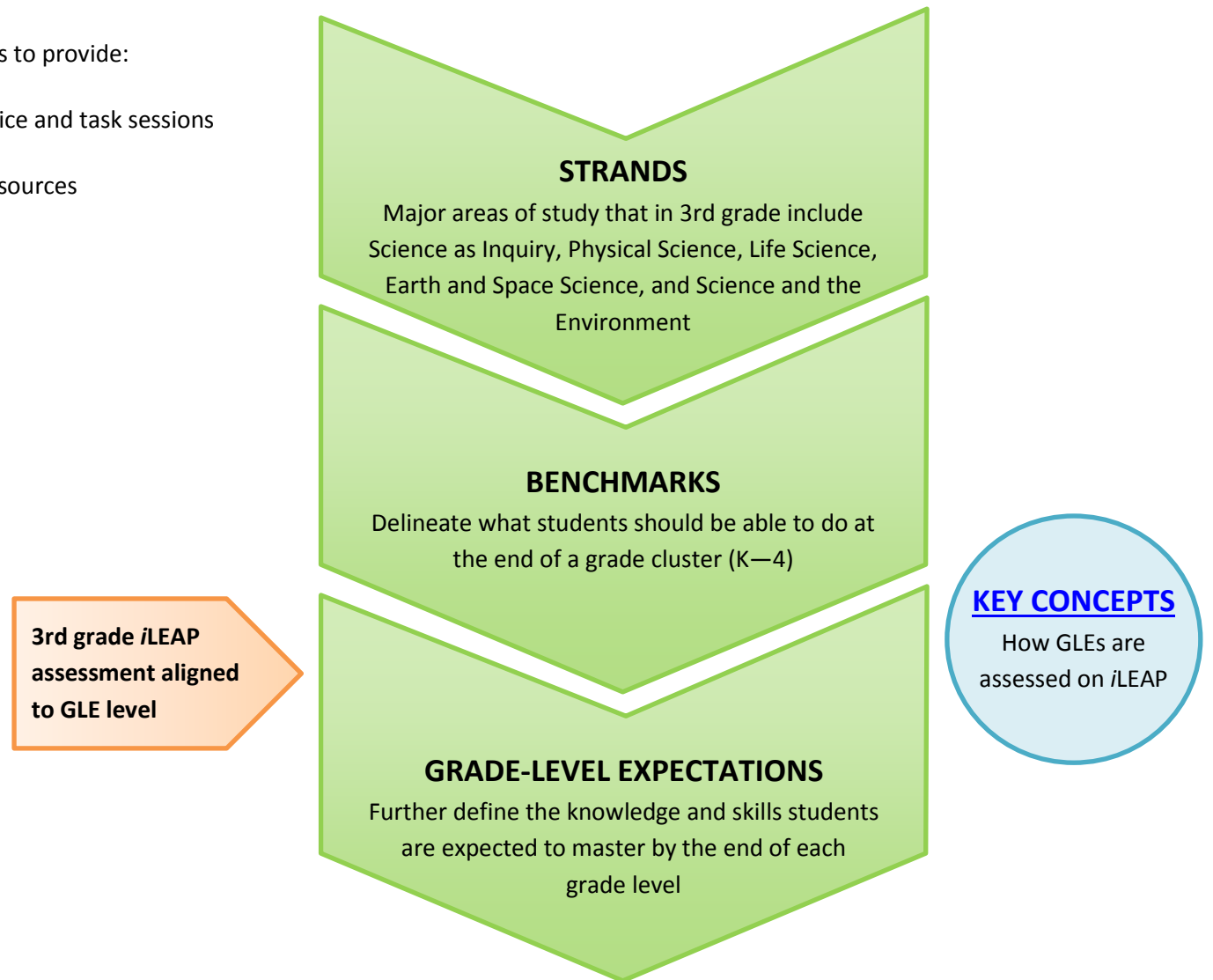


The grade 3 *i*LEAP test continues to assess Louisiana’s science grade-level expectations (GLEs). The design of the test remains the same as in previous administrations.

The purpose of this assessment guidance is to provide:

- the structure of the test
- specifications for the multiple-choice and task sessions
- the GLEs eligible for assessment
- links to sample items and other resources



Strands, Benchmarks, and Grade-Level Expectations (GLEs)

Louisiana’s science content standards – broad statements of expectations for student learning – encompass five strands: Science as Inquiry, Physical Science, Life Science, Earth and Space Science, and Science and the Environment. At grade 3, all five strands are assessed primarily through general science concepts. Content explored at this grade level includes measuring and describing matter and materials, forces and motion, energy, plants and animals, rocks, soils, and change, the solar system, the environment, and weather patterns.

