

Big Idea	Standard	Breakdown
1. The Practice of Science	SC.3.N.1.1 Raise questions about the natural world, investigate them individually and in teams through free exploration and systemic investigations, and generate appropriate explanations based on those explorations. (High)	<ul style="list-style-type: none"> • Researches questions about the how things work in the natural world. • Writes <i>hypotheses</i> (<i>testable question</i>) about their research. • Does <i>experiments</i> to investigate their hypotheses individually or in teams. • Knows <i>data</i> is information collected in their investigation. • Understands the data is <i>evidence</i> about the results of their experiments. • Writes <i>claims</i> (true statements) that explain the results.
	SC.3.N.1.2 Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups. (High)	<ul style="list-style-type: none"> • Knows <i>observations</i> are data that is directly seen, heard, smelled, tasted, or touched in an investigation or experiment. • Knows <i>tools</i> are instruments or equipment used to measure observations. • Understands that data is the evidence used to explain the outcome of an experiment. • Compares and contrasts the data gathered by different teams.
	SC.3.N.1.3 Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted. (Moderate)	<ul style="list-style-type: none"> • Records data by drawing and labeling pictures of their observations. • Organizes data and measurements in simple tables and charts. • Compares and contrast data in graphs to understand trends.
	SC.3.N.1.4 Recognize the importance of communication among scientists. (Moderate)	Reports their investigation results to other teams (students groups in their class).
	SC.3.N.1.5 Recognize the scientists question, discuss, and check each other's evidence and explanations. (Moderate)	<ul style="list-style-type: none"> • Discusses <i>results</i> with other teams doing similar investigations. • Questions and checks each other's data (<i>evidence</i>) and explanations.
	SC.3.N.1.6 Infer based on observation. (High)	<ul style="list-style-type: none"> • Knows <i>observations</i> are what is directly experienced. • Knows <i>inferences</i> are explanation are based on past experiences, and <u>not</u> direct experience. • Makes <i>inferences</i> based on past observations and experiences.
	SC.3.N.1.7 Explain that empirical evidence is information, such as observations or measurements that is used to help validate explanations of natural phenomena. (High)	<ul style="list-style-type: none"> • Knows '<i>empirical</i>' observations are directly seen, heard, smelled, tasted, touched, measured, and verify. • Routinely repeats the same experiment (<i>test</i>) to confirm and validate their results. • Knows each set of repeated observations or measurements are called a <i>trial</i>.

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3. The Role of Models	SC.3.N.3.1 Recognize that words in science can have different or more specific meanings that their use in everyday language; for example, energy, cell, heat/cold, and evidence. (Moderate)	<ul style="list-style-type: none"> • Knows some words have multiple meanings and uses (<i>some common, some scientific</i>). • Understands a <i>concepts</i> is a generalization formed from different experiences over time. • Understands concepts <i>can</i> have different explanations understood by different age groups. • Knows most science words (<i>or terms</i>) are conceptual.
	SC.3.N.3.2 Recognize that scientists use models to help understand and explain how things work. (Low)	<ul style="list-style-type: none"> • Understands that a <i>models</i> illustrates how something works but is <u>not</u> the 'real' thing. • Knows model is <u>not</u> an experiment unless it tests a hypothesis.
	SC.3.N.3.3 Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations. (Moderate)	<ul style="list-style-type: none"> • Understands that model do <u>not</u> always illustrate <u>exactly</u> how some things works for a variety of reasons and are <u>not perfect</u>.
5. Earth in Space and Time	SC.3.E.5.1 Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light. (High)	<ul style="list-style-type: none"> • Knows a star is a big ball of hot gases that gives off light. • Understands that stars are different sizes. • Knows all the other stars (except the sun) are <u>very far</u> (<i>light years</i>) away from the Earth. • Understands that some stars look brighter because bigger and hotter than other stars.
	SC.3.E.5.2 Identify the Sun as a star that emits energy; some of it in the form of light. (Moderate)	<ul style="list-style-type: none"> • Knows the sun is a star. • Understands that the sun and other stars give off light that travels through empty space to the Earth. • Understands that the sun's light also heats the Earth.
	SC.3.E.5.3 Recognize that the Sun appears large and bright because it is the closest star to Earth. (High)	<ul style="list-style-type: none"> • Understands that because the sun is the closest star to Earth it looks bigger and brighter than the other stars.

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5. Earth in Space and Time (continued)	SC.3.E.5.4 Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome. (High)	<ul style="list-style-type: none"> • Knows that a <i>force</i> is a push or pull. • Understands that <i>gravity</i> is an invisible force that pulls objects toward each other (i.e., the Earth pulls smaller objects towards it - the ground) • Understands <i>friction</i> is a force that slows objects down. • Can demonstrate how and explain why a parachute slows down a falling object.
	SC.3.E.5.5 Investigate that the number of stars that can be seen through telescopes is dramatically greater than those seen by the unaided eye. (Moderate)	<ul style="list-style-type: none"> • Knows that a <i>telescope</i> is a tool that makes far-away objects look larger (<i>magnified</i>) and clearer. • Understands that <i>magnify</i> means seeing more than the naked eye can see.
6 Earth Structures	SC.3.E.6.1 Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost. (High)	<ul style="list-style-type: none"> • Knows that light from the sun travels (<i>radiates</i>) through empty space toward the Earth. • Understands that <i>sunlight</i> (<i>radiant energy</i>) changes into heat (<i>thermal energy</i>) when it is absorbed an object. • Use a thermometer to demonstrate how direct sunlight heats-up an object and explain what happens when the sunlight is no longer present.
8. Properties of Matter	SC.3.P.8.1 Measure and compare temperatures of various samples of solids and liquids. (Moderate)	<ul style="list-style-type: none"> • Knows that <i>temperature</i> is a measure of how hot or cold something is. • Knows a <i>thermometer</i> is a tool that measures temperature in units called <i>degrees</i>. • Understands scientist's measure temperature with two different scales, <i>Fahrenheit</i> and <i>Celsius</i>. • Practice measuring the temperature and recording the units for various solids and liquids using different temperature scales.
	SC.3.P.8.2 Measure and compare the mass and volume of solids and liquids. (Moderate)	<ul style="list-style-type: none"> • Knows that <i>mass</i> is the amount of matter in an object or substance. • Understands mass is measured using a balance. • Knows the metric units for measuring small masses is the gram (g) and large masses in the kilogram (kg, for 1000 grams). • Knows that <i>volume</i> is the amount of space that an object or substance takes up. • Understands that different tools can be used to measure volume (i.e., measuring cups, graduated cylinders, beakers, etc.). • Knows the metric units for measuring volume is the liter (L) or milliliter (mL, for 1000 times smaller than a liter). • Practice measuring mass and volume and recording the units for various solids and liquids.

