

**Side-by-Side Comparison of the Texas Educational Knowledge and Skills (TEKS)
and Louisiana Grade Level Expectations (GLEs)**

SCIENCE: Grade 4

TEKS	Comments	Louisiana GLE
(4.1) Scientific Processes. The student conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.		The Abilities Necessary to do Scientific Inquiry (SI)
(4.1.A) demonstrate safe practices during field and laboratory investigations; and	<i>TAKS Objective</i>	SI GLE 13. Identify and use appropriate safety procedures and equipment when conducting investigations (e.g., gloves, goggles, hair ties) (SI-E-A7)
(4.1B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.	<i>GLE No Match</i>	
(4.2) Scientific Processes. The student uses scientific inquiry methods during field and laboratory investigations.		The Abilities Necessary to do Scientific Inquiry (SI) Understanding Scientific Inquiry (SI)
(4.2.A) plan and implement descriptive investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology;	<i>Similar/Implied</i>	<p>SI GLE 1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)</p> <p>SI GLE 2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)</p> <p>SI GLE 3. Use observations to design and conduct simple investigations or experiments to answer testable questions (SI-E-A2)</p> <p>SI GLE 5. Identify variables to ensure that only one experimental variable is tested at a time (SI-E-A2)</p> <p>SI GLE 6. Use a variety of methods and materials and multiple trials to investigate ideas (observe, measure, accurately record data) (SI-E-A2)</p> <p>SI GLE 9. 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-A4)</p> <p>SI GLE 14. Identify questions that need to be explained through further inquiry (SI-E-B1)</p>

		<p>SI GLE 15. Distinguish between what is known and what is unknown in scientific investigations (SI-E-B1)</p> <p>SI GLE 16. Select the best experimental design to answer a given testable question (SI-E-B2)</p> <p>SI GLE 17. Recognize that a variety of tools can be used to examine objects at different degrees of magnification (e.g., hand lens, microscope) (SI-E-B3)</p>
(4.2.B) collect information by observing and measuring;	<i>Similar</i>	<p>SI GLE 3. Use observations to design and conduct simple investigations or experiments to answer testable questions (SI-E-A2)</p> <p>SI GLE 6. Use a variety of methods and materials and multiple trials to investigate ideas (observe, measure, accurately record data) (SI-E-A2)</p> <p>SI GLE 7. Use the five senses to describe observations (SI-E-A3)</p> <p>SI GLE 8. Measure and record length, temperature, mass, volume, and area in both metric system and U.S. system units (SI-E-A4)</p>
(4.2.C) analyze and interpret information to construct reasonable explanations from direct and indirect evidence;	<i>Implied</i>	<p>SI GLE 4. Predict and anticipate possible outcomes (SI-E-A2)</p> <p>SI GLE 10. Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (SI-E-A5) (SI-E-B4)</p> <p>SI GLE 18. Base explanations and logical inferences on scientific knowledge, observations, and scientific evidence (SI-E-B4)</p> <p>SI GLE 11. Combine information, data, and knowledge from one or more of the science content areas to reach a conclusion or make a prediction (SI-E-A5)</p>
(4.2.D) communicate valid conclusions; and	<i>Implied</i>	<p>SI GLE 10. Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (SI-E-A5) (SI-E-B4)</p> <p>SI GLE 12. Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (SI-E-A6)</p> <p>SI GLE 18. Base explanations and logical inferences on scientific knowledge, observations, and scientific evidence (SI-E-B4)</p> <p>SI GLE 19. Describe procedures and communicate data in a manner</p>

