of elements based on their positions on the Periodic Table.	**Matter and Change** Activity 4, pp. 37-44 Reader, pp. 4-5
8	Elements are a class of substances composed of a single kind of atom. Compounds are substances that are chemically formed and have physical and chemical properties that differ from the reacting substances.	5.2.8.A.5 Identify unknown substances based on data regarding their physical and chemical properties.	**Matter and Change** Activity 5-9, pp. 45-83 Reader, pp. 4-8 (addresses Content Statement not CPI)
8	Substances are classified according to their physical and chemical properties. Metals are a class of elements that exhibit physical properties, such as conductivity, and chemical properties, such as producing salts when combined with nonmetals.	5.2.8.A.6 Determine whether a substance is a metal or nonmetal through student-designed investigations.	**Matter and Change** Activity 12, pp. 99-104 Reader, pp. 4-8 (addresses Content Statement)
8	Substances are classified according to their physical and	5.2.8.A.7 Determine the relative acidity and	**Pollution** Activity 8, pp. 59-64

	chemical properties. Acids are a class of compounds that exhibit common chemical properties, including a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water.	reactivity of common acids, such as vinegar or cream of tartar, through a variety of student-designed investigations.	**Matter and Change** Activity 10, pp. 85-92 Reader, p. 20

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

Strand: B. Changes in Matter: Substances can undergo physical or chemical changes to form new substances. Each change involves energy.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form a basis for young learners' understanding of changes in matter.	5.2.P.B.1 Explore changes in liquids and solids when substances are combined, heated, or cooled (e.g., mix sand or clay with various amounts of water; mix different colors of tempera paints; freeze and melt water and other liquids).	**Investigating Water** Activity 7, 9-12, pp. 55-61, 71-100 **Properties** Reader, p. 15
2	Some properties of matter can change as a result of processes such as heating and cooling. Not all materials respond the same way to these processes.	5.2.2.B.1 Generate accurate data and organize arguments to show that not all substances respond the same way when heated or cooled, using common materials, such as shortening or candle wax...	**States of Matter** Activity 7, 11, pp. 57-63, 89-96 Reader, pp. 7-10
4	Many substances can be changed from one state to another by heating or cooling.	5.2.4.B.1 Predict and explain what happens when a common substance, such as shortening or candle wax, is heated to melting and then cooled to a solid.	**States of Matter** Activity 7, 11, pp. 57-63, 89-96 Reader, p. 13
6	When a new substance is made by combining two or more substances, it has properties that are different from the original substances.	5.2.6.B.1 Compare the properties of reactants with the properties of the products when two or more substances are combined and react chemically.	**Matter and Change** Activity 7, 12-13, pp. 63-68, 99-109 Reader, p. 18
8	When substances undergo chemical change, the number and kinds of atoms in the reactants are the same as the number and kinds of atoms in	5.2.8.B.1 Explain, using an understanding of the concept of chemical change, why the mass of reactants and the mass of	**Matter and Change** Activity 5, 7, 13, pp. 45-51, 63-68, 105-109 Reader, pp. 17-18

	the products. The mass of the reactants is the same as the mass of the products.	products remain constant.	
8	Chemical changes can occur when two substances, elements, or compounds react and produce one or more different substances. The physical and chemical properties of the products are different from those of the reacting substances.	5.2.8.B.2 Compare and contrast the physical properties of reactants with products after a chemical reaction, such as those that occur during photosynthesis and cellular respiration.	**Matter and Change** Activity 11-13, pp. 93-109 Reader, p. 6-7, 18 **Plants in Our World** Reader, pp. 3-4 **DNA-From Genes to Proteins** Reader, pp. 10-11

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Strand: C. Forms of Energy: Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form a basis for young learners' understanding of forms of energy.	5.2.P.C.1 Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses.	**Sunshine and Shadows** Activity 1-12, pp. 13-95 Reader, pp. 2-6, 8-10 **Investigating Water** Activity 9-10, pp. 71-88 Reader, pp. 4-11
2	The Sun warms the land, air, and water.	5.2.2.C.1 Compare, citing evidence, the heating of different colored objects placed in full sunlight...	**Weather and Sky** Activity 3, pp. 29-41 Reader, p. 9 **Sunshine and Shadows** Reader, p. 2 (addresses the Content Statement)
2	An object can be seen when light strikes it and is reflected to a viewer's eye. If there is no light, objects cannot be seen.	5.2.2.C.2 Apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen.	
2	When light strikes substances and objects through which it cannot pass, shadows result.	5.2.2.C.3 Present evidence that represents the relationship between a light source, solid object, and the resulting shadow.	**Sunshine and Shadows** Activity 1-12, pp. 13-95 Reader, pp. 2-6, 8-10
4	Heat (thermal energy), electricity, light, and sound are	5.2.4.C.1 Compare various forms of energy as	**Electrical Circuits** Activity 1-12, pp. 13-94

	forms of energy.	observed in everyday life and describe their applications.	Reader, pp. 2-6, 10-15 **Magnets** Activity 1-12, pp. 13-81 Reader, pp. 10-12, 14-15 **Sound** Activity 1-12, pp. 13-105 Reader, pp. 2-8, 10-13 **Water Cycle** Reader, pp. 8-9
4	Heat (thermal energy) results when substances burn, when certain kinds of materials rub against each other, and when electricity flows though wires. Metals are good conductors of heat (thermal energy) and electricity. Increasing the temperature of any substance requires the addition of energy.	5.2.4.C.2 Compare the flow of heat through metals and nonmetals by taking and analyzing measurements.	
4	Energy can be transferred from one place to another. Heat energy is transferred from warmer things to colder things.	5.2.4.C.3 Draw and label diagrams showing several ways that energy can be transferred from one place to another.	**Electrical Circuits** Activity 1-7, 9-12, pp. 13-57, 71-94 **Magnets** Activity 11, pp. 71-76 **Sound** Activity 3-4, pp. 29-43 (Addresses the content statement and provides the opportunity to address the CPI.)
4	Light travels in straight lines. When light travels from one substance to another (air and water), it changes direction.	5.2.4.C.4 Illustrate and explain what happens when light travels from air into water.	See gr. 5 **Color and Light**
6	Light travels in a straight line until it interacts with an object or material. Light can be absorbed, redirected, bounced back, or allowed to pass through. The path of reflected or refracted light can be predicted.	5.2.6.C.1 Predict the path of reflected or refracted light using reflecting and refracting telescopes as examples.	**Color and Light** Activity 1-4, pp. 13-43 Reader, pp. 4-6 **Astronomy** Reader, p. 16
6	Visible light from the Sun is made up of a mixture of all colors of light. To see an object, light emitted or reflected by that object must enter the eye.	5.2.6.C.2 Describe how prisms can be used to demonstrate that visible light from the Sun is made up of different colors.	**Color and Light** Activity 1, pp. 13-18 Reader, p. 8
6	The transfer of thermal energy by conduction, convection, and radiation can produce large-scale events such as those seen in weather.	5.2.6.C.3 Relate the transfer of heat from oceans and land masses to the evolution of a hurricane.	**Weather Forecasting** Activity 12, pp. 87-93 Reader p. 12
8	A tiny fraction of the light energy from the Sun reaches	5.2.8.C.1 Structure evidence to explain the	**Weather Forecasting** Reader. pp. 4, 12