To delineate what students should know and be able to do, each strand is divided into benchmarks for grade clusters (K-4 or 5-8). Benchmarks are organized into two to four thematic categories within each strand. These categories (e.g., Abilities Necessary to Do Scientific Inquiry, or Forms of Energy) provide content definition by highlighting the underlying themes within the domain of each strand.

To further define the knowledge and skills students are expected to know at the end of each grade, not just at the end of a grade span, Louisiana educators developed grade-level expectations (GLEs)

Test Structure

Test Sessions	Number of Items	Number of Points	Suggested Testing Time*
Multiple Choice	40	40	60 minutes
Task	2 multiple choice 1 extended response	4 (multiple choice = 1 pt each, extended response = 2 pts)	30 minutes

*The science test is **untimed**.

Specifications for the Multiple-Choice Session

Percentage of Points by Strand for the Multiple-Choice Session*

Strand/Category	% of Points
Science as Inquiry	20
A. The Abilities Necessary to Do Scientific Inquiry	
B. Understanding Scientific Inquiry	
Physical Science	20
A. Properties of Objects and Materials	
B. Position and Motion of Objects	
C. Forms of Energy	
Life Science	20
A. Characteristics of Organisms	
B. Life Cycles of Organisms	
C. Organisms and their Environment	
Earth and Space Science	20
A. Properties of Earth Materials	
B. Objects in the Sky	
Science and the Environment	20
Total	100

*The table refers to the multiple-choice session only.

Most of the GLEs are eligible for assessment on the multiple-choice session of the *i*LEAP science test. Some, however, do not lend themselves to direct assessment in multiple-choice format, including GLE numbers 9, 20, 23, and 44.

Description of the Task

The task promotes science literacy through the use of discipline-specific practices to collect, apply, and communicate content knowledge. The task reflects the rigor of Louisiana's content standards and applies English language arts standards for reading informational text (includes science and technical texts) and writing to a science context.

The items in the task are aligned to science GLEs. The task may assess any of the five science strands: Science as Inquiry, Physical Science, Life Science, Earth and Space Science, and Science and the Environment. GLE numbers 20 and 23 do not lend themselves to assessment in the task session.

The task consists of two multiple-choice items and one extended-response item. The items are based on one or two stimulus materials. The extended-response portion of the task requires students to provide a written response that will be scored using a 0-2 point rubric. The task asks students to incorporate science content knowledge with evidence from the stimulus materials. A sample task for grade 3 may be found in the [Sample Items](#) document.

At grade 3, the reading and writing skills required by the task may include some or all of the following:

- reading and comprehending grade-level complex texts including science and technical texts independently and proficiently
- determining the main idea of a text
- recounting the key details and explaining how they support the main idea
- describing the relationship between a series of scientific ideas, concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, cause and effect
- determining the meaning of domain-specific words and phrases in a text
- using information gained from illustrations (e.g., maps, charts, graphs) and the words in a text to demonstrate understanding of the text
- comparing and contrasting the most important points and key details presented in two texts on the same topic
- providing a concluding statement or section

Description of Stimulus Material

The multiple-choice and task sessions of the grade 3 test may incorporate the following types of stimulus material:

- an excerpt from a text-based source
- data tables or graphs presenting data to be read or interpreted
- charts, illustrations, or graphic organizers
- descriptions and details of science investigations
- maps showing geographical features

Examples of the types of stimulus materials may be found in the [Sample Items](#) document.

Grade 3
SCIENCE STANDARDS, BENCHMARKS, AND GLES

Science as Inquiry: Students will do science by engaging in partial and full inquiries that are within their developmental capabilities.

A. The Abilities Necessary to Do Scientific Inquiry

BENCHMARKS	GRADE-LEVEL EXPECTATIONS
SI-E-A1: asking appropriate questions about organisms and events in the environment	<ol style="list-style-type: none"> 1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) 2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations
SI-E-A2: planning and/or designing and conducting a scientific investigation	<ol style="list-style-type: none"> 3. Use observations to design and conduct simple investigations or experiments to answer testable questions 4. Predict and anticipate possible outcomes 5. Use a variety of methods and materials and multiple trials to investigate ideas (observe, measure, accurately record data)
SI-E-A3: communicating that observations are made with one's senses	<ol style="list-style-type: none"> 6. Use the five senses to describe observations
SI-E-A4: employing equipment and tools to gather data and extend the sensory observations	<ol style="list-style-type: none"> 7. Measure and record length, temperature, mass, volume, and area in both metric system and U.S. system units 8. Select and use developmentally appropriate equipment and tools (e.g., magnifying lenses, microscopes, graduated cylinders) and units of measurement to observe and collect data
SI-E-A5: using data, including numbers and graphs, to explain observations and experiments	<ol style="list-style-type: none"> 9. Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate 10. Combine information, data, and knowledge from one or more of the science content areas to reach a conclusion or make a prediction
SI-E-A6: communicating observations and experiments in oral and written	<ol style="list-style-type: none"> 11. Use a variety of appropriate formats to describe procedures and to express

