

## Embedded Inquiry

**Conceptual Strand** - *Understandings about scientific inquiry and the ability to conduct inquiry are essential for living in the 21<sup>st</sup> century.*

**Guiding Question** - *What tools, skills, knowledge, and dispositions are needed to conduct scientific inquiry?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
GLE 0107.Inq.1  Observe the world of familiar objects using the senses and tools.	✓0107.Inq.1  Use senses and simple tools to make observations.	Not addressed	<b>Constructing Explanations and Designing Solutions</b> <ul style="list-style-type: none"> <li>• Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</li> <li>• Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1)</li> </ul> <b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b> <ul style="list-style-type: none"> <li>• Science assumes natural events happen today as they happened in the past. (1-ESS1-1)</li> <li>• Many events are repeated. (1-ESS1-1)</li> </ul>
GLE 0107.Inq.2  Ask questions, make logical predictions, plan investigations, and represent data.	✓0107.Inq.2  Communicate interest in simple phenomena and plan for simple investigations.	Not addressed	<b>Planning and Carrying Out Investigations</b> <ul style="list-style-type: none"> <li>• Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</li> <li>• Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3)</li> </ul>
GLE 0107.Inq.3  Explain the data from an investigation.	✓0107.Inq.3  Communicate understanding of simple data using age-appropriate vocabulary. ✓0107.Inq.4  Collect, discuss, and communicate findings from a variety of investigations.	Not addressed	<b>Analyzing and Interpreting Data</b> <ul style="list-style-type: none"> <li>• Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</li> </ul>

## Embedded Technology & Engineering

**Conceptual Strand** - Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.

**Guiding Question** - How do science concepts, engineering skills, and applications of technology improve the quality of life?

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.T/E.1</p> <p>Recognize that both natural materials and human-made tools have specific characteristics that determine their uses.</p>	<p>✓0107.T/E.1</p> <p>Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.</p>	<p>Not addressed</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b>  <b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>• People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>• People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>
<p>GLE 0107.T/E.2</p> <p>Apply engineering design and creative thinking to solve practical problems.</p>	<p>✓0107.T/E.2</p> <p>Invent designs for simple products.</p> <p>✓0107.T/E.3</p> <p>Use tools to measure materials and construct simple products.</p>	<p>Not addressed</p>	<p><b>Constructing Explanations and Designing Solutions</b></p> <ul style="list-style-type: none"> <li>• Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</li> <li>• Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-PS4-2)</li> <li>• Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b></p> <ul style="list-style-type: none"> <li>• Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</li> <li>• Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)</li> </ul>

## Standard 1 – Cells

**Conceptual Strand 1** - All living things are made of cells that perform functions necessary for life.

**Guiding Question 1** - How are plant and animals cells organized to carry on the processes of life?

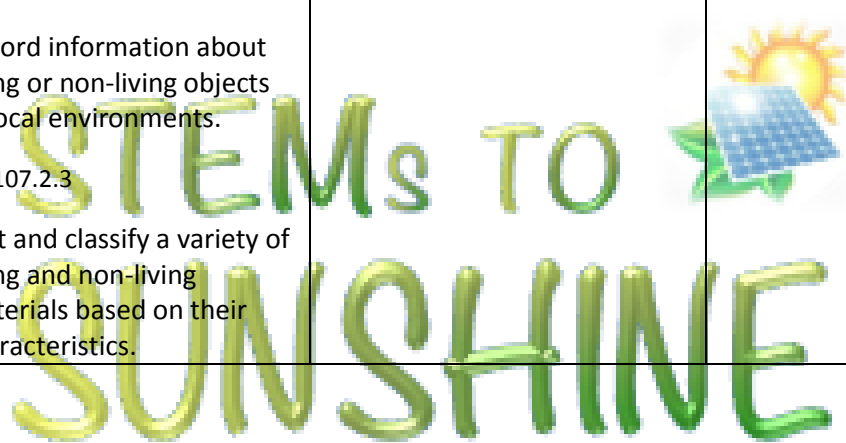
Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.1.1</p> <p>Recognize that living things have parts that work together. .</p>	<p>✓0107.1.1</p> <p>Combine pictures of major body parts to assemble a complete animal.</p>	<p><b>Not addressed</b></p>	<p><b>LS1.A: Structure and Function</b></p> <ul style="list-style-type: none"> <li>All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) <b>LS1</b></li> </ul> <p><b>LS1.D: Information Processing</b></p> <ul style="list-style-type: none"> <li>Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</li> </ul> <p><b>Structure and Function</b></p> <ul style="list-style-type: none"> <li>The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)</li> </ul>
<p>GLE 0107.1.2</p> <p>Use tools to examine major body parts and plant structures.</p>	<p>✓0107.1.2</p> <p>Communicate the effect of using tools like magnifiers when examining different body parts.</p> <p>✓0107.1.3</p> <p>Make diagrams to record and communicate observations.</p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>

