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| CaNGSS | California Science Standards |
| Structure and Properties of Matter   * Develop a model to describe that matter is made of particles too small to be seen * Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. * Make observations and measurements to identify materials based on their properties. * Conduct an investigation to determine whether the mixing of two or more substances results in new substances.   . | Physical Science  Elements and their combinations account for all the varied types of matter in the world. As a  basis for understanding this concept, students know:  a. that during chemical reactions the atoms in the reactants rearrange to form products with different properties.  b. all matter is made of atoms, which may combine to form molecules.  c. metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu),  silver (Ag), and gold (Au), are pure elements; others, such as steel and brass, are composed of a combination of elemental metals.  d. that each element is made of one kind of atom and that the elements are organized in the periodic table by their chemical properties.  e. scientists have developed instruments that can create discrete images of atoms and molecules that show that the atoms and molecules often occur in well-ordered arrays.  f. differences in chemical and physical properties of substances are used to separate mixtures and identify compounds.  g. properties of solid, liquid, and gaseous substances, such as sugar (C6H12O6), water (H2O), helium (He), oxygen (O2), nitrogen (N2), and carbon dioxide  (CO2).  h. living organisms and most materials are composed of just a few elements.  i. the common properties of salts, such as sodium chloride (NaCl). |

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| CANGSS | California Science Standards |
| Earth’s Systems   * Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. * 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**.** * Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.   Space Systems: Stars and the Solar System   * Support an argument that the gravitational force exerted by Earth on objects is directed down. * 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. * 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. | Earth Science  Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept, students know:  a. most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.  b. when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.  c. water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet or snow.  d. that the amount of fresh water located in rivers, lakes, under-ground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.  e. the origin of the water used by their local communities.  4. Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns. As a basis for understanding this concept:  a. uneven heating of Earth causes air movements (convection currents).  b. the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.  c. the causes and effects of different types of severe weather.  d. how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.  e. that the Earth's atmosphere exerts a pressure that decreases with distance above Earth's surface and that at any point it exerts this pressure equally in all directions.  5. The solar system consists of planets and other bodies that orbit the Sun in predictable paths.  As a basis for understanding this concept, students know:  a. the Sun, an average star, is the central and largest body in the solar system and is composed primarily of hydrogen and helium.  b. the solar system includes the planet Earth, the Moon, the Sun, eight other planets and their satellites, and smaller objects, such as asteroids and comets.  c. the path of a planet around the Sun is due to the gravitational attraction between the Sun and the planet. |

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| Matter and Energy in Organisms and Ecosystems   * 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. * Support an argument that plants get the materials they need for growth chiefly from air and water. * Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment | Life Science  Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials. As a basis for understanding this concept, students know :  a. many multicellular organisms have specialized structures to support the transport of materials  b. how blood circulates through the heart chambers, lungs, and body and how carbon dioxide (CO2) and oxygen (O2) are exchanged in the lungs and tissues.  c. the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.  d. the role of the kidney in removing cellular waste from blood and converting it into urine, which is stored in the bladder.  e. how sugar, water, and minerals are transported in a vascular plant.  f. plants use carbon dioxide (CO2) and energy from sunlight to build molecules of sugar and release oxygen.  g. plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide (CO2) and water (respiration). |

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| CaNGSS | California Science Standards |
| Engineering and Design  Grades 3-5  Students who demonstrate understanding can:  Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.  Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.  Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. |  |

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| CaNGSS | California Science Standards |
| Science Processes   * The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; energy and matter; and systems and systems models are called out as organizing concepts for these the fifth grade performance expectations, * Demonstrate grade-appropriate proficiency in developing and using models, planning and disciplinary core ideas. In carrying out investigations, analyzing and interpreting data, * Use mathematics and computational thinking, * Engage in argument from evidence, and obtaining, evaluating, and communicating information; and to use these practices to demonstrate understanding of the core ideas | Investigation and Experimentation  Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:  a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.  b. Develop a testable question.  c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.  d. Identify the dependent and controlled variables in an investigation.  e. Identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the  experiment.  f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.  g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.  h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.  i. Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions. |