	Earth. Light energy from the Sun is Earth's primary source of energy, heating Earth surfaces and providing the energy that results in wind, ocean currents, and storms.	relatively high frequency of tornadoes in "Tornado Alley."	**Oceans** Activity 5, pp. 55-63 Reader, p. 10 **Astronomy** Reader, p. 8 (addresses the Content Statement not CPI)
8	Energy is transferred from place to place. Light energy can be thought of as traveling in rays. Thermal energy travels via conduction and convection.	5.2.8.C.2 Model and explain current technologies used to capture solar energy for the purposes of converting it to electrical energy.	**Pollution** Reader, p. 15

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

Strand: D. Energy Transfer and Conservation: The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
2	Batteries supply energy to produce light, sound, or heat.	5.2.2.D.1 Predict and confirm the brightness of a light, the volume of sound, or the amount of heat when given the number of batteries, or the size of batteries.	See gr. 4 **Electrical Circuits**
4	Electrical circuits require a complete loop through conducting materials in which an electrical current can pass.	5.2.4.D.1 Repair an electric circuit by completing a closed loop that includes wires, a battery (or batteries), and at least one other electrical component to produce observable change.	**Electrical Circuits** Activity 1-7, pp. 13-62 **Magnets** Activity 10, pp. 65-70
6	The flow of current in an electric circuit depends upon the components of the circuit and their arrangement, such as in series or parallel. Electricity flowing through an electrical circuit produces magnetic effects in the wires.	5.2.6.D.1 Use simple circuits involving batteries and motors to compare and predict the current flow with different circuit arrangements.	**Electrical Circuits** Activity 3-4, pp. 27-43 **Electromagnetism** Activity 6-9, pp. 43-68 **Electrical Connections** Activity 2-3, 9-11, pp. 21-32, 75-94
8	When energy is transferred from one system to another, the quantity of energy before transfer equals the quantity of energy after transfer. As an object falls, its potential energy decreases as its speed, and consequently its kinetic	5.2.8.D.1 Relate the kinetic and potential energies of a roller coaster at various points on its path.	**Newton's Toy Box** Activity 7-10, pp. 49-72 (provides the opportunity to address this Content Statement)

	energy, increases. While an object is falling, some of the object's kinetic energy is transferred to the medium through which it falls, setting the medium into motion and heating it.		
8	Nuclear reactions take place in the Sun. In plants, light energy from the Sun is transferred to oxygen and carbon compounds, which in combination, have chemical potential energy (photosynthesis).	5.2.8.D.2 Describe the flow of energy from the Sun to the fuel tank of an automobile.	**Plants in Our World** Reader, pp. 3-4 **DNA-From Genes to Proteins** Activity 9, pp. 81-86 Reader, pp. 10-11 (addresses the Content Statement)

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

Strand: E. Forces and Motion: It takes energy to change the motion of objects. The energy change is understood in terms of forces.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form a basis for young learners' understanding of motion.	5.2.P.E.1 Investigate how and why things move (e.g., slide blocks, balance structures, push structures over, use ramps to explore how far and how fast different objects move or roll).	**Investigating Water** Activity 3, 5-6, 8, pp. 27-34, 41-54, 63-69 **Properties** Activity 6, 10-11, pp. 47-52, 75-86 **Sunshine and Shadows** Activity 6-7, pp. 49-63
2	Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).	5.2.2.E.1 Investigate and model the various ways that inanimate objects can move.	**Investigating Water** Activity 3, 6, 8, pp. 27-34, 47-54, 63-69 **Properties** Activity 6, pp. 47-52 **Sunshine and Shadows** Activity 6-7, pp. 49-63 **Force and Motion** Activity 3-7, pp. 31-72 **Weather Watching** Activity 4, pp. 37-44
2	A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, it is because another push or pull (friction) is being applied by the	5.2.2.E.2 Predict an object's relative speed, path, or how far it will travel using various forces and surfaces.	**Force and Motion** Activity 3-7, pp. 31-72

	environment.		
2	Some forces act by touching, while other forces can act without touching.	5.2.2.E.3 Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip).	**Properties** Activity 10-11, pp. 75-86 **Force and Motion** Activity 1-12, pp. 13-117 Reader, p. 2 **Sink or Float** Activity 1-4, pp. 13-42 Reader, pp. 7-11
4	Motion can be described as a change in position over a period of time.	5.2.4.E.1 Demonstrate through modeling that motion is a change in position over a period of time.	**Force and Motion** Activity 2-7, pp. 23-72 Reader, pp. 2-3, 14
4	There is always a force involved when something starts moving or changes its speed or direction of motion. A greater force can make an object move faster and farther...	5.2.4.E.2 Identify the force that starts something moving or changes its speed or direction of motion.	**Force and Motion** Activity 3-8, pp. 31-82 Reader, pp. 2-3, 6-8
4	Magnets can repel or attract other magnets, but they attract all matter made of iron. Magnets can make some things move without being touched.	5.2.4.E.3 Investigate and categorize materials based on their interaction with magnets.	**Magnets** Activity 1-2, pp. 13-23 Reader, pp. 2-3
4	Earth pulls down on all objects with a force called gravity. Weight is a measure of how strongly an object is pulled down toward the ground by gravity. With a few exceptions, objects fall to the ground no matter where they are on Earth.	5.2.4.E.4 Investigate, construct, and generalize rules for the effect that force of gravity has on balls of different sizes and weights.	**Force and Motion** Reader, pp. 2, 14 (addresses the Content Statement with regard to gravity)
6	An object's position can be described by locating the object relative to other objects or a background. The description of an object's motion from one observer's view may be different from that reported from a different observer's view.	5.2.6.E.1 Model and explain how the description of an object's motion from one observer's view may be different from a different observer's view.	**Flight and Rocketry** Activity 2-5, 8-9, 11-12, pp. 23-64, 81-97, 111-130 **Simple Machines** Activity 3-7, pp. 25-63 **Newton's Toy Box** Activity 3-10, pp. 25-72 Reader, pp. 2-3 (provides the opportunity to address this standard) 1
6	Magnetic, electrical, and gravitational forces can act at a distance.	5.2.6.E.2 Describe the force between two magnets as the distance between them is changed.	**Magnets** Activity 4, pp. 29-34
6	Friction is a force that acts to slow or stop the motion of objects.	5.2.6.E.3 Demonstrate and explain the frictional force acting on an object with the use of a physical	**Simple Machines** Activity 3-4, pp. 25-37 **Newton's Toy Box** Reader, 6-7

		model.	
6	Sinking and floating can be predicted using forces that depend on the relative densities of objects and materials.	5.2.6.E.4 Predict if an object will sink or float using evidence and reasoning.	**Oceans** Activity 3, pp. 31-41
8	An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.	5.2.8.E.1 Calculate the speed of an object when given distance and time.	**Newton's Toy Box** Activity 9, pp. 61-65 Reader, 2-3
8	Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.	5.2.8.E.2 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.	**Newton's Toy Box** Activity 7-13, pp. 49-90 Reader, 4-13