## Standard 2 – Interdependence

**Conceptual Strand 2** - *All life is interdependent and interacts with the environment.*

**Guiding Question 2** - *How do living things interact with one another and with the non-living elements of their environment?*

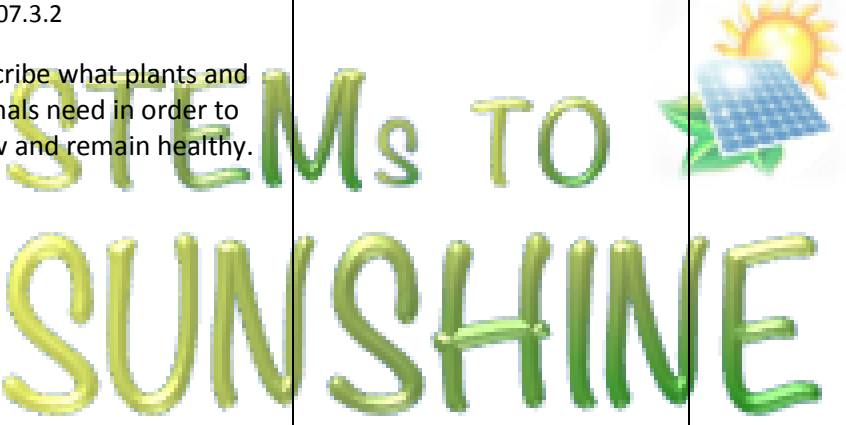
Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.2.1</p> <p>Distinguish between living and non-living things in an environment.</p>	<p>✓0107.2.1</p> <p>Identify the basic characteristics of living things.</p> <p>✓0107.2.2</p> <p>Record information about living or non-living objects in local environments.</p> <p>✓0107.2.3</p> <p>Sort and classify a variety of living and non-living materials based on their characteristics.</p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>



## Standard 3 – Flow of Matter & Energy

**Conceptual Strand 3** – *Matter and energy flow through the biosphere.*

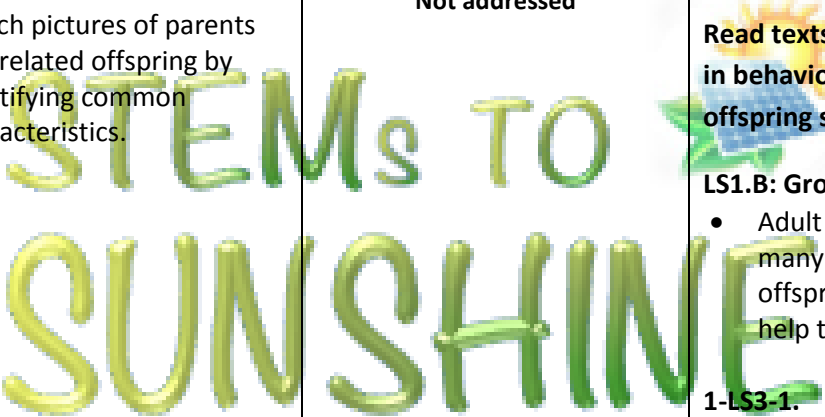
**Conceptual Strand 3** – *Matter and energy flow through the biosphere.*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.3.1</p> <p>Recognize that plants and animals are living things that grow and change over time.</p>	<p>✓0107.3.1</p> <p>Conduct investigations and record data about the growth of different plants under varying conditions.</p> <p>✓0107.3.2</p> <p>Describe what plants and animals need in order to grow and remain healthy.</p>	<p style="text-align: center;">Not addressed</p>	<p><b>1-LS1-1.</b></p> <p><b>Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. (including humans) and the places they live.</b></p> 

