

## Grade 2 : 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	Checks for Understanding	State Performance Indicators
<p><b>GLE 0207.Inq.1</b> Observe the world of familiar objects using the senses and tools.</p> <p><b>GLE 0207.Inq.2</b> Ask questions, make logical predictions, plan investigations, and represent data.</p> <p><b>GLE 0207.Inq.3</b> Explain the data from an investigation.</p>	<p>✓ <b>0207.Inq.1</b> Use senses and simple tools to make observations.</p> <p>✓ <b>0207.Inq.2</b> Communicate interest in simple phenomena and plan for simple investigations.</p> <p>✓ <b>0207.Inq.3</b> Communicate understanding of simple data using age-appropriate vocabulary.</p> <p>✓ <b>0207.Inq.4</b> Collect, discuss, and communicate findings from a variety of investigations.</p>	

## Grade 2 : Embedded Technology & Engineering

<p><b>Conceptual Strand</b>  <i>Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.</i></p>		
<p><b>Guiding Question</b>  <i>How do science concepts, engineering skills, and applications of technology improve the quality of life?</i></p>		
<p><b>Grade Level Expectations</b></p>	<p><b>Checks for Understanding</b></p>	<p><b>State Performance Indicators</b></p>
<p><b>GLE 0207.T/E.1</b> Recognize that both natural materials and human-made tools have specific characteristics that determine their uses.</p> <p><b>GLE 0207.T/E.2</b> Apply engineering design and creative thinking to solve practical problems.</p>	<p>✓<b>0207.T/E.1</b> Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.</p> <p>✓<b>0207.T/E.2</b> Invent designs for simple products.</p> <p>✓<b>0207.T/E.3</b> Use tools to measure materials and construct simple products.</p>	

## Grade 2 - Life Science

### Grade 2: 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
GLE 0207.1.1 Recognize that plants and animals are made up of smaller parts and use food, water, and air to survive.	✓0207.1.1 Design a new living thing and explain how it would acquire food, water, and air.	

**Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
GLE 0207.2.1 Investigate the habitats of different kinds of local plants and animals.  GLE 0207.2.2 Investigate living things found in different places.  GLE 0207.2.3 Identify basic ways that plants	✓0207.2.1 Draw or use pictures of a local environment to label the plants and animals.  ✓0207.2.2 Investigate ways that plants and animals depend on each other.  ✓0207.2.3 Construct a flow chart that	

and animals depend on each other.	demonstrates how plants, animals, and the environment interact to provide basic life requirements.	
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## **Grade 2 : Standard 3 - Flow of Matter and Energy**

### **Conceptual Strand 3**

*Matter and energy flow through the biosphere.*

### **Guiding Question 3**

*What scientific information explains how matter and energy flow through the biosphere?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
GLE 0207.3.1 Recognize that animals eat plants or other animals for food.	<p>✓0207.3.1 Describe the habitat of a particular organism based on its food, water, and air requirements.</p> <p>✓0207.3.2 Design a model of a habitat for an organism in which all of its needs would be met.</p>	

## **Grade 2: Standard 4 - Heredity**

### **Conceptual Strand 4**

*Plants and animals reproduce and transmit hereditary information between generations.*

**Guiding Question 4**

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

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
<p><b>GLE 0207.4.1</b> Compare the life cycles of various organisms.</p> <p><b>GLE 0207.4.2</b> Realize that parents pass along physical characteristics to their offspring.</p>	<p>✓<b>0207.4.1</b> Compare and contrast the life cycles of different organisms such as a chicken, butterfly, meal worm, frog, or human.</p> <p>✓<b>0207.4.2</b> Sequence a collection of pictures or illustrations into the correct stages of an organism's life cycle.</p> <p>✓<b>0207.4.3</b> Look for similarities in pictures of members from the same human family.</p> <p>✓<b>0207.4.4</b> Create a graphic organizer that compares observable traits that offspring share with their parents.</p>	

**Grade 2 : Standard 5 - Biodiversity and Change****Conceptual Strand 5**

*A rich variety 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
<p><b>GLE 0207.5.1</b> Investigate the relationship between an animal’s characteristics and the features of the environment where it lives.</p> <p><b>GLE 0207.5.2</b> Draw conclusions from fossils about organisms that lived in the past.</p>	<p>✓<b>0207.5.1</b> Compare and contrast the characteristics of organisms from two different environments.</p> <p>✓<b>0207.5.2</b> Infer the characteristics needed by an organism to survive in a particular environment.</p> <p>✓<b>0207.5.3</b> Observe fossils or pictures of fossils and make inferences about the organisms from which they originated.</p> <p>✓<b>0207.5.4</b> Compare pictures of fossils with animals or plants that are living today.</p>	