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

Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and discussions about the natural world form a basis for young learners' understanding of life science.	5.3.P.A.1 Investigate and compare the basic physical characteristics of plants, humans, and other animals.	**From Seed to Plant** Activity 3-6, 9-12, pp. 33-58, 73-96 Reader, pp. 2-9 **Observing an Aquarium** Activity 3-6, pp. 31-67 Reader, pp. 4-9
P	Observations and discussions form a basis for young learners' understanding of the similarities and differences among living and nonliving things.	5.3.P.A.2 Observe similarities and differences in the needs of various living things, and differences between living and nonliving things.	**From Seed to Plant** Activity 2, 8, 11, 14, pp. 21-31, 67-72, 85-90, 105-109 Reader, pp. 6-12 **Observing an Aquarium** Activity 2, pp. 23-30 Reader, pp. 8-9, 12 (These address needs of living things and previous citation provides the opportunity to compare living and nonliving things)

2	Living organisms: • Exchange nutrients and water with the environment. • Reproduce. • Grow and develop in a predictable manner.	5.3.2.A.1 Group living and nonliving things according to the characteristics that they share.	The following citations allow students to prepare groups: **From Seed to Plant** Activity 3-6, 9-12, pp. 33-58, 73-96 Reader, pp. 2-9 **Observing an Aquarium** Activity 3-6, pp. 31-67 Reader, pp. 4-9 **Butterflies and Moths** Activity 1-2, 6, 9, 12, pp. 15-30, 53-59,79-87,105-110 Reader, pp. 2, 4-7 **Plant and Animal Populations** Activity 3-7, 10-11, pp. 95-110 **Classroom Plants** Activity 1-2, 6-9, 11, pp. 15-28, 55-86, 97-104 Reader, pp. 2-3, 6-12
4	Living organisms: • Interact with and cause changes in their environment. • Exchange materials (such as gases, nutrients, water, and waste) with the environment. • Reproduce. • Grow and develop in a predictable manner.	5.3.4.A.1 Develop and use evidence-based criteria to determine if an unfamiliar object is living or nonliving.	The following citations allow students to develop criteria: **Butterflies and Moths** Activity 1-2, 4-5, 9, pp. 15-30, 39-52,79-87 Reader, pp. 2-13 **Plant and Animal Populations** Activity 1-7, pp. 15-76 Reader, pp. 4-7 **Classroom Plants** Activity 1-11, pp. 15-104 Reader, pp. 2-3, 6-12 **Food Chains and Webs** Activity 2-10, pp. 23-87 Reader, pp. 4-7 **Plant and Animal Life Cycles** Activity 1-6, 8-12, pp. 15-63, 75-113
4	Essential functions required for the well-being of an organism are carried out by specialized structures in plants and animals.	5.3.4.A.2 Compare and contrast structures that have similar functions in various organisms, and explain how those functions may be carried out by structures that have different physical appearances.	The following citations provide the opportunity for students to compare structures: **Butterflies and Moths** Activity 1-2, 5, 9, 12, pp. 15-30, 47-52,79-87, 105-110 Reader, pp. 4-7 **Plant and Animal Populations** Activity 1-2, 4-7, 10-11, pp. 15-33, 43-76, 95-110 **Classroom Plants** Activity 2-4, 6-9, 11, pp. 23-46, 55-86, 97-104 Reader, pp. 6-12 **Food Chains and Webs**

			Activity 4-6, 10, pp. 30-58, 81-87 **Plant and Animal Life Cycles** Activity 4, 8, pp. 43-48, 75-82 Reader, pp. 3-6, 9-10
4	Essential functions of the human body are carried out by specialized systems: • Digestive • Circulatory • Respiratory • Nervous • Skeletal • Muscular • Reproductive	5.3.4.A.3 Describe the interactions of systems involved in carrying out everyday life activities.	**Using Your Senses** Activity 1-2, 5, 8, 10-12, pp. 13-30, 45-52, 67-73, 81-103 Reader, pp. 2-12 (for parts of the nervous system only)
6	Systems of the human body are interrelated and regulate the body's internal environment.	5.3.6.A.1 Model the interdependence of the human body's major systems in regulating its internal environment.	**You and Your Body** Activity 1-2, 4-7, pp. 13-25, 33-60 Reader, pp. 4-11
6	Essential functions of plant and animal cells are carried out by organelles.	5.3.6.A.2 Model and explain ways in which organelles work together to meet the cell's needs.	**You and Your Body** Reader, p. 2 **DNA-From Genes to Proteins** Activity 3-4, pp. 25-39 Reader, pp. 4-7 **Plants in Our World** Activity 1, pp. 13-25 Reader, p. 2
8	All organisms are composed of cell(s). In multicellular organisms, specialized cells perform specialized functions. Tissues, organs, and organ systems are composed of cells and function to serve the needs of cells for food, air, and waste removal.	5.3.8.A.1 Compare the benefits and limitations of existing as a single-celled organism and as a multicellular organism.	**DNA-From Genes to Proteins** Activity 3-4, pp. 25-39 Reader, pp. 2-3, 10-11 **Plants in Our World** Activity 1-2, 4, pp. 13-33, 41-47 Reader, pp. 2-20 (addresses Content Statement not CPI.)
8	During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	5.3.8.A.2 Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.	**DNA-From Genes to Proteins** Activity 3-5, pp. 25-47 Reader, pp. 4-11 **Plants in Our World** Activity 1-2, 4, pp. 13-33, 41-47 Reader, pp. 2-20

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

Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Investigations form a young learners' understanding of how a habitat provides for an organism's energy needs.	5.3.P.B.1 Observe and describe how plants and animals obtain food from their environment, such as by observing the interactions between organisms in a natural habitat.	**From Seed to Plant** Activity 8, 10-11, pp. 67-72, 79-90 Reader, pp. 4-5, 8, 12 **Observing an Aquarium** Activity 2-4, 7, pp. 23-46, 69-78 Reader, pp. 8-9, 12
2	A source of energy is needed for all organisms to stay alive and grow. Both plants and animals need to take in water, and animals need to take in food. Plants need light.	5.3.2.B.1 Describe the requirements for the care of plants and animals related to meeting their energy needs.	**From Seed to Plant** Activity 8, 10-11, 14, pp. 67-72, 79-90, 105-109 Reader, pp. 6-8, 12 **Observing an Aquarium** Activity 2, 7 pp. 23-30, 69-78 Reader, pp. 8-9, 12 **Butterflies and Moths** Activity 1, 10, pp. 15-21, 89-95 Reader, p. 2 **Classroom Plants** Activity 5, 8, pp. 47-53, 73-79 Reader, pp. 7-9
2	Animals have various ways of obtaining food and water. Nearly all animals drink water or eat foods that contain water.	5.3.2.B.2 Compare how different animals obtain food and water.	**Observing an Aquarium** Activity 2, 4, 7 pp. 23-30, 39-46, 69-78 **Butterflies and Moths** Activity 1, 10, pp. 15-21, 89-95 **Plant and Animal Populations** Activity 4-7, 10-11, pp. 43-76, 95-110 Reader, pp. 6-7, 10-12
2	Most plants have roots to get water and leaves to gather sunlight.	5.3.2.B.3 Explain that most plants get water from soil through their roots and gather light through their leaves.	**From Seed to Plant** Activity 6, 10-11, pp. 53-58, 79-90 Reader, pp. 6, 8 **Classroom Plants** Activity 5, 6, 8, pp. 47-53, 47-64, 73-79 Reader, pp. 7-9
4	Almost all energy (food) and matter can be traced to the	5.3.4.B.1 Identify sources of energy (food) in a variety	**Butterflies and Moths** Activity 1, 10, pp. 15-21, 89-