		that allows others to understand and repeat an investigation or experiment (SI-E-B5)
(4.2.E) construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.	<i>Similar</i>	SI GLE 10. Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (SI-E-A5) (SI-E-B4)
(4.3) Scientific Processes. The student uses critical thinking and scientific problem solving to make informed decisions.		The Abilities Necessary to do Scientific Inquiry (SI) Understanding Scientific Inquiry (SI)
(4.3.A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	<i>TAKS Objective Implied</i>	SI GLE 18. Base explanations and logical inferences on scientific knowledge, observations, and scientific evidence (SI-E-B4) SI GLE 21. Use evidence from previous investigations to ask additional questions and to initiate further explorations (SI-E-B6)
(4.3.B) draw inferences based on information related to promotional materials for products and services;	<i>TAKS Objective Implied</i>	SI GLE 18. Base explanations and logical inferences on scientific knowledge, observations, and scientific evidence (SI-E-B4)
(4.3.C) represent the natural world using models and identify their limitations;	<i>TAKS Objective Implied - TEKS target the limitations of models</i>	SI GLE 12. Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (SI-E-A7)
(4.3.D) evaluate the impact of research on scientific thought, society, and the environment; and	<i>Similar</i>	SI GLE 22. Explain and give examples of how scientific discoveries have affected society (SI-E-B6) ESS GLE 69. Explain how technology has improved our knowledge of the universe (e.g., Hubble telescope, space stations, lunar exploration) (ESS-E-B6)
(4.3.E) connect Grade 4 science concepts with the history of science and contributions of scientists.	<i>Implied</i>	SI GLE 22. Explain and give examples of how scientific discoveries have affected society (SI-E-B6)
(4.4) Scientific Processes. The student knows how to use a variety of tools and methods to conduct science inquiry.		The Abilities Necessary to do Scientific Inquiry (SI) Understanding Scientific Inquiry (SI)
(4.4.A) collect and analyze information using tools including calculators, safety goggles, microscopes, cameras, sound recorders, computers, hand lenses, rulers, thermometers, meter sticks, timing devices, balances, and compasses; and	<i>Similar</i>	SI GLE 9. 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-A4) SI GLE 13. Identify and use appropriate safety procedures and equipment when conducting investigations (e.g., gloves, goggles, hair ties) (SI-E-A7)
(4.4.B) demonstrate that repeated investigations may increase the reliability of results.	<i>Implied</i>	SI GLE 20. Determine whether further investigations are needed to draw valid conclusions (SI-E-B6)

(4.5) Science Concepts. The student knows that complex systems may not work if some parts are removed.		Characteristics of Organisms (LS) Organisms and Their Environment (LS) Science and the Environment (SE)
(4.5.A) identify and describe the roles of some organisms in living systems such as plants in a schoolyard, and parts in nonliving systems such as a light bulb in a circuit; and	<i>Implied</i> <i>These are examples of how LA uses the unifying theme Systems in Context.</i>	PS GLE 37. Demonstrate how a complete circuit is needed for conducting electricity (PS-E-C4) LS GLE 40. Explain the functions of plant structures in relation to their ability to make food through photosynthesis (e.g., roots, leaves, stems, flowers, seeds) (LS-E-A3) LS GLE 41. Describe how parts of animals' bodies are related to their functions and survival (e.g., wings/flying, webbed feet/swimming) (LS-E-A3) LS GLE 42. Describe how the organs of the circulatory and respiratory systems function (LS-E-A5) LS GLE 52. Describe how some plants and animals have adapted to their habitats (LS-E-C2) SE GLE 70. Design an ecosystem that includes living (biotic) and nonliving (abiotic) components and illustrates interdependence (SE-E-A1)
(4.5.B) predict and draw conclusions about what happens when part of a system is removed.	<i>Implied</i>	LS GLE 54. Describe the effect of sudden increases or decreases of one group of organisms upon other organisms in the environment (LS-E-C3) SE GLE 72. Predict and describe consequences of the removal of one component in a balanced ecosystem (e.g., consumer, herbivores, nonliving component) (SE-E-A2)
(4.6) Science Concepts. The student knows that change can create recognizable patterns.		Position and Motion of Objects (PS) Life Cycles of Organisms (LS) Properties of Earth Materials (ESS) Objects in the Sky (ESS)
(4.6.A) identify patterns of change such as in weather, metamorphosis, and objects in the sky;	<i>TAKS Objective</i> <i>Similar & Implied</i>	PS GLE 26. Measure, record, and graph changes in position over time (e.g., speed of cars, ball rolling down inclined plane) (PS-E-B3) LS GLE 47. Sequence stages in the life cycles of various organisms, including seed plants (LS-E-B1) ESS GLE 59. Measure, chart, and predict the weather using various instruments (e.g., thermometer, barometer, anemometer) (ESS-E-A4)

