Performance Expectation *and Louisiana Connectors*
5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen. ***LC-5-PS1-1a Identify in a model (e.g., picture, diagram) which shows that all matter can be broken down into smaller and smaller pieces until they are too small to be seen by human eyes.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Developing and using models: Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. ***Models can be used to describe phenomena.*** ***Models can be used to predict phenomena.***	**STRUCTURE AND PROPERTIES OF MATTER** Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including boiling water, the inflation and shape of a balloon, and the effects of air on larger particles or objects. (UE.PS1A.a) ***Matter is anything that occupies space and has mass.*** ***Everything around us (matter) is made up of particles that are too small to be seen.*** ***Models may be used to gain an understanding of these tiny particles.*** ***Matter that cannot be seen can be detected in other ways.*** ***Gas (air) has mass and takes up space.*** ***Gas (air) particles, which are too small to be seen, can affect larger particles and objects.*** ***Gas particles, which freely move around in space, until they hit a material that keeps them from moving further, thus trapping the gas (e.g., air inflating a basketball, an expanding balloon).***	**SCALE, PROPORTION, AND QUANTITY** Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. ***Natural processes vary in size (very small to the immensely large).*** ***Natural processes vary in time span (very short to very long).*** ***Observable phenomena vary in size (very small to the immensely large).*** ***Observable phenomena vary in time span (very short to very long).***

Clarification Statement
Examples of evidence could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, or evaporating salt water. Does not include atomic scale mechanism of evaporation and condensation or defining the unseen particles.

Performance Expectation *and Louisiana Connectors*
5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total amount of matter is conserved. ***LC-5-PS1-2a Identify using measurements that the total weight of matter is conserved when it changes form.*** ***LC-5-PS1-2b Identify using measurements that the total weight of matter is conserved before and after they are heated, cooled, or mixed.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Using mathematics and computational thinking: Mathematical and computational thinking in 3-5 builds on K-2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. • Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems. ***Mathematics can be used to represent physical variables and their relationships.*** ***Tools can be used for observing, describing, measuring, recording, and graphing data.*** ***Descriptions can be used to address problems (scientific and***	**STRUCTURE AND PROPERTIES OF MATTER** The amount of mass in matter is conserved when it changes form, even in transitions in which it seems to vanish. (UE.PS1A.b) ***Matter can change in different ways.*** ***Regardless of the type of change, none of the particles are lost, and the total mass of the system is the same.*** ***The mass of substances are the same before and after they change form (e.g., heating, cooling, or mixing).*** **CHEMICAL REACTIONS** When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a) ***When substances are mixed, the change can result in a new substance.*** ***Substances change during a chemical reaction.*** ***A new substance may have different properties than the individual substances from which it was made.*** No matter what reaction or change in properties occurs, the total mass of the substances does not change. (UE.PS1B.b) ***In a closed system, the total mass will not change.*** ***During a physical or chemical change, the total mass of the substances do not change.*** ***After a change, the total mass of the new substance(s) will be the same as the total mass of***	**ENERGY AND MATTER** Matter flows and cycles can be tracked in terms of mass of the substances before and after a process occurs. The total mass of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems. ***Matter flows and cycles (e.g., water going back and forth between Earth's atmosphere and its surface).*** ***Matter can change, but, the total mass of the substances is the same.*** ***Matter is conserved.*** ***Matter can be***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
engineering). ***Measurements can be used to address problems (scientific and engineering).*** ***Estimates can be used to address problems (scientific and engineering).*** ***Graphing quantities (e.g., area, volume, time) can be used to address problems (scientific and engineering).***	***the beginning substances.*** ***The total mass of matter is conserved after heating, cooling or mixing substances.***	***transported into, out of, and within systems.***

Clarification Statement
Examples of chemical changes includes reactions that produce new substances with new properties. Examples of physical changes could include phase changes, dissolving, or mixing.