	Sun.	of settings (farm, zoo, ocean, forest).	95 Reader, p. 2 **Classroom Plants** Activity 5, 8, pp. 47-53, 73-79 Reader, pp. 2-3, 7-9 **Food Chains and Webs** Activity 3, 7-12, pp. 31-37, 59-101 Reader, pp. 4, 6-9 **Plant and Animal Life Cycles** Activity 3, pp. 32-41
6	Plants are producers: They use the energy from light to make food (sugar) from carbon dioxide and water. Plants are used as a source of food (energy) for other organisms.	5.3.6.B.1 Describe the sources of the reactants of photosynthesis and trace the pathway to the products.	**Food Chains and Webs** Activity 3, pp. 31-37 Reader, pp. 4, 6-9 **DNA-From Genes to Proteins** Reader, p. 10 **Plants in Our World** Activity 8-9, pp. 73-86 Reader, pp. 3-4
6	All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	5.3.6.B.2 Illustrate the flow of energy (food) through a community.	**Food Chains and Webs** Activity 7-12, pp. 59-101 Reader, pp. 6-9
8	Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.	5.3.8.B.1 Relate the energy and nutritional needs of organisms in a variety of life stages and situations, including stages of development and periods of maintenance.	**You and Your Body** Reader, p. 9 **DNA-From Genes to Proteins** Reader, pp. 10-11 **Plants in Our World** Activity 10-11, pp. 87-102 Reader, pp. 3-4 (addresses Content Statement)
8	All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	5.3.8.B.2 Analyze the components of a consumer's diet and trace them back to plants and plant products.	**You and Your Body** **Plants in Our World** Activity 11-12, pp. 102-107 Reader, pp. 2-4 (addresses Content Statement)

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Strand: C. Interdependence: All animals and most plants depend on both other organisms and their environment to meet their basic needs.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*

P	Investigations and observations of the interactions between plants and animals form a basis for young learners' understanding of interdependence in life science.	5.3.P.C.1 Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light (e.g., dig outside in the soil to investigate the kinds of animal life that live in and around the ground).	**Observing an Aquarium** Activity 1-3, 12 pp. 15-38, 117-125 Reader, pp. 2-3, 8-9, 12, 14-15
2	Organisms interact and are interdependent in various ways; for example, they provide food and shelter to one another.	5.3.2.C.1 Describe the ways in which organisms interact with each other and their habitats in order to meet basic needs.	**Observing an Aquarium** Activity 3, 7 pp. 31-38, , 69-78 Reader, pp. 8-9, 12 **Butterflies and Moths** Activity 8, pp. 71-77 Reader, p. 2 **Plant and Animal Populations** Activity 4, 6-7, 10-12, pp. 13-50, 59-76, 95-117 Reader, pp. 8-13 **Classroom Plants** Activity 8, 11, pp. 73-79, 97-104 Reader, pp. 2-3
2	A habitat supports the growth of many different plants and animals by meeting their basic needs of food, water, and shelter.	5.3.2.C.2 Identify the characteristics of a habitat that enable the habitat to support the growth of many different plants and animals.	The following citations provide the opportunity for students to compare habitats: **Observing an Aquarium** Activity 1-2 pp. 15-30 Reader, pp. 2, 14-15 **Butterflies and Moths** Activity 4, pp. 39-45 **Plant and Animal Populations** Reader, pp. 12-13
2	Humans can change natural habitats in ways that can be helpful or harmful for the plants and animals that live there...	5.3.2.C.3 Communicate ways that humans protect habitats and/or improve conditions for the growth of the plants and animals that live there, or ways that humans might harm habitats.	**Observing an Aquarium** Activity 11-12 pp. 109-117 **Soil Science** Activity 11, pp. 99-105 Reader, pp. 10-12 **Plant and Animal Populations** Reader, p. 15
4	Organisms can only survive in environments in which their needs are met. Within ecosystems, organisms interact with and are dependent on their physical and living environment.	5.3.4.C.1 Predict the biotic and abiotic characteristics of an unfamiliar organism's habitat.	The following citations provide the opportunity for students to address the Content Statement. **Soil Science** Activity 8-9, pp. 69-89 **Plant and Animal Populations** Activity 4-7, 10-11, pp. 43-76, 95-110 Reader, pp. 12-13

			Food Chains and Webs Activity 1-6, pp. 15-58 Reader, pp. 4-10
4	Some changes in ecosystems occur slowly, while others occur rapidly. Changes can affect life forms, including humans.	5.3.4.C.2 Explain the consequences of rapid ecosystem change (e.g., flooding, wind storms, snowfall, volcanic eruptions), and compare them to consequences of gradual ecosystem change (e.g., gradual increase or decrease in daily temperatures, change in yearly rainfall).	The following citations provide the opportunity for students to address the Content Statement. **Soil Science** Activity 11-12, pp. 99-114 **Plant and Animal Populations** Reader, p. 15 **Food Chains and Webs** Activity 10, Science, Technology and Society, p. 88 Activity 12, Science, Technology and Society, p. 102 Reader, pp. 10, 12
6	Various human activities have changed the capacity of the environment to support some life forms.	5.3.6.C.1 Explain the impact of meeting human needs and wants on local and global environments.	**Food Chains and Webs** Activity 10, Science, Technology and Society, p. 88 Activity 12, Science, Technology and Society, p. 102 Reader, p. 12 **Pollution** Activity 6, 10, pp. 47-52, 71-76 Reader, pp. 2-3
6	The number of organisms and populations an ecosystem can support depends on the biotic resources available and on abiotic factors, such as quantities of light and water, range of temperatures, and soil composition.	5.3.6.C.2 Predict the impact that altering biotic and abiotic factors has on an ecosystem.	**Food Chains and Webs** Reader, p. 12 **Pollution** Activity 6, 10, pp. 47-52, 71-76 Reader, pp. 2-3
6	All organisms cause changes in the ecosystem in which they live. If this change reduces another organism's access to resources, that organism may move to another location or die.	5.3.6.C.3 Describe how one population of organisms may affect other plants and/or animals in an ecosystem.	**Food Chains and Webs** Activity 7-8, 11-12, pp. 59-72, 89-101 Reader, p. 14
8	Symbiotic interactions among organisms of different species can be classified as: • Producer/consumer • Predator/prey • Parasite/host • Scavenger/prey • Decomposer/prey	5.3.8.C.1 Model the effect of positive and negative changes in population size on a symbiotic pairing.	