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8 Properties of Matter (continued)	SC.3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness. (Moderate)	<ul style="list-style-type: none"> • Knows a <i>property</i> is characteristic of matter (or a <i>material</i>). • Knows <i>size</i> is how big a material is. • Knows <i>shape</i> describe the outline of a material. • Knows that <i>color</i> describes the kind of light a material reflects. • Knows that <i>texture</i> is how smooth or rough, or wet or dry a material feels. • Knows <i>hardness</i> is the ability of a materials to resist being scratched. • Observe, record, compare, and contrast the properties of different materials.
9. Changes in Matter	SC.3.P.9.1 Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation, and condensation. (Moderate)	<ul style="list-style-type: none"> • Knows <i>melt</i> means to change from a solid to a liquid • Knows <i>freeze</i> means to change form a liquid to a solid • Knows <i>boil</i> means to change form a liquid to a gas (steam) very quickly • Understands <i>evaporation</i> is the change from liquid to gas (water vapor) when heat energy is added but it <u>does not</u> require boiling and can occur at room temperature. • Understands <i>condensation</i> is the change from a gas (water vapor) to a liquid, on a surface and occurs when heat is taken away. • Observe and explain the changes water undergoes when heat energy is added and taken away.
10 Forms of Energy	SC.3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. (Low)	<ul style="list-style-type: none"> • Understands light is energy you can see. • Understands that heat is the (thermal) energy of moving particles; and is measured with a thermometer. • Understands that sound is energy you can hear; when matter vibrates. • Understands electrical energy is the energy of charged particles (+, -). • Understands that mechanical energy is the energy an object has because of its motion or position.
	SC.3.P.10.2 Recognize that energy has the ability to cause motion or create change. (Low)	<ul style="list-style-type: none"> • Knows that <i>motion</i> is a change in the position of an object. • Understands that <i>energy</i> has the ability to cause motion or create change. • Investigates ways objects move.
	SC.3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another. (Moderate)	<ul style="list-style-type: none"> • Knows that light spreads out from the source in all directions. • Understand light travels in rays in straight lines.

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	SC.3.P.10.4 Demonstrate that light can be reflected, refracted, and absorbed. (Moderate)	<ul style="list-style-type: none"> Investigate ways light can be absorbed, reflected or refracted as it travels from material to material.
1.1. Energy Transfer and Transformations	SC.3.P.11.1 Investigate, observe, and explain that things that give off light often also give off heat. (High)	<ul style="list-style-type: none"> Understands that object that produce and give off light often also give off heat. Can give examples objects that give off light and heat.
	SC.3.P.11.2 Investigate, observe, and explain that heat is produced when one object rubs against another, such as rubbing one's hands together. (High)	<ul style="list-style-type: none"> Understand friction is a type of heat cause when one material rubs against another material. Know that drag is cause when an object rubs against the air. Investigate friction and drag.
1.4. Organization and Development of Living Organisms	SC.3.P.14.1 Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction. (Moderate)	<ul style="list-style-type: none"> Know photosynthesis is a process in that makes food (sugar) for plants to survive. Knows which parts of the plant are involved in the photosynthetic process. Understands what plants need (<i>the reactants</i>) to carry out photosynthesis. Understands what plants make during <i>photosynthesis (products)</i>.
	SC.3.P.14.2 Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity. (High)	<ul style="list-style-type: none"> Investigate and describe ways plants respond to sun-light, heat, and gravity (tropisms).
1.5 Diversity and evolution of Living Things	SC.3.L.15.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors. (Moderate)	<ul style="list-style-type: none"> Group vertebrate animals by similar structure, function and behaviors. Compare and contrast vertebrate and invertebrate skeletons. Compare and contrast vertebrate and invertebrate life cycles.
	SC.3.L.15.2 Classify flowering and nonflowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics. (Moderate)	<ul style="list-style-type: none"> Sort plants into two major groups according to how they make more of their own kind (reproduce by seeds or spores).

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17. Interdependence	SC.3.L.17.1 Describe how animals and plants respond to changing seasons. (Moderate)	<ul style="list-style-type: none"> • Observe and describe ways plants respond to seasonal changes in temperature and rainfall. • Observe and describe ways animals change structurally (camouflage, winter coating, etc.) and behaviorally (mimicry, hibernation, migration, etc.) to their environment because of seasonal changes.
	SC.3.L.17.2 Recognize that plants use energy from the Sun, air, and water to make their own food. (Low)	<ul style="list-style-type: none"> • Understand the importance of sunlight and air in the photosynthetic process.