

KINDERGARTEN STANDARDS

Standard	Conceptual Strand	Guiding Question	Grade Level Expectations	Checks for Understanding
1. Cells	All living things are made of cells that perform functions necessary for life.	How are plant and animal cells organized to carry on the processes of life?	Recognize that many things are made of smaller parts.	<ol style="list-style-type: none"> 1. Use puzzles to determine that there are many parts that make up a whole. 2. Use building blocks to create a whole from the parts. 3. Take apart an object and describe how the parts work together.
2. Interdependence	All life is interdependent and interacts with the environment.	How do living things interact with one another and with the non-living elements of their environment?	<ol style="list-style-type: none"> 1. Recognize that some things are living and some are not. 2. Know that people interact with their environment through their senses. 	<ol style="list-style-type: none"> 1. Categorize objects or images of objects as living or non-living according to their characteristics. 2. Use the senses to investigate and describe an object.
3. Flow of Matter & Energy	Matter and energy flow through the biosphere.	What scientific information explains how matter and energy flow through the biosphere?	Recognize that living things require water, food, and air.	<ol style="list-style-type: none"> 1. Observe plants and animals and make records of their similarities and differences. 2. Record information about the care, feeding, and maintenance of a living thing.
4. Heredity	Plants and animals reproduce and transmit hereditary information between generations.	What are the principal mechanisms by which living things reproduce and transmit information between parents and offspring?	<ol style="list-style-type: none"> 1. Observe how plants and animals change as they grow. 2. Observe that offspring resemble their parents. 	<ol style="list-style-type: none"> 1. Observe a plant to identify how it changes as it grows from a seed to the adult plant and record data using non-standard measurement devices. 2. Match pictures of seedlings to adult plants and a juvenile to the adult animal
5. Biodiversity & Change	A rich variety of complex organisms have developed in response to a continually changing environment.	How does natural selection explain how organisms have changed over time?	Compare the basic features of plants and animals.	<ol style="list-style-type: none"> 1. Use a variety of representations to describe similarities and differences among plants and animals. 2. Create a mural of an ecosystem and compare the characteristics of animals and plants within that environment.. 3. Match pictures of animal and plant characteristics needed for survival to appropriate environments.
6. The Universe	The cosmos is vast and explored well enough to know its basic structure and operational principles.	What big ideas guide human understanding about the origin and structure of the universe, Earth's place in the cosmos, and observable motions and patterns in the sky?	Know the different objects that are visible in the day and night sky.	<ol style="list-style-type: none"> 1. Create a Venn diagram to compare the objects that can be seen in the day and night sky. 2. Observe, discuss, and draw objects found in the day and night sky.
7. The Earth	Major geologic events that occur over eons or brief moments in time continually shape and reshape the surface of the Earth, resulting in continuous global change.	How is the earth affected by long-term and short term geological cycles and the influence of man?	<ol style="list-style-type: none"> 1. Identify non-living materials found on the surface of the earth. 2. Recognize that some objects are manmade and that some occur naturally. 	<ol style="list-style-type: none"> 1. Identify non-living materials found on the school site and discuss how these materials are similar and different. 2. Investigate and compare a variety of non-living materials using simple tools. 3. Observe familiar environments and make lists of natural and man-made objects.
8. The Atmosphere	The earth is surrounded by an active atmosphere and an energy system that controls the distribution of life, local weather, climate, and global temperature.	How do the physical characteristics and the chemical makeup of the atmosphere influence surface processes and life on Earth?	Collect daily weather data at different times of the year.	<ol style="list-style-type: none"> 1. Collect, compare, and record daily weather data during different seasons. 2. Infer the relationship between temperature and seasonal change by maintaining a paper chain on which dates are recorded and temperature described according to different colors.
9. Matter	The composition and structure of matter is known, and it behaves according to principles that are generally understood.	How does the structure of matter influence its physical and chemical behavior?	<ol style="list-style-type: none"> 1. Describe an object by its observable properties. 2. Identify objects and materials as solids or liquids. 	<ol style="list-style-type: none"> 1. Observe, identify, and compare the properties of various objects such as color, shape, and size. 2. Observe, discuss, and compare characteristics of various solids and liquids.
10. Energy	Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.	What basic energy related ideas are essential for understanding the dependency of the natural and human-made worlds on energy?	<ol style="list-style-type: none"> 1. Identify the sun as the source of heat and light. 2. Investigate the effect of the sun on a variety of materials. 	<ol style="list-style-type: none"> 1. Place a thermometer in a sunny window and one in a shady area of the classroom and record the temperatures over time. Compare, discuss, and record any temperature differences. 2. Investigate the temperature differences in various locations around the school. Discuss and record the results. 3. Place a thermometer under pieces of different colored paper on a sunny window. Compare results and discuss possible causes.
11. Motion	Objects move in ways that can be observed, described, predicted, and measured.	What causes objects to move differently under different circumstances?	Explore different ways that objects move.	Use a variety of objects to demonstrate different types of movement. (e.g., straight line/zigzag, backwards/forward, side to side, in circles, fast/slow).
Embedded Inquiry	Understandings about scientific inquiry and the ability to conduct inquiry are essential for living in the 21st century.	What tools, skills, knowledge, and dispositions are needed to conduct scientific inquiry?	<ol style="list-style-type: none"> 1. Observe the world of familiar objects using the senses and tools. 2. Ask questions, make logical predictions, plan investigations, and represent data. 3. Explain the data from an investigation. 	<ol style="list-style-type: none"> 1. Use senses and simple tools to make observations. 2. Communicate interest in simple phenomena and plan for simple investigations. 3. Communicate understanding of simple data using ageappropriate vocabulary. 4. Collect, discuss, and communicate findings from a variety of investigations.
Embedded Technology and Engineering	Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.	How do science concepts, engineering skills, and applications of technology improve the quality of life?	<ol style="list-style-type: none"> 1. Recognize that both natural materials and human-made tools have specific characteristics that determine their uses. 2. Apply engineering design and creative thinking to solve practical problems. 	<ol style="list-style-type: none"> 1. Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems. 2. Invent designs for simple products. 3. Use tools to measure materials and construct simple products.