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Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations of developmental changes in a plant or animal over time form a basis for young learners' understanding of heredity and reproduction.	5.3.P.D.1 Observe and record change over time and cycles of change that affect living things (e.g., use baby photographs to discuss human change and growth, observe and photograph tree growth and leaf changes throughout the year, monitor the life cycle of a plant).	**Observing an Aquarium** Activity 10, pp. 97-107 Reader, PP. 10-11 **From Seed to Plant** Activity 13, pp. 97-103 Reader, pp. 10-11
2	Plants and animals often resemble their parents.	5.3.2.D.1 Record the observable characteristics of plants and animals to determine the similarities and differences between parents and their offspring.	**From Seed to Plant** Activity 13, pp. 97-103 Reader, pp. 10-11 **Observing an Aquarium** Activity 10, pp. 97-107 Reader, pp. 10-11 **Butterflies and Moths** Activity 1-2, 6, 9, 11, pp. 15-30, 53-59, 79-87, 97-104 Reader, pp. 3, 8-13 **Classroom Plants** Reader, p. 5 **Plant and Animal Populations** Activity 5, pp. 51-57
2	Organisms have predictable characteristics at different stages of development.	5.3.2.D.2 Determine the characteristic changes that occur during the life cycle of plants and animals by examining a variety of species, and distinguish between growth and development.	The following citations provide the opportunity for students to address the CPI. **From Seed to Plant** Activity 13, pp. 97-103 Reader, pp. 10-11 **Observing an Aquarium** Activity 10, pp. 97-107 Reader, pp. 10-11 **Butterflies and Moths** Activity 1-2, 6, 9, 11, pp. 15-30, 53-59, 79-87, 97-104 Reader, pp. 3, 8-13 **Classroom Plants** Reader, p. 5 **Plant and Animal Populations** Activity 5, pp. 51-57

4	Plants and animals have life cycles (they begin life, develop into adults, reproduce, and eventually die). The characteristics of each stage of life vary by species.	5.3.4.D.1 Compare the physical characteristics of the different stages of the life cycle of an individual organism, and compare the characteristics of life stages among species.	**Butterflies and Moths** Activity 1-2, 6, 9, 11, pp. 15-30, 53-59, 79-87, 97-104 Reader, pp. 3, 8-13 **Classroom Plants** Reader, p. 5 **Plant and Animal Life Cycles** Activity 2-6, 9-10, pp. 23-57, 83-96 Reader, pp. 2-3, 7-13
6	Reproduction is essential to the continuation of every species...	5.3.6.D.1 Predict the long-term effect of interference with normal patterns of reproduction.	**DNA-From Genes to Proteins** Reader, pp. 14, 18 (addresses the Content Statement not the CPI)
6	Variations exist among organisms of the same generation (e.g., siblings) and of different generations (e.g., parent to offspring).	5.3.6.D.2 Explain how knowledge of inherited variations within and between generations is applied to farming and animal breeding.	**DNA-From Genes to Proteins** Reader, p. 20
6	Traits such as eye color in human beings or fruit/flower color in plants are inherited.	5.3.6.D.3 Distinguish between inherited and acquired traits/characteristics.	**DNA-From Genes to Proteins** Reader, pp. 16-17, 20
8	Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent	5.3.8.D.1 Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.	**DNA-From Genes to Proteins** Activity 1-2, pp. 13-24 Reader, pp. 15-19
8	The unique combination of genetic material from each parent in sexually reproducing organisms results in the potential for variation	5.3.8.D.2 Explain the source of variation among siblings.	**DNA-From Genes to Proteins** Reader, pp. 15-19
8	Characteristics of organisms are influenced by heredity and/or their environment.	5.3.8.D.3 Describe the environmental conditions or factors that may lead to a change in a cell's genetic information or to an organism's development, and how these changes are passed on.	**DNA-From Genes to Proteins** Reader, pp. 19-20

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

Strand: E. Evolution and Diversity: Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
2	Variations exist within a group of the same kind of organism.	5.3.2.E.1 Describe similarities and differences in observable traits between parents and offspring	**Observing an Aquarium** Activity 10, pp. 97-107 Reader, PP. 10-11 **From Seed to Plant** Activity 13, pp. 97-103 Reader, pp. 10-11
2	Plants and animals have features that help them survive in different environments.	5.3.2.E.2 Describe how similar structures found in different organisms (e.g., eyes, ears, mouths) have similar functions and enable those organisms to survive in different environments.	**Observing an Aquarium** Activity 3, 5, pp. 31-38, 47-55 **Plant and Animal Populations** Activity 4-7, pp. 43-76 **Butterflies and Moths** Activity 12, pp. 105-110 **Classroom Plants** Activity 8-9, pp. 73-86 Reader, pp. 9-12
4	Individuals of the same species may differ in their characteristics, and sometimes these differences give individuals an advantage in surviving and reproducing in different environments.	5.3.4.E.1 Model an adaptation to a species that would increase its chances of survival, should the environment become wetter, dryer, warmer, or colder over time.	
4	In any ecosystem, some populations of organisms thrive and grow, some decline, and others do not survive at all.	5.3.4.E.2 Evaluate similar populations in an ecosystem with regard to their ability to thrive and grow.	**Food Chains and Webs** Reader, p. 14
6	Changes in environmental conditions can affect the survival of individual organisms and entire species	5.3.6.E.1 Describe the impact on the survival of species during specific times in geologic history when environmental conditions changed	**Dinosaurs and Fossils** Reader, pp. 1, 12
8	Individual organisms with certain traits are more likely than others to survive and have offspring in particular environments. The advantages or disadvantages of specific characteristics can change when the environment in which they exist changes. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.	5.3.8.E.1 Organize and present evidence to show how the extinction of a species is related to an inability to adapt to changing environmental conditions using quantitative and qualitative data.	**DNA-From Genes to Proteins** Reader, pp. 19-20 (addresses the Content Statement not the CPI)

8	Anatomical evidence supports evolution and provides additional detail about the sequence of branching of various lines of descent.	5.3.8.E.2 Compare the anatomical structures of a living species with fossil records to derive a line of descent.	

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

Strand: A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
2	The Sun is a star that can only be seen during the day. The Moon is not a star and can be seen sometimes at night and sometimes during the day. The Moon appears to have different shapes on different days.	5.4.2.A.1 Determine a set of general rules describing when the Sun and Moon are visible based on actual sky observations.	**Weather and Sky** Activity 2, pp. 21-28 **Finding the Moon** Activity 1, pp. 13-19
4	Objects in the sky have patterns of movement. The Sun and Moon appear to move across the sky on a daily basis. The shadows of an object on Earth change over the course of a day, indicating the changing position of the Sun during the day.	5.4.4.A.1 Formulate a general description of the daily motion of the Sun across the sky based on shadow observations. Explain how shadows could be used to tell the time of day.	**Weather and Sky** (grade 1**)** Activity 10, pp. 103-109 **Sunshine and Shadows** (grade 1**)** Activity 4, 6-7, pp. 33-41, 49-63 Reader, pp. 8-9
4	The observable shape of the Moon changes from day to day in a cycle that lasts 29.5 days	5.4.4.A.2 Identify patterns of the Moon's appearance and make predictions about its future appearance based observational data.	**Weather and Sky** (grade 1**)** Activity 12, pp. 119-130 Reader, p. 15 **Finding the Moon** (grade 1**)** Activity 4, 9-10, pp. 39-46, 77-91 Reader, pp. 6-10 **Solar System** Reader, p. 7
4	Earth is approximately spherical in shape. Objects fall towards the center of the Earth because of the pull of the force of gravity.	5.4.4.A.3 Generate a model with explanatory value that explains both why objects roll down ramps as well as why the Moon orbits Earth.	**Solar System** Activity 2, pp. 21-26 Reader, p. 7
4	Earth is the third planet from the Sun in our solar system, which includes seven other planets.	5.4.4.A.4 Analyze and evaluate evidence in the form of data tables and photographs to categorize	**Solar System** Activity 1, 6, 8, 10, pp. 13-20, 51-58, 65-72, 88-92 Reader, pp. 2-13