## Standard 4 – Heredity

**Conceptual Strand 4** – *Plants and animals reproduce and transmit heredity information.*

**Guiding Question 4** – *What are the principal mechanisms by which living things reproduce and transmit information between parents and offspring?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
GLE 0107.4.1  Observe and illustrate the life cycle of animals.	✓0107.4.1  Observe, describe, and record the life cycle of a particular animal.	Not addressed	Not addressed
GLE 0107.4.2  Describe ways in which animals closely resemble their parents.	✓0107.4.2  Match pictures of parents and related offspring by identifying common characteristics.	Not addressed	<div style="text-align: center;">  </div> <p><b>1-LS1-2.</b>  <b>Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</b></p> <p><b>LS1.B: Growth and Development of Organisms</b></p> <ul style="list-style-type: none"> <li>• Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)</li> </ul> <p><b>1-LS3-1.</b>  <b>Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</b></p> <p><b>LS3.A: Inheritance of Traits</b></p> <ul style="list-style-type: none"> <li>• Young animals are very much, but not exactly, like, their parents. Plants also are very much, but not exactly, like their parents. (1-LS3-1)</li> </ul> <p><b>LS3.B: Variation</b></p> <ul style="list-style-type: none"> <li>• Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)</li> </ul>

## Standard 5 – Biodiversity & Change

**Conceptual Strand 5** – *A rich diversity of complex organisms have developed in response to a continually changing environment.*

**Guiding Question 5** – *How does natural selection explain how organisms have changed over time?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.5.1</p> <p>Investigate how plants and animals can be grouped according to their habitats.</p>	<p>✓0107.5.1</p> <p>Observe plants and animals on the school grounds and group them according to where they are found.</p> <p>✓0107.5.2</p> <p>Create a chart of different habitats and match animals to specific locations.</p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>
<p>GLE 0107.5.2</p> <p>Recognize that some organisms which formerly lived are no longer found on earth.</p>	<p>✓0107.5.3</p> <p>Sort pictures or illustrations of animals into groups that are extinct and those that still exist and offer possible explanations for extinction.</p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>

## Standard 6 – The Universe

**Conceptual Strand 6** – *The cosmos is vast and explored well enough to know basic structures and operational principals.*

**Guiding Question 6** – *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?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.6.1</p> <p>Compare and describe features of the day and night sky.</p>	<p>✓0107.6.1</p> <p>Create a chart of things that can be observed in the day and night sky.</p>	<p style="text-align: center;">Not addressed</p>	<p><b>1-ESS1-1.</b></p> <p><b>Use observations of the sun, moon, and stars to describe patterns that can be predicted.</b></p> <p><b>ESS1.A: The Universe and its Stars</b></p> <ul style="list-style-type: none"> <li>• Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)</li> </ul> <p><b>ESS1.B: Earth and the Solar System</b></p> <ul style="list-style-type: none"> <li>• Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)</li> </ul>
<p>GLE 0107.6.2</p> <p>Realize that the sun can only be seen during the day, while the moon can be seen at night and sometimes during the day.</p>	<p>✓0107.6.2</p> <p>Identify objects in the sky and describe their observable similarities and differences.</p>	<p style="text-align: center;">Not addressed</p>	<p><b>1-ESS1-2.</b></p> <p><b>Make observations at different times of year to relate the amount of daylight to the time of year.</b></p>



## Standard 7 – The Earth

**Conceptual Strand 7** - 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.

**Guiding Question 7** - How is the earth affected by long-term and short term geological cycles and the influence of man?

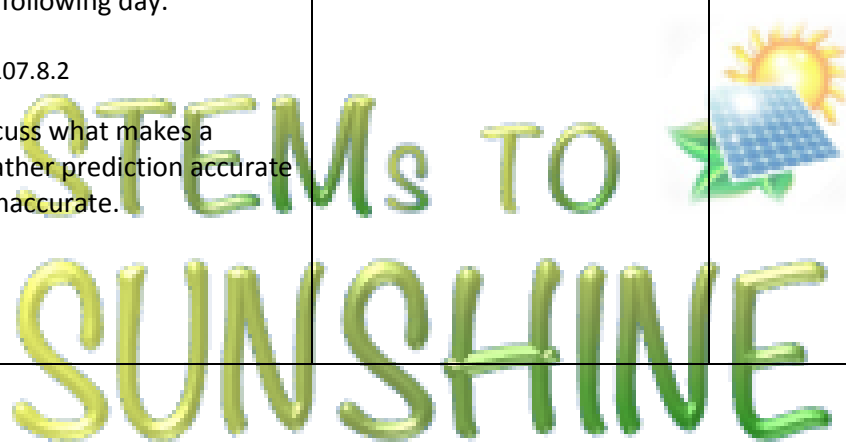
Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.7.1</p> <p>Realize that water, rocks, soil, living organisms, and man-made objects make up the earth's surface.</p>	<p>✓0107.7.1</p> <p>Create a diagram of the school grounds to identify where water, rocks, soil, living organisms, and man-made objects are found.</p>	<p>Not addressed</p>	<p><b>Connections to Engineering, Technology, and Applications of Science</b></p> <p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials. (1-LS1-1)</li> </ul>
<p>GLE 0107.7.2</p> <p>Classify earth materials according to their physical properties.</p>	<p>✓0107.7.2</p> <p>Sample areas of the school grounds to identify where different materials are found.</p> <p>✓0107.7.3</p> <p>Use bagged samples of earth materials or pictures from different areas to classify materials according to their use.</p>	<p>Not addressed</p>	<p>Not addressed</p>