Performance Expectation *and Louisiana Connectors*
5-PS1-3 Make observations and measurements to identify materials based on their properties. ***LC-5-PS1-3a Identify that materials can be classified based on a variety of observable physical properties (e.g., shape, texture, buoyancy, color, magnetism, solubility).*** ***LC-5-PS1-3b Classify materials (e.g., shape, texture, buoyancy, color, magnetism, solubility) by measurable physical properties.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Planning and carrying out Investigations: Planning and carrying out investigations to answer questions (science) or test solutions (engineering) to problems in 3-5 builds on K-2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. ***Make observations to collect data.*** ***Make measurements to collect data.*** ***Use data to as evidence for an explanation of a phenomenon.***	**STRUCTURE AND PROPERTIES OF MATTER** Measurements of a variety of properties can be used to identify materials. (UE.PS1A.c) ***Everything around us has unique properties that can be used to identify them, such as what color they are, how hard they are, if they reflect light, whether they conduct electricity or heat, whether they are magnetic, and whether they dissolve in water.*** ***Properties can be used to identify materials.*** ***Properties can be measured.*** ***Materials can be identified based on their observable and measurable properties.*** ***Properties of materials may include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility.*** ***Tools such as graduated cylinders, balances, rulers, magnifiers, simple circuits, and magnets are used to study the physical properties.***	**SCALE, PROPORTION, AND QUANTITY** Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume. ***Physical quantities (mass, time, temperature, and volume) can be measured.*** ***Physical quantities are measured using standard units.*** ***Measurements of physical properties can be used to describe physical quantities.***

Clarification Statement
Examples of materials to be identified could include baking soda and other powders, metals, minerals, or liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, or solubility; density is not intended to be used as an identifiable property. No attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.

Performance Expectation *and Louisiana Connectors*
5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. ***LC-5-PS1-4a Identify that when two or more different substances are mixed, a new substance with different properties may be formed.*** ***LC-5-PS1-4b Identify the changes that occur when two or more substances are mixed using evidence provided from data.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Planning and carrying out Investigations: Planning and carrying out investigations to answer questions or test solutions to problems in 3-5 builds on K-2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. ***Plan investigations collaboratively to produce data to serve as the basis for evidence.*** ***Conduct investigations collaboratively to produce data to serve as the basis for evidence.*** ***Plan investigations collaboratively using fair tests in which variables are controlled and the number of trials considered.***	**CHEMICAL REACTIONS** When two or more different substances are mixed, a new substance with different properties may be formed. (UE.PS1B.a) ***When substances are mixed, a change can occur which results in a new substance.*** ***Substances change during a chemical reaction.*** ***A new substance may have different properties than the individual substances from which it was made.***	**CAUSE AND EFFECT** Cause and effect relationships are routinely identified, tested, and used to explain change. ***Cause and effect relationships may be identified.*** ***Cause and effect relationships may be tested.*** ***Cause and effect relationships may be used to explain change.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Conduct investigations collaboratively using fair tests in which variables are controlled and the number of trials considered.		

Clarification Statement
Examples of interactions forming new substances can include mixing baking soda and vinegar. Examples of interactions not forming new substances can include mixing baking soda and water.

Performance Expectation *and Louisiana Connectors*
5-PS2-1 Support an argument that the gravitational force exerted by the Earth is directed down. ***LC-5-PS2-1a Identify that the gravitational force exerted by Earth on objects is directed down.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Engaging in argument from evidence: Engaging in argument from evidence in 3-5 builds on K-2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s) • Construct and/or support an argument with evidence, data, and/or a model ***Use evidence to construct an argument.*** ***Use evidence to support an argument.*** ***Use data to construct an argument.*** ***Use data to support an argument.*** ***Use a model to construct an argument.*** ***Use a model to support an argument.***	**TYPES OF INTERACTIONS** The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (UE.PS2B.c) ***Gravity is what makes things fall to Earth's center.*** ***Gravity is an invisible force.*** ***Some forces (e.g., gravity) can make things move without touching them.*** ***Gravity is what makes things fall.*** ***The gravitational pull of Earth always pulls down to the center of the planet.***	**CAUSE AND EFFECT** Cause and effect relationships are routinely identified, tested, and used to explain change. ***Cause and effect relationships may be identified.*** ***Cause and effect relationships may be tested.*** ***Cause and effect relationships may be used to explain change.***

Clarification Statement
"Down" is a local description of the direction that points toward the center of the spherical Earth. Earth's mass causes objects to have a force on them that points toward the center of the Earth, "down". Support for arguments can be drawn from diagrams, evidence, and data that are provided. This does not include mathematical representation of gravitational force.