		and relate solar system objects (e.g., planets, dwarf planets, moons, asteroids, and comets).	
6	The height of the path of the Sun in the sky and the length of a shadow change over the course of a year.	5.4.6.A.1 Generate and analyze evidence (through simulations) that the Sun's apparent motion across the sky changes over the course of a year...	**Earth, Moon and Sun** Activity 1, 7, pp. 13-19, 61-69
6	Earth's position relative to the Sun, and the rotation of Earth on its axis, result in patterns and cycles that define time units of days and years.	5.4.6.A.2 Construct and evaluate models demonstrating the rotation of Earth on its axis and the orbit of Earth around the Sun.	**Earth, Moon and Sun** Activity 6, 8, pp. 53-68, 71-79 Reader, pp. 8-10 **Astronomy** Activity 2, pp. 23-29
6	The Sun's gravity holds planets and other objects in the solar system in orbit, and planets' gravity holds moons in orbit.	5.4.6.A.3 Predict what would happen to an orbiting object if gravity were increased, decreased, or taken away	**Solar System** Activity 2, pp. 21-26 **Earth, Moon and Sun** Activity 12, pp. 111-119 Reader, pp. 5, 16-17 **Astronomy** Reader, pp. 3, 5
6	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.	5.4.6.A.4 Compare and contrast the major physical characteristics (including size and scale) of solar system objects using evidence in the form of data tables and photographs.	**Solar System** Activity 1, 6, 8, 10, pp. 13-30, 51-58, 65-72, 83-92 Reader, pp. 2-13 **Earth, Moon and Sun** Activity 3-4, pp. 29-44 Reader, pp. 2-3, 21-23 **Astronomy** Activity 6, pp. 61-68 Reader, pp. 2-7
8	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.	5.4.8.A.1 Analyze moon-phase, eclipse, and tidal data to construct models that explain how the relative positions and motions of the Sun, Earth, and Moon cause these three phenomena.	**Earth, Moon and Sun** Activity 10-12, pp. 93-119 Reader, pp. 14-19
8	Earth's tilt, rotation, and revolution around the Sun cause changes in the height and duration of the Sun in the sky. These factors combine to explain the changes in the length of the day and seasons.	5.4.8.A.2 Use evidence of global variations in day length, temperature, and the amount of solar radiation striking Earth's surface to create models that explain these phenomena and seasons.	**Earth, Moon and Sun** Activity 9, pp. 81-92 Reader, pp. 11-12 **Astronomy** Activity 5, pp. 51-60
8	Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance	5.4.8.A.3 Predict how the gravitational force between two bodies would differ for bodies of different masses or bodies that are different distances apart.	**Earth, Moon and Sun** Reader, p. 5 **Astronomy** Reader, p. 3 (addresses Content Statement not CPI)

	between the objects.		
8	The regular and predictable motion of objects in the solar system (Kepler's Laws) is explained by gravitational forces.	5.4.8.A.4 Analyze data regarding the motion of comets, planets, and moons to find general patterns of orbital motion.	

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

Strand: B. History of Earth: From the time that Earth formed from a nebula 4.6 billion years ago, it has been evolving as a result of geologic, biological, physical, and chemical processes.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
4	Fossils provide evidence about the plants and animals that lived long ago, including whether they lived on the land or in the sea as well as ways species changed over time.	5.4.4.B.1 Use data gathered from observations of fossils to argue whether a given fossil is terrestrial or marine in origin.	**Dinosaurs and Fossils** Activity 3, pp. 21-28 Reader, pp. 4-5 **Earth Movements** Activity 3, pp. 29-37
6	Successive layers of sedimentary rock and the fossils contained in them tell the factual story of the age, history, changing life forms, and geology of Earth.	5.4.6.B.1 Interpret a representation of a rock layer sequence to establish oldest and youngest layers, geologic events, and changing life forms.	**Rocks and Minerals** Reader, pp. 10, 15 **Earth Processes** Reader, p. 22
6	Earth's current structure has been influenced by both sporadic and gradual events. Changes caused by earthquakes and volcanic eruptions can be observed on a human time scale, but many geological processes, such as mountain building and the shifting of continents, are observed on a geologic time scale.	5.4.6.B.2 Examine Earth's surface features and identify those created on a scale of human life or on a geologic time scale.	**Earth Movements** Activity 9-10, pp. 79-96 Reader, pp. 4-5, 9-14 **Erosion** Activity 9-12, pp. 75-104 Reader, pp. 4-13 **Earth Processes** Activity 5, 7, 14, pp. 47-54, 63-69, 121-129 Reader, pp. 6-8, 10-15
6	Moving water, wind, and ice continually shape Earth's surface by eroding rock and soil in some areas and depositing them in other areas..	5.4.6.B.3 Determine if landforms were created by processes of erosion (e.g., wind, water, and/or ice) based on evidence in pictures, video, and/or maps.	**Earth Movements** Reader, pp. 12-13 **Erosion** Activity 2, 9-12, pp. 21-27, 75-104 Reader, pp. 6-13 **Earth Processes** Reader, pp. 11-15
6	Erosion plays an important role in the formation of soil, but too much erosion can wash away fertile soil from ecosystems, including farms...	5.4.6.B.4 Describe methods people use to reduce soil erosion.	**Erosion** Activity 3, 11, pp. 29-35, 91-97 Reader, p. 14 **Earth Processes** Reader, p. 20
8	Today's planet is very different	5.4.8.B.1 Correlate the	**Earth Processes**

	than early Earth. Evidence for one-celled forms of life (bacteria) extends back more than 3.5 billion years.	evolution of organisms and the environmental conditions on Earth as they changed throughout geologic time.	Reader, p. 22
8	Fossils provide evidence of how life and environmental conditions have changed. The principle of Uniformitarianism makes possible the interpretation of Earth's history. The same Earth processes that occurred in the past occur today.	5.4.8.B.2 Evaluate the appropriateness of increasing the human population in a region (e.g., barrier islands, Pacific Northwest, Midwest United States) based on the region's history of catastrophic events, such as volcanic eruptions, earthquakes, and floods.	**Earth Processes** Reader, p. 22 (addresses Content Statement)