formats	ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios)
SI-E-A7: utilizing safety procedures during experiments	12. Identify and use appropriate safety procedures and equipment when conducting investigations (e.g., gloves, goggles, hair ties)
B. Understanding Scientific Inquiry	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
SI-E-B1: categorizing questions into what is known, what is not known, and what questions need to be explained	13. Identify questions that need to be explained through further inquiry 14. Distinguish between what is known and what is unknown in scientific investigations
SI-E-B3: choosing appropriate equipment and tools to conduct an experiment	15. Recognize that a variety of tools can be used to examine objects at different degrees of magnification (e.g., hand lens, microscope)
SI-E-B4: developing explanations by using observations and experiments	See GLE #9
SI-E-B5: presenting the results of experiments	16. Describe procedures and communicate data in a manner that allows others to understand and repeat an investigation or experiment
SI-E-B6: reviewing and asking questions about the results of investigations	17. Explain and give examples of how scientific discoveries have affected society
Physical Science: Students will develop an understanding of the characteristics and interrelationships of matter and energy in the physical world.	
A. Properties of Objects and Materials	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
PS-E-A1: observing, describing, and classifying objects by properties (size, weight, shape, color, texture, and temperature)	18. Compare and classify objects on properties determined through experimentation (e.g., ability to conduct electricity, tendency to float or sink in water)
PS-E-A2: measuring properties of objects using appropriate materials, tools, and technology	19. Select the appropriate metric system and U.S. system tools for measuring length, width, temperature, volume, and mass

	20. Measure temperature by using Fahrenheit and Celsius thermometers and compare results
PS-E-A3: observing and describing the objects by the properties of the materials from which they are made (paper, wood, metal)	21. Compare common objects and identify the original material from which they are made (e.g., paper, pencil, comb)
PS-E-A4: describing the properties of the different states of matter and identifying the conditions that cause matter to change states	22. Investigate and explain conditions under which matter changes physical states: heating, freezing, evaporating, condensing, boiling
B. Position and Motion of Objects	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
PS-E-B2: exploring and recognizing that the position and motion of objects can be changed by pushing or pulling (force) over time	23. Demonstrate how force is a <i>push</i> or a <i>pull</i> by using students' bodies, toy cars, or balls 24. Explain how the amount and direction of force exerted on an object (e.g., push, pull, friction, gravity) determine how much the object will move
PS-E-B3: describing an object's motion by tracing and measuring its position over time	25. Observe and analyze motion and position of objects over time (e.g., shadows, apparent path of the Sun across the sky)
PS-E-B4: investigating and describing how the motion of an object is related to the strength of the force (pushing or pulling) and the mass of the object	26. Explain the effect of varying amounts of force on the motion of an object
C. Forms of Energy	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
PS-E-C1: experimenting and communicating how vibrations of objects produce sound and how changing the rate of vibration varies the pitch	27. Use the words <i>high/low</i> to compare the pitch of sound and the words <i>loud/soft</i> to compare the volume (amplitude) of sound
PS-E-C2: investigating and describing how light travels and what happens when light strikes an object (reflection, refraction, and absorption)	28. Describe the reflection/absorption properties of various colored objects
PS-E-C3: investigating and describing different ways heat can be produced and moved from one object to another by conduction	29. Determine which materials insulate best by using experimental data
PS-E-C4: investigating and describing how electricity travels in a circuit	30. Demonstrate and explain the movement of electricity in closed and open circuits
PS-E-C5: investigating and communicating that magnetism and gravity can exert forces on objects without touching the objects	31. Compare and describe the common forms of energy and explain how they are used in everyday life (e.g., light, electricity, heat, mechanical)

	32. Give examples of how energy can be used to move or lift objects 33. Identify simple machines and the tasks they make possible
Life Science: Students will become aware of the characteristics and life cycles of organisms and understand their relationships to each other and to their environment.	
<i>A. Characteristics of Organisms</i>	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
LS-E-A1: identifying the needs of plants and animals based on age-appropriate recorded observations	34. Describe what the human body needs to grow and be healthy
LS-E-A3: locating and comparing major plant and animal structures and their functions	35. Compare structures (parts of the body) in a variety of animals (e.g., fish, mammals, reptiles, amphibians, birds, insects) 36. Compare structures (e.g., roots, leaves, stems, flowers, seeds) and their functions in a variety of plants 37. Describe how plant structures enable the plant to meet its basic needs
LS-E-A4: recognizing that there is great diversity among organisms	38. Classify groups of organisms based on common characteristics 39. Compare organisms from different groups (e.g., birds with mammals, terrestrial plants with aquatic plants)
LS-E-A5: locating major human body organs and describing their functions	40. Explain how the organs of the digestive system function 41. Describe how the components of the skeletal system function
LS-E-A6: recognizing the food groups necessary to maintain a healthy body	42. Describe the relationship between eating habits and maintaining a healthy body 43. Identify a meal that includes representatives from each group of the food pyramid
<i>B. Life Cycles of Organisms</i>	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
LS-E-B4: observing, recording, and graphing student growth over time using a variety of quantitative measures (height, weight, linear measure of feet and hands, etc.)	44. Graph, analyze, and interpret personal and class data

C. Organisms and Their Environments

There are no Grade-Level Expectations for benchmarks in grade 3 for this category.