## **Grade 2 - Earth and Space Science**

### **Grade 2 : Standard 6 - The Universe**

#### **Conceptual Strand 6**

*The cosmos is vast and explored well enough to know its basic structure and operational principles.*

**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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
<p><b>GLE 0207.6.1</b> Realize that the sun is our nearest star and that its position in the sky appears to change.</p> <p><b>GLE 0207.6.2</b> Make observations of changes in the moon's appearance over time.</p>	<p>✓<b>0207.6.1</b> Observe and collect data on the sun's position at different times of the day.</p> <p>✓<b>0207.6.2</b> Use science journals to draw and record changes in the moon over a period of time.</p>	

**Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>

<p><b>GLE 0207.7.1</b> Compare and record the components of a variety of soil types.</p>	<p>✓<b>0207.7.1</b> Sort, analyze, and compare a variety of soil types.</p>	
<p><b>GLE 0207.7.2</b> Describe rocks according to their origin, size, shape, texture, and color.</p>	<p>✓<b>0207.7.2</b> Observe rocks of different sizes with a hand lens and describe these materials according to their basic features.</p>	
<p><b>GLE 0207.7.3</b> Differentiate between renewable and non-renewable resources.</p>	<p>✓<b>0207.7.3</b> Identify and categorize items in the classroom made from renewable or non-renewable resources.</p>	
	<p>✓<b>0207.7.4</b> Identify simple methods for reusing the earth's resources.</p>	

<h2><b>Grade 2 : Standard 8 - The Atmosphere</b></h2>		
<p><b>Conceptual Strand 8</b>  <i>The earth is surrounded by an active atmosphere and an energy system that controls the distribution life, local weather, climate, and global temperature.</i></p>		
<p><b>Guiding Question 8</b>  <i>How do the physical characteristics and the chemical makeup of the atmosphere influence surface processes and life on Earth?</i></p>		
<p><b>Grade Level Expectations</b></p>	<p><b>Checks for Understanding</b></p>	<p><b>State Performance Indicators</b></p>
<p><b>GLE 0207.8.1</b> Associate temperature patterns with seasonal changes.</p>	<p>✓<b>0207.8.1</b> Use records and graphs of seasonal temperature changes to draw conclusions about the weather during different times of the year.</p>	

# Grade 2 - Physical Science

## Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
<p><b>GLE 0207.9.1</b> Use tools to observe the physical properties of objects.</p> <p><b>GLE 0207.9.2</b> Investigate how temperature changes affect the state of matter.</p> <p><b>GLE 0207.9.3</b> Recognize that air takes up space.</p>	<p>✓<b>0207.9.1</b> Use tools such as hand lenses, measurement devices, and simple arm balances to gather data about the physical properties of different objects.</p> <p>✓<b>0207.9.2</b> Describe what happens when ice changes from a solid to a liquid.</p> <p>✓<b>0207.9.3</b> Describe what happens when water is heated to the point of evaporation.</p> <p>✓<b>0207.9.4</b> Explain what happens when a balloon is blown up and pops.</p>	

## **Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
GLE 0207.10.1 Explain why the sun is the primary source of the earth's energy.	✓0207.10.1 Identify and explain how the sun affects objects on the surface of the earth.  ✓0207.10.2 Investigate how the sun affects various objects and materials.	

## **Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
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<b>GLE 0207.11.1</b> Investigate how vibrating objects produce sound.	✓ <b>0207.11.1</b> Use a variety of objects that vibrate to demonstrate how sounds are produced.	
<b>GLE 0207.11.2</b> Classify sounds according to their loudness and pitch.	✓ <b>0207.11.2</b> Describe the sounds produced by different types of vibrating objects.	

## **Grade 2 : 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?*

<b>Grade Level Expectations</b>	<b>Checks for Understanding</b>	<b>State Performance Indicators</b>
<b>GLE 0207.12.1</b> Experiment with magnets to determine that objects can move without being touched.	✓ <b>0207.12.1</b> Explain how two magnets interact.	
<b>GLE 0207.12.2</b> Realize that things fall toward the ground unless something holds them up.	✓ <b>0207.12.2</b> Describe what happens when an object is dropped and record the observations in a science notebook.	