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Strand: C. Properties of Earth Materials: Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form a basis for young learners' understanding of properties of Earth materials.	5.4.P.C.1 Explore and describe characteristics of and concepts about soil, rocks, water, and air.	**Investigating Water** Activity 1-2, 9-11, pp. 13-26, 71-94 Reader, pp. 2-4 (for water)
2	Soils are made of many living and nonliving substances. The attributes and properties of soil (e.g., moisture, kind and size of particles, living/organic elements, etc.) vary depending on location.	5.4.2.C.1 Describe Earth materials using appropriate terms, such as hard, soft, dry, wet, heavy, and light..	**Investigating Water** Activity 1-2, pp.13-26 Reader, p. 2 **Soil Science** Activity 1-4, pp. 15-44 Reader, p. 7
4	Rocks can be broken down to make soil.	5.4.4.C.1 Create a model to represent how soil is formed.	**Soil Science** Activity 5-6, 9, pp. 45-58, 81-89 Reader, pp. 2-6
4	Earth materials in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Attributes of rocks and minerals assist in their identification.	5.4.4.C.2 Categorize unknown samples as either rocks or minerals.	**Earth Movements** Reader, p. 15
6	Soil attributes/properties affect the soil's ability to support animal life and grow plants.	5.4.6.C.1 Predict the types of ecosystems that unknown soil samples could support based on soil properties.	**Food Chains and Webs** Activity 2, pp. 23-29
6	The rock cycle is a model of creation and transformation of rocks from one form	5.4.6.C.2 Distinguish physical properties of sedimentary, igneous, or	**Rocks and Minerals** Activity 2, 9-10, pp. 21-28, 69-84

	(sedimentary, igneous, or metamorphic) to another. Rock families are determined by the origin and transformations of the rock.	metamorphic rocks and explain how one kind of rock could eventually become a different kind of rock.	Reader, pp. 9-13 **Earth Processes** Activity 4-6, pp. 39-62 Reader, pp. 16-19
6	Rocks and rock formations contain evidence that tell a story about their past. The story is dependent on the minerals, materials, tectonic conditions, and erosion forces that created them.	5.4.6.C.3 Deduce the story of the tectonic conditions and erosion forces that created sample rocks or rock formations.	**Earth Movements** Activity 3, pp. 29-37 Reader, pp. 3-4, 9-13 **Erosion** Reader, pp. 4-6, 8-13 **Earth Processes** Activity 3-4, pp. 29-46 Reader, pp. 2, 7-8, 10-15
8	Soil consists of weathered rocks and decomposed organic material from dead plants, animals, and bacteria. Soils are often found in layers, each having a different chemical composition and texture.	5.4.8.C.1 Determine the chemical properties of soil samples in order to select an appropriate location for a community garden.	**Earth Processes** Reader, pp. 19-20 (addresses Content Statement)
8	Physical and chemical changes take place in Earth materials when Earth features are modified through weathering and erosion.	5.4.8.C.2 Explain how chemical and physical mechanisms (changes) are responsible for creating a variety of landforms.	**Erosion** Activity 1-2, 9-12, pp. 13-27, 75-104 Reader, pp. 5-13 **Earth Processes** Activity 4, pp. 39-46 Reader, pp.11-15
8	Earth's atmosphere is a mixture of nitrogen, oxygen, and trace gases that include water vapor. The atmosphere has a different physical and chemical composition at different elevations.	5.4.8.C.3 Model the vertical structure of the atmosphere using information from active and passive remote-sensing tools (e.g., satellites, balloons, and/or ground-based sensors) in the analysis.	**Weather Forecasting** Reader, p. 2 (addresses Content Statement)

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

Strand: D. Tectonics: The theory of plate tectonics provides a framework for understanding the dynamic processes within and on Earth.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
6	Lithospheric plates consisting of continents and ocean floors move in response to movements in the mantle.	5.4.6.D.1 Apply understanding of the motion of lithospheric plates to explain why the Pacific Rim is referred to as the Ring of Fire.	**Earth Movements** Activity 6-12, pp. 55-110 Reader, pp. 6-11 **Earth Processes** Activity 7-8, 10-14, p. 63-79, 89129 Reader, pp. 2-10
6	Earth's landforms are created through constructive (deposition) and destructive (erosion)	5.4.6.D.2 Locate areas that are being created (deposition) and destroyed (erosion)	**Erosion** Activity 9-12, pp. 75-104 Reader, pp. 5-13 **Earth Movements**

	processes.	using maps and satellite images.	Reader, pp. 12-13 **Earth Processes** Activity 3-4, p. 29-46 Reader, pp. 11-15 (addresses Content Statement)
6	Earth has a magnetic field that is detectable at the surface with a compass.	5.4.6.D.3 Apply knowledge of Earth's magnetic fields to successfully complete an orienteering challenge.	**Magnets** Reader, p. 7 **Electrical Circuits** Reader, p. 9 (addresses Content Statement)
8	Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	5.4.8.D.1 Model the interactions between the layers of Earth.	**Erosion** Reader, p. 2 **Earth Processes** Activity 2, pp. 23-28, Reader, p. 3
8	Major geological events, such as earthquakes, volcanic eruptions, and mountain building, result from the motion of plates. Sea floor spreading, revealed in mapping of the Mid-Atlantic Ridge, and subduction zones are evidence for the theory of plate tectonics.	5.4.8.D.2 Present evidence to support arguments for the theory of plate motion.	**Earth Processes** Activity 7-14, pp. 63-29 Reader, pp. 4-10
8	Earth's magnetic field has north and south poles and lines of force that are used for navigation.	5.4.8.D.3 Explain why geomagnetic north and geographic north are at different locations.	

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

Strand: E. Energy in Earth Systems: Internal and external sources of energy drive Earth systems.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form the basis for young learners' understanding of energy in Earth systems.	5.4.P.E.1 Explore the effects of sunlight on living and nonliving things.	**From Seed to Plant** Activity 11, pp. 85-90 **Sunshine and Shadows** Activity 1, 6-7, pp. 13-18, 49-63
2	Plants need sunlight to grow.	5.4.2.E.1 Describe the relationship between the Sun and plant growth.	**From Seed to Plant** Activity 11, pp. 85-90 Reader, pp. 8-12 **Classroom Plants** Activity 8, pp. 73-79 Reader, p. 9
4	Land, air, and water absorb the Sun's energy at different rates.	5.4.4.E.1 Develop a general set of rules to predict temperature changes of Earth materials,	

		such as water, soil, and sand, when placed in the Sun and in the shade.	
6	The Sun is the major source of energy for circulating the atmosphere and oceans.	5.4.6.E.1 Generate a conclusion about energy transfer and circulation by observing a model of convection currents.	**Weather Instruments** Reader, p. 6 **Weather Forecasting** Reader, p. 4 **Oceans** Activity 5, pp. 55-63 Reader, p. 10
8	The Sun provides energy for plants to grow and drives convection within the atmosphere and oceans, producing winds, ocean currents, and the water cycle.	5.4.8.E.1 Explain how energy from the Sun is transformed or transferred in global wind circulation, ocean circulation, and the water cycle.	**Weather Forecasting** Reader, p. 4 **Oceans** Activity 5, pp. 55-63 Reader, p. 10