Performance Expectation *and Louisiana Connectors*
5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. ***LC-5-PS3-1a Identify that the energy in animals' food was once energy from the sun.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Developing and using models: Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. ***Models can be used to describe phenomena.*** ***Models can be used to predict phenomena.***	**ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE** The energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (UE.PS3D.b) ***All of the energy (i.e., food) that sustains ecosystems comes from the sun.*** ***Energy from the sun is taken in by plants along with air and water and changed into food for the plant.*** ***Plants need the sun's energy to grow and survive.*** ***Animals need food to provide materials and energy for life which they derive directly or indirectly from plants.*** **ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS** Food provides animals with the materials they need for body repair and growth and energy they need to maintain body warmth and for motion. (UE.LS1C.a) ***All organisms require energy.*** ***Animals depend on food for the materials they need to repair injuries.*** ***Animals depend on food the energy they need to maintain body temperature.*** ***Animals depend on food for the materials they need to grow and move.***	**ENERGY AND MATTER** Energy can be transferred in various ways and between objects. ***Energy can be transferred.*** ***Energy can be transferred between objects.***

Clarification Statement
Examples of models could include diagrams or flowcharts.

Performance Expectation *and Louisiana Connectors*
5-LS1-1 Ask questions about how air and water affect the growth of plants. ***LC-5-LS1-1a Identify that plants acquire material for growth chiefly from air and water, not from soil.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Asking questions and defining problems: Asking questions (science) and defining problems (engineering) in 3-5 builds on K-2 experiences and progresses to specifying qualitative relationships. • Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. ***Scientific questions arise in a variety of ways.*** ***Ask scientific questions to which the answers can be supported through investigation.*** ***Questions can be about the prediction of outcomes based on cause and effect relationships.***	**ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS** Plants acquire their material for growth chiefly from air and water. (UE.LS1C.b) ***A plant receives the material it needs for growth from air and water.*** ***Plants need the sun's energy to grow and survive.***	**ENERGY AND MATTER** Matter is transported into, out of, and within systems. ***Matter is anything that has mass and takes up space.*** ***A system is an organized group of components that interact.*** ***There are different types of systems.*** ***Matter can be transported into, out of, and within systems.***

Clarification Statement
Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil. The chemical processes of photosynthesis and cellular respiration are not addressed at this grade level.

Performance Expectation *and Louisiana Connectors*
5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. ***LC-5-LS2-1a Identify a model that shows the movement of matter (e.g., plant growth, eating, composting) through living things.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Developing and using models: Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. ***Models can be used to describe phenomena.*** ***Models can be used to predict phenomena.***	**INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS** The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. (UE.LS2A.a) ***Plants are the base of most ecosystems.*** ***Some animals eat only plants for food.*** ***Some animals eat other animals for food.*** ***Some animals eat both plants and animals for food.*** Some organisms, such as fungi and bacteria, break down dead organisms and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. (UE.LS2A.b) ***Decomposers break down dead plants and animals.*** ***Decomposers recycle nutrients and material back into the soil to be used by plants again.*** Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (UE.LS2A.c) ***Organisms live in ecosystems that meet their needs.*** ***In a healthy ecosystem, organisms are connected to the other components and rely on the other components to survive.*** Newly introduced species can damage the balance of an ecosystem. (UE.LS2A.d) ***Some changes to an ecosystem (i.e., introduction of a new species) can upset the balance of***	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions. ***A system can be described in terms of its parts.*** ***A system can be described in terms of how its parts interact.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
	an ecosystem. **CYCLES OF MATTER AND ENERGY TRANSFER IN ECOSYSTEMS** Matter cycles between the air and soil and among plants, animals, decomposers, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (UE.LS2B.a) ***Food and other materials are broken down and cycled between the air, plants, animals, and the soil.*** ***Living organisms depend on air and water from the environment.*** ***Living organisms release waste matter back to the environment.***	

Clarification Statement
Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems of the Earth not including molecular explanations.

