

SECOND GRADE 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?	1. Recognize that living things have parts that work together. 2. Use tools to examine major body parts and plant structures.	1. Combine pictures of major body parts to assemble a complete animal. 2. Communicate the effect of using tools like magnifiers when examining different body parts. 3. Make diagrams to record and communicate observations.
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?	Distinguish between living and non-living things in an environment.	1. Identify the basic characteristics of living things. 2. Record information about living and non-living objects in local environments. 3. Sort and classify a variety of living and non-living materials based on their characteristics.
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 plants and animals are living things that grow and change over time.	1. Conduct investigations and record data about the growth of different plants under varying conditions. 2. Describe what plants and animals need in order to grow and remain healthy.
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?	1. Observe and illustrate the life cycle of animals. 2. Describe ways in which animals closely resemble their parents.	1. Observe, describe, and record the life cycle of a particular animal. 2. Match pictures of parents and related offspring by identifying common characteristics.
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?	1. Investigate how plants and animals can be grouped according to their habitats. 2. Recognize that some organisms which formerly lived are no longer found on earth.	1. Observe plants and animals on the school grounds and group them according to where they are found. 2. Create a chart of different habitats and match animals to specific locations. 3. Sort pictures or illustrations of animals into groups that are extinct and those that still exist and offer possible explanations for extinction.
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?	1. Compare and describe features of the day and night sky. 2. Realize that the sun can only be seen during the day, while the moon can be seen at night and sometimes during the day.	1. Create a chart of things that can be observed in the day and night sky. 2. Identify objects in the sky and describe their observable similarities and differences.
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?	1. Realize that water, rocks, soil, living organisms, and man-made objects make up the earth's surface. 2. Classify earth materials according to their physical properties.	1. Identify where water, rocks, soil, living organisms, and man-made objects are found. 2. Sample areas of the school grounds to identify where different materials are found. 3. Use bagged samples of earth materials or pictures from different areas to classify materials according to their use.
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?	Gather and interpret daily weather data.	1. Collect daily weather information to predict what conditions might occur on the following day. 2. Discuss what makes a weather prediction accurate or inaccurate.
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?	1. Classify objects according to their physical properties. 2. Distinguish between the properties of solids and liquids. 3. Predict the changes that may occur when different materials are mixed.	1. Classify solids according to their size, shape, color, texture, hardness, ability to change shape, magnetic attraction, whether they sink or float, and use. 2. Compare liquids according to their color, ability to flow, solubility in water, and use. 3. Investigate and describe the results of mixing different substances such as salt and pepper, water and sand, water and oil, and water and salt.
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?	Investigate the effect of the sun on land, water, and air.	1. Predict and determine what happens over the course of a school day when containers of sand, soil, and water with thermometers are placed in a sunny window. 2. Predict and determine what happens over the course of a school day when containers of sand, soil and water with thermometers are placed in a shady location. 3. Compare the temperature at different places around the school such as black top driveway, lawn, concrete areas, side of the building, under a shade tree, wet area, in the ground.
11. Motion	Objects move in ways that can be observed, described, predicted, and measured.	What causes objects to move differently under different circumstances?	Investigate how forces (push, pull) can move an object or change its direction.	1. Use familiar objects to explore how the movement can be changed. 2. Investigate and explain how different surfaces affect the movement of an object.
12. Forces in Nature	Everything in the universe exerts a gravitational force on everything else; there is an interplay between magnetic fields and electrical currents.	What are the scientific principles that explain gravity and electromagnetism?	Investigate materials that are attracted to magnets.	1. Identify and classify objects in the classroom as magnetic or non-magnetic. 2. Make predictions about how various objects will be affected by a magnet.
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?	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.	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 age-appropriate 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?	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.	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.