

Grade 2 : Embedded Inquiry

Conceptual Strand

Understandings about scientific inquiry and the ability to conduct inquiry are essential for living in the 21st 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>GLE 0207.Inq.1 Observe the world of familiar objects using the senses and tools.</p> <p>GLE 0207.Inq.2 Ask questions, make logical predictions, plan investigations, and represent data.</p> <p>GLE 0207.Inq.3 Explain the data from an investigation.</p>	<p>✓GLE 0207.Inq.1 Use senses and simple tools to make observations.</p> <p>✓GLE 0207.Inq.2 Communicate interest in simple phenomena and plan for simple investigations.</p> <p>✓GLE 0207.Inq.3 Communicate understanding of simple data using age-appropriate vocabulary.</p> <p>✓GLE 0207.Inq.4 Collect, discuss, and communicate findings from a variety of investigations.</p>	

Grade 2 : Embedded Technology & Engineering

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

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 <i>How are plant and animals cells organized to carry on the processes of life?</i>		
Grade Level Expectations	Checks for Understanding	State Performance Indicators
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 <i>All life is interdependent and interacts with the environment.</i>		
Guiding Question 2 <i>How do living things interact with one another and with the non-living elements of their environment?</i>		
Grade Level Expectations	Checks for Understanding	State Performance Indicators
GLE 0207.2.1 Investigate the habitats of different kinds of local plants and animals.	✓ 0207.2.1 Draw or use pictures of a local environment to label the plants and animals.	
GLE 0207.2.2 Investigate living things found in different places.	✓ 0207.2.2 Investigate ways that plants and animals depend on each other.	
GLE 0207.2.3 Identify basic ways that plants	✓ 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?

Grade Level Expectations	Checks for Understanding	State Performance Indicators
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 <i>What are the principal mechanisms by which living things reproduce and transmit information between parents and offspring?</i>		
Grade Level Expectations	Checks for Understanding	State Performance Indicators
<p>GLE 0207.4.1 Compare the life cycles of various organisms.</p> <p>GLE 0207.4.2 Realize that parents pass along physical characteristics to their offspring.</p>	<p>✓0207.4.1 Compare and contrast the life cycles of different organisms such as a chicken, butterfly, meal worm, frog, or human.</p> <p>✓0207.4.2 Sequence a collection of pictures or illustrations into the correct stages of an organism's life cycle.</p> <p>✓0207.4.3 Look for similarities in pictures of members from the same human family.</p> <p>✓0207.4.4 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 <i>A rich variety of complex organisms have developed in response to a continually changing environment.</i>

Guiding Question 5

How does natural selection explain how organisms have changed over time?

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

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

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?

Grade Level Expectations	Checks for Understanding	State Performance Indicators
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<p>GLE 0207.7.1 Compare and record the components of a variety of soil types.</p> <p>GLE 0207.7.2 Describe rocks according to their origin, size, shape, texture, and color.</p> <p>GLE 0207.7.3 Differentiate between renewable and non–renewable resources.</p>	<p>✓0207.7.1 Sort, analyze, and compare a variety of soil types.</p> <p>✓0207.7.2 Observe rocks of different sizes with a hand lens and describe these materials according to their basic features.</p> <p>✓0207.7.3 Identify and categorize items in the classroom made from renewable or non-renewable resources.</p> <p>✓0207.7.4 Identify simple methods for reusing the earth’s resources.</p>	
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Grade 2 : 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	Checks for Understanding	State Performance Indicators
<p>GLE 0207.8.1 Associate temperature patterns with seasonal changes.</p>	<p>✓0207.8.1 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?

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

Grade Level Expectations	Checks for Understanding	State Performance Indicators
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?

Grade Level Expectations	Checks for Understanding	State Performance Indicators
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GLE 0207.11.1 Investigate how vibrating objects produce sound.	✓ 0207.11.1 Use a variety of objects that vibrate to demonstrate how sounds are produced.	
GLE 0207.11.2 Classify sounds according to their loudness and pitch.	✓ 0207.11.2 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?

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