## Standard 8 - The Atmosphere

**Conceptual Strand 8** - *The earth is surrounded by an active atmosphere and an energy system that controls the distribution life, local weather, climate, and global temperature.*

**Guiding Question 8** - *How do the physical characteristics and the chemical makeup of the atmosphere influence surface processes and life on Earth?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
GLE 0107.8.1  Gather and interpret daily weather data.	✓0107.8.1  Collect daily weather information to predict what conditions might occur on the following day.  ✓0107.8.2  Discuss what makes a weather prediction accurate or inaccurate.	<b>Not addressed</b>	<b>Not addressed</b>



## Standard 9 – Matter

**Conceptual Strand 9** - *The composition and structure of matter is known, and it behaves according to principles that are generally understood.*

**Guiding Question 9** - *How does the structure of matter influence its physical and chemical behavior?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
GLE 0107.9.1  Classify objects according to their physical properties.	✓0107.9.1  Classify solids according to their size, shape, color, texture, hardness, ability to change shape, magnetic attraction, whether they sink or float, and us.	Not addressed	Not addressed
GLE 0107.9.2  Distinguish between the properties of solids and liquids.	✓0107.9.2  Compare liquids according to their color, ability to flow, solubility in water, and use.	Not addressed	Not addressed
GLE 0107.9.3  Predict the changes that may occur when different materials are mixed.	✓0107.9.2  Compare liquids according to their color, ability to flow, solubility in water, and use.  ✓0107.9.3  Investigate and describe the results of mixing different substances such as salt and pepper, water and sand, water and oil, and water and salt.	Not addressed	Not addressed

## Standard 10 - Energy

**Conceptual Strand 10** - Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.


**Guiding Question 10** - What basic energy related ideas are essential for understanding the dependency of the natural and man-made worlds on energy?

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.10.1</p> <p>Investigate the effect of the sun on land, water, and air.</p>	<p>✓0107.10.1 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.</p> <p>✓0107.10.2 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.</p> <p>✓0107.10.3 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.</p>	<p>Not addressed</p>	<p><b>1-PS4-2.</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated.</p> <p><b>1-PS4-3.</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>• Objects can be seen only when light is available to illuminate them. Some objects give off their own light. (1-PS4-2)</li> <li>• Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</li> </ul>
<p>Not addressed</p>	<p>Not addressed</p>	<p>Not addressed</p>	<p><b>1-PS4-4.</b> Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.</p> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>• People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)</li> </ul>

## Standard 11 – Motion

**Conceptual Strand 11** - *Objects move in ways that can be observed, described, predicted, and measured.*

**Guiding Question 11** - *What causes objects to move differently under different circumstances?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
<p>GLE 0107.11.1</p> <p>Investigate how forces (push, pull) can move an object or change its direction.</p>	<p>✓0107.11.1</p> <p>Use familiar objects to explore how the movement can be changed.</p> <p>✓0107.11.2</p> <p>Investigate and explain how different surfaces affect the movement of an object.</p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>
<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>	<p><b>Not addressed</b></p>	 <p><b>1-PS4-1.</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</p> <p><b>PS4.A: Wave Properties</b> [1] Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</p>

## Standard 12 - Forces in Nature

**Conceptual Strand 12** - *Everything in the universe exerts a gravitational force on everything else; there is an interplay between magnetic fields and electrical currents.*

**Guiding Question 12** - *What are the scientific principles that explain gravity and electromagnetism?*

Grade Level Expectations (GLE)	Checks For Understanding (CFU)	State Performance Indicator (SPI)	Next Generation Science Standards (NGSS)
GLE 0107.12.1 Investigate materials that are attracted to magnets.	✓0107.12.1 Identify and classify objects in the classroom as magnetic or non-magnetic.  ✓0107.12.2 Make predictions about how various objects will be affected by a magnet.	Not addressed	Not addressed

STEMs TO  
SUNSHINE