Earth and Space Science: Students will develop an understanding of the properties of earth materials, the structure of the Earth system, the Earth’s history, and the Earth’s place in the universe.

A. Properties of Earth Materials

BENCHMARKS	GRADE-LEVEL EXPECTATIONS
ESS-E-A1: understanding that earth materials are rocks, minerals, and soils	45. Recognize and describe that rock is composed of different combinations of minerals 46. Describe earth processes that have affected selected physical features in students’ neighborhoods (e.g., rusting, weathering, erosion) Also see GLE no. 51
ESS-E-A2: understanding that approximately three-fourths of the Earth’s surface is covered with water and how this condition affects weather patterns and climates	47. Describe the difference between weather and climate
ESS-E-A3: investigating, observing, and describing how water changes from one form to another and interacts with the atmosphere	48. Identify examples of the processes of a water cycle (e.g., evaporation, condensation, precipitation, collection of runoff)
ESS-E-A4: investigating, observing, measuring, and describing changes in daily weather patterns and phenomena	49. Describe climate patterns from recorded weather conditions over a period of time
ESS-E-A5: observing and communicating that rocks are composed of various substances	50. Compare and group common rocks according to their characteristics (i.e., igneous, metamorphic, sedimentary) Also see GLE no. 45
ESS-E-A6: observing and describing variations in soil	51. Identify and compare the components found in soil
ESS-E-A7: investigating fossils and describing how they provide evidence about plants and animals that lived long ago and the environment in which they lived	52. Identify characteristics of selected fossils and explain how fossil records are used to learn about the past

B. Objects in the Sky

BENCHMARKS	GRADE-LEVEL EXPECTATIONS
ESS-E-B1: observing and describing the characteristics of objects in the sky	53. Identify, in order, the planets of the solar system
ESS-E-B2: demonstrating how the relationship of the Earth, Moon, and Sun causes eclipses and moon phases	54. Describe the patterns of apparent change in the position of the Sun
ESS-E-B4: modeling changes that occur because of the rotation of the Earth (alternation of night and day) and the revolution of the Earth around the Sun	55. Explain the results of the rotation and revolution of Earth (e.g., day and night, year) 56. Compare shadow direction and length at different times of day and year
<p>Science and the Environment: Students will develop an appreciation of the natural environment, learn the importance of environmental quality, and acquire a sense of stewardship. As consumers and citizens, they will be able to recognize how our personal, professional, and political actions affect the natural world.</p>	
BENCHMARKS	GRADE-LEVEL EXPECTATIONS
SE-E-A1: understanding that an <i>ecosystem</i> is made of living and nonliving components	57. Describe the interrelationships of <i>living (biotic)</i> and <i>nonliving (abiotic)</i> components within various ecosystems (e.g., terrarium, swamp, backyard)
SE-E-A3: identifying ways in which humans have altered their environment, both in positive and negative ways, either for themselves or for other living things	58. Describe how humans have had negative and positive effects on organisms and their environments
SE-E-A4: understanding that the original sources of all material goods are natural resources and that the conserving and recycling of natural resources is a form of stewardship	59. Classify manufactured products according to the natural resources from which they are made (e.g., copper wire from copper ore, plastic from petroleum) 60. Explain how renewable and nonrenewable resources can be replenished or depleted
SE-E-A5: understanding that most plant and animal species are threatened or endangered today due to habitat loss or change	61. Explain how selected animals once classified as endangered have recovered 62. Identify animals in Louisiana that have recovered and that are no longer considered endangered See also GLE no. 58

Explanation of Codes:

GLEs are numbered consecutively in each grade level and grouped by strand and thematic category. Benchmarks are coded by strand, grade cluster, and benchmark number. The first term in the code refers to the strand. The second term refers to the grade cluster, and the third term refers to the category and benchmark number.

Examples of Science Codes:

CODE	TRANSLATION
SI-E-A5	SI Strand, Elementary, Category A, Benchmark 5
PS-M-B4	PS Strand, Middle School, Category B, Benchmark 4
SE-H-A6	SE Strand, High School, Category A, Benchmark 6