		<p>ESS GLE 63. Demonstrate and explain how Earth's surface is changed as a result of slow and rapid processes (e.g., sand dunes, canyons, volcanoes, earthquakes) (ESS-E-A5) (ESS-E-A1)</p> <p>ESS GLE 64. Describe and sequence the phases of the Moon and eclipses (ESS-E-B2)</p> <p>ESS GLE 68. Identify the relationship between Earth's tilt and revolution and the seasons (ESS-E-B4)</p> <p>ESS GLE 65. Compare a solar and a lunar eclipse (ESS-E-B2)</p> <p>ESS GLE 66. Diagram the movement of the Moon around Earth and the movement of Earth around the Sun (ESS-E-B2)</p> <p>ESS GLE 67. Explain the changing appearance of the Moon and its location in the sky over the course of a month (ESS-E-B3)</p>
(4.6.B) illustrate that certain characteristics of an object can remain constant even when the object is rotated like a spinning top, translated like a skater moving in a straight line, or reflected on a smooth surface; and	<i>NO GLE Match</i>	
	<i>Not addressed in TX in the elementary</i>	PS GLE 27. Describe how the amount of force needed to cause an object to change its motion depends on the mass of the object (PS-E-B4)
	<i>Sound is addressed in grade 5 – 5.8 C</i>	<p>PS GLE 28. Explain the relationship between volume (amplitude) of sound and energy required to produce the sound (PS-E-C1)</p> <p>PS GLE 29. Compare the rates at which sound travels through solids, liquids, and gases (PS-E-C1)</p> <p>PS GLE 30. Explain the relationship between frequency (rate of vibration) and pitch (PS-E-C1)</p>
(4.6.C) use reflections to verify that a natural object has symmetry.	<i>No GLE Match</i>	
	<i>Implied in grade 5 – 5.8 B</i>	<p>PS GLE 31. Diagram what happens to white light as it passes through a prism (PS-E-C2)</p> <p>PS GLE 32. Describe how light bends or refracts when traveling through various materials (e.g., pencil in a glass of water) (PS-E-C2)</p>
(4.7) Science Concepts. The student knows that matter has physical properties.		<p>Properties of Objects and Materials (PS)</p> <p>Forms of Energy (PS)</p>
(4.7.A) observe and record changes in the states of matter caused by the addition or reduction of heat; and	<i>Similar</i>	PS GLE 24. Illustrate how heating/cooling affects the motion of small particles in different phases of matter (PS-E-A4)

		PS GLE 25. Describe various methods to separate mixtures (e.g., evaporation, condensation, filtration, magnetism) (PS-E-A5)
(4.7.B) conduct tests, compare data, and draw conclusions about physical properties of matter including states of matter, conduction, density, and buoyancy.	<i>Implied</i>	PS GLE 23. Determine linear, volume, and weight/mass measurements by using both metric system and U.S. system units to compare the results (PS-E-A2) PS GLE 33. Describe how heat energy moves through a material by conduction (PS-E-C3) PS GLE 36. Test and classify materials as conductors and insulators of electricity (PS-E-C4)
	<i>Implied in grade 5 – 5.8</i>	PS GLE 34. Give examples of ways heat can be generated through friction (e.g., rubbing hands) (PS-E-C3) PS GLE 35. Give examples of ways heat can be produced by conversion from other sources of energy (PS-E-C3)
	<i>Not specifically addressed in the elementary in TX</i>	PS GLE 38. Explain the effects of Earth’s gravity on all objects at or near the surface of Earth (PS-E-C5)
	<i>Not specifically addressed in the elementary in TX</i>	PS GLE 39. Describe energy transformations (e.g., electricity to light, friction to heat) (PS-E-C6)
(4.8) Science Concepts. The student knows that adaptations may increase the survival of members of a species.		Characteristics of Organisms (LS) Life Cycles of Organisms (LS) Organisms and Their Environment (LS)
(4.8.A) identify characteristics that allow members within a species to survive and reproduce;	<i>Similar/Implied</i>	LS GLE 41. Describe how parts of animals’ bodies are related to their functions and survival (e.g., wings/flying, webbed feet/swimming) (LS-E-A3)
	<i>Addressed in Grade 3-3.8 b in TX</i>	LS GLE 50. Explain how some organisms in a given habitat compete for the same resources (LS-E-C1)
(4.8.B) compare adaptive characteristics of various species; and	<i>Implied</i>	LS GLE 41. Describe how parts of animals’ bodies are related to their functions and survival (e.g., wings/flying, webbed feet/swimming) (LS-E-A3) LS GLE 51. Describe how organisms can modify their environment to meet their needs (e.g., beavers making dams) (LS-E-C1)

