

Tennessee Science Standards

Grade 1 : 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 |
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| <p>GLE 0107.Inq.1 Observe the world of familiar objects using the senses and tools.</p> <p>GLE 0107.Inq.2 Ask questions, make logical predictions, plan investigations, and represent data.</p> <p>GLE 0107.Inq.3 Explain the data from an investigation.</p> | <p>✓0007.Inq.1 Use senses and simple tools to make observations.</p> <p>✓0007.Inq.2 Communicate interest in simple phenomena and plan for simple investigations.</p> <p>✓0007.Inq.3 Communicate understanding of simple data using age-appropriate vocabulary.</p> <p>✓0007.Inq.4 Collect, discuss, and communicate findings from a variety of investigations.</p> | |

Grade 1 : Technology & Engineering

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| <p>Conceptual Strand <i>Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.</i></p> | | |
| <p>Guiding Question <i>How do science concepts, engineering skills, and applications of technology improve the quality of life?</i></p> | | |
| <p>Grade Level Expectations</p> | <p>Checks for Understanding</p> | <p>State Performance Indicators</p> |
| <p>GLE 0007.T/E.1 Recognize that both natural materials and human-made tools have specific characteristics that determine their use.</p> <p>GLE 0007.T/E.2 Apply engineering design and creative thinking to solve practical problems.</p> | <p>✓0007.T/E.1 Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.</p> <p>✓0007.T/E.2 Invent designs for simple products.</p> <p>✓0007.T/E.3 Use tools to measure materials and construct simple products.</p> | |

Grade 1 - Life Science

Grade 1 : 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 | Checks for Understanding | State Performance Indicators |
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| <p>GLE 0107.1.1 Recognize that living things have parts that work together.</p> <p>GLE 0107.1.2 Use tools to examine major body parts and plant structures.</p> | <p>✓0107.1.1 Combine pictures of major body parts to assemble a complete animal.</p> <p>✓0107.1.2 Communicate the effect of using tools like magnifiers when examining different body parts.</p> <p>✓0107.1.3 Make diagrams to record and communicate observations.</p> | |

Grade 1 : 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 | Checks for Understanding | State Performance Indicators |
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| <p>GLE 0107.2.1 Distinguish between living and non-living things in an environment.</p> | <p>✓0107.2.1 Identify the basic characteristics of living things.</p> <p>✓0107.2.2 Record information about living or non-living objects in local environments.</p> <p>✓0107.2.3 Sort and classify a variety of living and non-living materials based on their characteristics.</p> | |
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| <h2 style="text-align: center;">Grade 1 : Standard 3 - Flow of Matter and Energy</h2> | | |
| <p>Conceptual Strand 3 <i>Matter and energy flow through the biosphere.</i></p> | | |
| <p>Guiding Question 3 <i>What scientific information explains how matter and energy flow through the biosphere?</i></p> | | |
| <p style="text-align: center;">Grade Level Expectations</p> | <p style="text-align: center;">Checks for Understanding</p> | <p style="text-align: center;">State Performance Indicators</p> |
| <p>GLE 0107.3.1 Recognize that plants and animals are living things that grow and change over time.</p> | <p>✓0107.3.1 Conduct investigations and record data about the growth of different plants under varying conditions.</p> <p>✓0107.3.2 Describe what plants and animals need in order to grow and remain healthy.</p> | |

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Grade 1: 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?

| Grade Level Expectations | Checks for Understanding | State Performance Indicators |
|---|--|-------------------------------------|
| GLE 0107.4.1 Observe and illustrate the life cycle of animals. GLE 0107.4.2 Describe ways in which animals closely resemble their parents. | ✓0107.4.1 Observe, describe, and record the life cycle of a particular animal. ✓0107.4.2 Match pictures of parents and related offspring by identifying common characteristics. | |

Grade 1 : 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?

| Grade Level Expectations | Checks for Understanding | State Performance Indicators |
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| <p>GLE 0107.5.1 Investigate how plants and animals can be grouped according to their habitats.</p> <p>GLE 0107.5.2 Recognize that some organisms which formerly lived are no longer found on earth.</p> | <p>✓0107.5.1 Observe plants and animals on the school grounds and group them according to where they are found.</p> <p>✓0107.5.2 Create a chart of different habitats and match animals to specific locations.</p> <p>✓0107.5.3 Sort pictures or illustrations of animals into groups that are extinct and those that still exist and offer possible explanations for extinction.</p> | |
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Grade 1 - Earth and Space Science

Grade 1 : 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 |
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| <p>GLE 0107.6.1 Compare and describe features of the day and night sky.</p> | <p>✓0107.6.1 Create a chart of things that can be observed in the day and night sky.</p> | |
| <p>GLE 0107.6.2 Realize that the sun can only be seen during the day, while the moon can be seen at night and sometimes during the day.</p> | <p>✓0107.6.2 Identify objects in the sky and describe their observable similarities and differences.</p> | |

Grade 1 : 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 |
|---|---|-------------------------------------|
| <p>GLE 0107.7.1 Realize that water, rocks, soil, living organisms, and man-made objects make up the earth’s surface.</p> <p>GLE 0107.7.2 Classify earth materials according to their physical properties.</p> | <p>✓0107.7.1 Create a diagram of the school grounds to identify where water, rocks, soil, living organisms, and man-made objects are found.</p> <p>✓0107.7.2 Sample areas of the school grounds to identify where different materials are found.</p> <p>✓0107.7.3 Use bagged samples of earth materials or pictures from different areas to classify materials according to their use.</p> | |

Grade 1 : 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 |
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| 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. | |

Grade 1 - Physical Science

Grade 1 : 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 |
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| <p>GLE 0107.9.1 Classify objects according to their physical properties.</p> <p>GLE 0107.9.2 Distinguish between the properties of solids and liquids.</p> <p>GLE 0107.9.3 Predict the changes that may occur when different materials are mixed.</p> | <p>✓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 use.</p> <p>✓0107.9.2 Compare liquids according to their color, ability to flow, solubility in water, and use.</p> <p>✓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.</p> | |

Grade 1 : 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 |
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| <p>GLE 0107.10.1 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> | |

Grade 1 : 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 0107.11.1 Investigate how forces (push, pull) can move an object or change its direction. | <p>✓0107.11.1 Use familiar objects to explore how the movement can be changed.</p> <p>✓0107.11.2 Investigate and explain how different surfaces affect the movement of an object.</p> | |

Grade 1 : 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 0107.12.1 Investigate materials that are attracted to magnets. | <p>✓0107.12.1 Identify and classify objects in the classroom as magnetic or non-magnetic.</p> <p>✓0107.12.2 Make predictions about how various objects will be affected by a magnet.</p> | |