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

Strand: F. Climate and Weather: Earth's weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Observations and investigations form the basis for young learners' understanding of weather and climate.	5.4.P.F.1 Observe and record weather.	**Weather and Sky** Activity 1, pp. 13-20
2	Current weather conditions include air movement, clouds, and precipitation. Weather conditions affect our daily lives.	5.4.2.F.1 Observe and document daily weather conditions and discuss how the weather influences your activities for the day.	**Weather and Sky** Activity 1, 3-6, 8, pp. 13-20, 29-74, 83-92 Reader, p. 8 **Weather Watching** Activity 1-7, pp. 13-68
4	Weather changes that occur from day to day and across the seasons can be measured and documented using basic instruments such as a thermometer, wind vane, anemometer, and rain gauge.	5.4.4.F.1 Identify patterns in data collected from basic weather instruments.	**Weather Watching** Activity 3, pp. 29-36 **Weather Instruments** Activity 3, 6, pp. 31-36, 51-57
6	Weather is the result of short-term variations in temperature, humidity, and air pressure.	5.4.6.F.1 Explain the interrelationships between daily temperature, air pressure, and relative humidity data.	**Weather Instruments** Activity 1-6, pp. 13-57 Reader, pp. 2-8 **Weather Forecasting** Activity 3-6, pp. 25-49 Reader, pp. 3, 6-7
6	Climate is the result of long-term patterns of temperature and precipitation.	5.4.6.F.2 Create climatographs for various locations around Earth and categorize the climate based on the yearly patterns of temperature and	**Weather Forecasting** Reader, p. 9 (addresses Content Statement)

		precipitation.	
8	Global patterns of atmospheric movement influence local weather.	5.4.8.F.1 Determine the origin of local weather by exploring national and international weather maps.	**Weather Forecasting** Activity 6-8, pp. 49-68 Reader, pp. 6-7
8	Climate is influenced locally and globally by atmospheric interactions with land masses and bodies of water.	5.4.8.F.2 Explain the mechanisms that cause varying daily temperature ranges in a coastal community and in a community located in the interior of the country.	**Weather Forecasting** Reader, pp. 9-10
8	Weather (in the short term) and climate (in the long term) involve the transfer of energy and water in and out of the atmosphere.	5.4.8.F.3 Create a model of the hydrologic cycle that focuses on the transfer of water in and out of the atmosphere. Apply the model to different climates around the world.	**Weather Forecasting** Reader, p. 4 **Oceans** Activity 5, pp. 55-63 Reader, p. 10 (partial correlation)

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

Strand: G. Biogeochemical Cycles: The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.

By the end of grade	*Content Statement*	*Cumulative Progress Indicator (CPI)*	*DSM Activity*
P	Investigations in environmental awareness activities form a basis for young learners' understanding of biogeochemical changes.	5.4.P.G.1 Demonstrate emergent awareness for conservation, recycling, and respect for the environment (e.g., turning off water faucets, using paper from a classroom scrap box when whole sheets are not needed, keeping the playground neat and clean).	**Investigating Water** Activity 12, pp. 95-100 Reader, p. 15 **Observing an Aquarium** Activity 11-12, pp. 109-125
2	Water can disappear (evaporate) and collect (condense) on surfaces.	5.4.2.G.1 Observe and discuss evaporation and condensation.	**Investigating Water** Activity 10-11, pp. 81-94 Reader, pp. 10-11 **Weather Watching** Reader, p. 4 **States of Matter** Activity 8-9, pp. 65-79 Reader, pp. 9-10
2	There are many sources and uses of water.	5.4.2.G.2 Identify and use water conservation practices.	**Investigating Water** Reader, p. 15
2	Organisms have basic needs and they meet those needs within their environment.	5.4.2.G.3 Identify and categorize the basic needs of living organisms as they	**Observing an Aquarium** Activity 2, 4, 7 pp. 23-30, 39-46, 69-78

		relate to the environment.	**Butterflies and Moths** Activity 1, 10, pp. 15-21, 89-95 **Plant and Animal Populations** Activity 4-7, 10-11, pp. 43-76, 95-110 Reader, pp. 6-7, 10-12 **From Seed to Plant** Activity 6, 10-11, pp. 53-58, 79-90 Reader, pp. 6, 8 **Classroom Plants** Activity 5, 6, 8, pp. 47-53, 47-64, 73-79 Reader, pp. 7-9
2	The origin of everyday manufactured products such as paper and cans can be traced back to natural resources.	5.4.2.G.4 Identify the natural resources used in the process of making various manufactured products.	**Sink or Float** Reader, pp. 12-13 **States of Matter** Reader, pp. 12-13
4	Clouds and fog are made of tiny droplets of water and, at times, tiny particles of ice.	5.4.4.G.1 Explain how clouds form.	**Weather Watching** Activity 6, pp. 51-59 Reader, pp. 4-5 **Weather Instruments** Activity 9, pp. 75-80 Reader, p. 6 **Water Cycle** Activity 9, pp. 77-83 Reader, p. 10
4	Rain, snow, and other forms of precipitation come from clouds; not all clouds produce precipitation.	5.4.4.G.2 Observe daily cloud patterns, types of precipitation, and temperature, and categorize the clouds by the conditions that form precipitation.	**Weather Watching** Activity 2, 6-7, pp. 21-28, 51-68 **Weather Instruments** Activity 1, 6, 10-11, pp. 13-21, 51-57, 81-96 Reader, pp. 8, 13 **Water Cycle** Reader, p. 13
4	Most of Earth's surface is covered by water. Water circulates through the crust, oceans, and atmosphere in what is known as the water cycle.	5.4.4.G.3 Trace a path a drop of water might follow through the water cycle.	**Weather Watching** Reader, pp. 4-5 **Weather Instruments** Reader, p. 6 **Water Cycle** Activity 13, pp. 107-114 Activity 13, Science and Language Arts, p. 114 Reader, pp. 10-11
4	Properties of water depend on where the water is located (oceans, rivers, lakes, underground sources, and glaciers).	5.4.4.G.4 Model how the properties of water can change as water moves through the water cycle.	**Weather Watching** Reader, pp. 4-5 **Weather Instruments** Reader, p. 6 **Water Cycle** Activity 11-13, pp. 91-114 Reader, pp. 10-11
6	Circulation of water in marine environments is dependent on	5.4.6.G.1 Illustrate global winds and surface currents	**Oceans** Activity 7, pp. 75-88

	factors such as the composition of water masses and energy from the Sun or wind.	through the creation of a world map of global winds and currents that explains the relationship between the two factors.	Reader, pp. 8, 10
6	An ecosystem includes all of the plant and animal populations and nonliving resources in a given area. Organisms interact with each other and with other components of an ecosystem.	5.4.6.G.2 Create a model of ecosystems in two different locations, and compare and contrast the living and nonliving components.	**Food Chains and Webs** Activity 1-9, pp. 15-79 Reader, 2-3, 14-15 (provides the opportunity to address the Content Statement)
6	Personal activities impact the local and global environment.	5.4.6.G.3 Describe ways that humans can improve the health of ecosystems around the world.	**Food Chains and Webs** Activity 10, Science, Technology and Society, p. 88 Activity 12, Science, Technology and Society, p. 102 **Pollution** Activity 1-3, 5-6, 9-10, pp. 13-30, 39-52, 65-76 Reader, pp. 2-14
8	Water in the oceans holds a large amount of heat, and therefore significantly affects the global climate system.	5.4.8.G.1 Represent and explain, using sea surface temperature maps, how ocean currents impact the climate of coastal communities.	**Oceans** Reader, p. 10 (addresses Content Statement)
8	Investigations of environmental issues address underlying scientific causes and may inform possible solutions.	5.4.8.G.2 Investigate a local or global environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.	**Pollution** Activity 1-3. 6, 9-12, pp. 13-30, 47-52, 65-88 Reader, pp. 2-15 **Earth Processes** Reader, p. 20 (addresses Content statement)