Performance Expectation *and Louisiana Connectors*
5-ESS1-1 Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. ***LC-5-ESS1-1a Identify that the sun appears larger and brighter than other stars because the sun is much closer to Earth than other stars.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Engaging in argument from evidence: Engaging in argument from evidence in 3-5 builds on K-2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). • Construct and/or support an argument with evidence, data, and/or a model. ***Use evidence to construct an argument.*** ***Use evidence to support an argument.*** ***Use data to construct an argument.*** ***Use data to support an argument.*** ***Use a model to construct an argument.*** ***Use a model to support an argument.***	**THE UNIVERSE AND ITS STARS** The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (UE.ESS1A.a) ***The sun is a star.*** ***The sun is the brightest object in Earth's sky.*** ***Other stars are much farther from Earth.*** ***Other stars appear dimmer and smaller than the sun because they are very far away from Earth.***	**SCALE, PROPORTION, AND QUANTITY** Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. ***Natural processes vary in size (very small to the immensely large).*** ***Natural processes vary in time span (very short to very long).*** ***Observable phenomena vary in size (very small to the immensely large).*** ***Observable phenomena vary in time span (very short to very long).***

Clarification Statement
Examples include the relative distances of the stars, but not the sizes. It does not include other factors that affect apparent brightness (such as stellar masses, age, stage).

Performance Expectation *and Louisiana Connectors*
5-ESS1-2 Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. ***LC-5-ESS1-2a Describe similarities and differences in the timing of observable changes in shadows.*** ***LC-5-ESS1-2b Describe similarities and differences in the timing of observable changes in day and night.*** ***LC-5-ESS1-2c Describe similarities and differences in the timing of observable changes in the appearance of stars that are visible only in particular months.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Analyzing and interpreting data: Analyzing data in 3-5 builds on K-2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. • Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. ***Use data tables to describe patterns that show relationships.*** ***Use graphical displays (bar graphs, pictographs and/or pie charts) to describe patterns that show relationships.***	**HISTORY OF PLANET EARTH** The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include: day and night, daily changes in the length and direction of shadows, and different positions of the sun, moon, and stars at different times of the day, month, and year. (UE.ESS1B.a) ***Gravitational force from the sun keeps Earth in orbit around the sun, and the moon in orbit around Earth.*** ***Earth rotates about its axis between the North and South poles.*** ***As Earth revolves (moves around the sun) and rotates (spins on its axis), changes such as the movement of shadows can be observed.*** ***As Earth moves around the sun and rotates on its axis, changes such as patterns of night and day can be observed.*** ***As Earth revolves (moves around the sun) and rotates (spins on its axis), changes such as nightly, monthly, and seasonal movements of the moon can be observed.*** ***As Earth revolves (moves around the sun) and rotates (spins on its axis), changes such as nightly, monthly, and seasonal movements of the stars can be observed.*** ***Observable, predictable patterns of movement in the sun, Earth, moon system occur because of gravitational interaction and energy from the sun.***	**PATTERNS** Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products. ***Similarities and differences in patterns can be used to sort simple rates of change (natural phenomena and designed products).*** ***Similarities and differences in patterns can be used to classify simple rates of change (natural phenomena and designed products).*** ***Similarities and differences in patterns***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
		can be used to analyze simple rates of change (natural phenomena and designed products).

Clarification Statement
Patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months; not including the causes of the seasons.

Performance Expectation *and Louisiana Connectors*
5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. ***LC-5-ESS2-1a Describe that the Earth's major systems interact and affect Earth's surface materials and processes.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Developing and using models: Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop and/or use models to describe and/or predict phenomena. ***Models can be used to describe phenomena.*** ***Models can be used to predict phenomena.***	**EARTH MATERIALS AND SYSTEMS** Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (UE.ESS2A.b) ***Earth is a dynamic system resulting from interactions among the geosphere, hydrosphere, atmosphere and biosphere.*** ***All of Earth's features, everything on land (soil, sediments, rocks, and landforms), all the water, and all living things on Earth interact with each other.*** ***Earth's systems interact with each other.*** ***Earth's vast oceans support life and many ecosystems.*** ***Earth's vast oceans shape the land (e.g., coasts).*** ***Earth's vast oceans influence climate.*** ***Coastal locations are often cooler in the summer and warmer in the winter due to the slow temperature change of the ocean and winds that blow air onto land.*** ***Clouds are shaped by winds and are made of small water droplets or ice crystals.*** ***Earth's atmosphere is influenced by the surface features of the Earth creating weather.*** ***Interactions between landforms and the atmosphere create weather patterns.*** ***Weather changes daily and seasonally.*** ***While the weather can change in just a few hours, climate takes hundreds, thousands, even millions of years to change.***	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions. ***A system can be described in terms of its parts.*** ***A system can be described in terms of how its parts interact.***

Clarification Statement
Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.

Performance Expectation *and Louisiana Connectors*
5-ESS2-2 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. ***LC-5-ESS2-2a Determine that the majority of water on Earth is found in the oceans as salt water and most of the Earth's fresh water is stored in glaciers.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Using mathematics and computational thinking: Mathematical and computational thinking in 3-5 builds on K-2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. • Describe, measure, estimate, and/or graph quantities (e.g., area, volume, time) to address scientific and engineering questions and problems. ***Mathematics can be used to represent physical variables and their relationships.*** ***Tools can be used for observing, describing, measuring, recording, and graphing data.*** ***Descriptions can be used to address problems (scientific and engineering).*** ***Measurements can be used to***	**THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES** Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (UE.ESS2C.a) ***Most of Earth's water is found in oceans.*** ***A small amount of freshwater is accessible to humans.*** ***Most freshwater is found in glaciers or underground.*** ***Streams, wetlands, and lakes contain only a small part of Earth's freshwater.*** Liquid water can become the gas form of water (water vapor) and liquid water can become a solid as ice. (UE.ESS2C.b) ***Water may undergo physical changes such as freezing (solid), melting (liquid), or evaporating (water vapor).*** ***Water moves from one place on Earth to another in a continuous cycle through the processes of evaporation, condensation, and precipitation.***	**SCALE, PROPORTION, AND QUANTITY** Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume. ***Physical quantities (mass, time, temperature, and volume) can be measured.*** ***Physical quantities are measured using standard units.*** ***Measurements of physical properties can be used to describe physical quantities.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
address problems (scientific and engineering). ***Estimates can be used to address problems (scientific and engineering).*** ***Graphing quantities (e.g., area, volume, time) can be used to address problems (scientific and engineering).***		

Clarification Statement
Examples include oceans, lakes, rivers, glaciers, ground water, and polar ice caps.

Performance Expectation *and Louisiana Connectors*
5-ESS3-1 Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment. ***LC-5-ESS3-1a Identify ways people can help protect the Earth's resources and environment.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Constructing explanations and designing solutions: Constructing explanations (science) and designing solutions (engineering) in 3-5 builds on K-2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. • Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. ***A design solution must include specific constraints and criteria for desired qualities of the solution.*** ***Multiple solutions to a problem may be developed.*** ***Solutions can be compared.*** ***Comparisons should be based on how well each solution meets the constraints and criteria of the design.*** ***Design solutions can be revised and***	**HUMAN IMPACTS ON EARTH SYSTEMS** Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean and the atmosphere. But individuals and communities are doing things to help protect Earth's resources and environments. (UE.ESS3C.a) ***People use a variety of plants and animals found throughout the world for food, clothing, and shelter.*** ***The flow of river water can be affected by human activities.*** ***Ground cover can be affected by human activities.*** ***Land can be affected by human activities.*** ***Humans use natural resources to meet their needs and wants.*** ***Some changes to ecosystems are due to humans using resources within the ecosystem.*** ***Humans have had major effects on the land, vegetation, streams, ocean and the atmosphere.*** ***Human activities may cause pollution of air, water, and soil.*** ***There are many ways for people to conserve natural resources and energy by recycling, reducing and reusing.*** ***There are many ways for people to conserve natural resources.*** **DEVELOPING POSSIBLE SOLUTIONS** Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (ETS.UE.1B.c) ***Tests can be carried out to identify failure points or difficulties.*** ***After testing, defects are identified.*** ***Using information from testing, improvements to a solution to best solve a problem can be determined.***	**SYSTEMS AND SYSTEM MODELS** A system can be described in terms of its components and their interactions. ***A system can be described in terms of its parts.*** ***A system can be described in terms of how its parts interact.***

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
improved as part of the design process.		

Clarification Statement
Examples of solutions can include cleanup of oil spills, protecting against coastal erosion, or prevention of polluted runoff into waterways.