		LS GLE 53. Identify the habitat in which selected organisms would most likely live and explain how specific structures help organisms to survive (LS-E-C)
(4.8.C) identify the kinds of species that lived in the past and compare them to existing species.	<i>Implied</i>	LS GLE 52. Describe how some plants and animals have adapted to their habitats (LS-E-C2)
(4.9) Science Concepts. The student knows that many likenesses between offspring and parents are inherited or learned.		
(4.9.A) distinguish between inherited traits and learned characteristics; and	<i>Introduced in LA in Grade 2 - LS GLE 34</i>	
(4.9.B) identify and provide examples of inherited traits and learned characteristics.	<i>Similar</i>	LS GLE 49. Compare similarities and differences between parents and offspring in plants and animals (LS-E-B3)
	<i>These concepts are addressed in Health in the Elementary in TX</i>	LS GLE 43. Explain the primary role of carbohydrates, fats, and proteins in the body (LS-E-A6) LS GLE 44. Analyze food labels to compare nutritional content of foods (e.g., amounts of carbohydrates, fats, proteins) (LS-E-A6)
	<i>Not specifically addressed in TX until grade 7 – 7.10</i>	LS GLE 45. Identify reproductive structures in plants and describe the functions of each (LS-E-B1) LS GLE 46. Describe how some plants can be grown from a plant part instead of a seed (LS-E-B1) LS GLE 47. Sequence stages in the life cycles of various organisms, including seed plants (LS-E-B1)
	<i>Addressed in TX in grade 2 – 2.8</i>	LS GLE 48. Classify examples of plants and animals based on a variety of criteria (LS-E-B2)
(4.10) Science Concepts. The student knows that certain past events affect present and future events.		Properties of Earth Materials (ESS)
(4.10.A) identify and observe effects of events that require time for changes to be noticeable including growth, erosion, dissolving, weathering, and flow; and	<i>Similar</i>	ESS GLE 55. Recognize that sedimentary rocks are composed of particles that result from weathering and erosion (e.g., sandstones, conglomerates) (ESS-E-A1) ESS GLE 63. Demonstrate and explain how Earth’s surface is changed as a result of slow and rapid processes (e.g., sand dunes, canyons, volcanoes, earthquakes) (ESS-E-A5) (ESS-E-A1)

(4.10.B) draw conclusions about "what happened before" using fossils or charts and tables.	<i>Implied</i>	ESS GLE 57. Explain how unequal heating of Earth's land and water affects climate and weather by using a model (ESS-E-A2) ESS GLE 63. Demonstrate and explain how Earth's surface is changed as a result of slow and rapid processes (e.g., sand dunes, canyons, volcanoes, earthquakes) (ESS-E-A5) (ESS-E-A1)
(4.11) Science Concepts. The student knows that the natural world includes earth materials and objects in the sky.		Characteristics of Organisms (LS) Science and the Environment (SE) Properties of Earth Materials (ESS)
(4.11.A) test properties of soils including texture, capacity to retain water, and ability to support life;	<i>TAKS Objective</i>	ESS GLE 56. Investigate the properties of soil (e.g., color, texture, capacity to retain water, ability to support plant growth) (ESS-E-A1)
	<i>Not specifically addressed in the elementary in TX</i>	ESS GLE 62. Classify rocks and minerals according to texture, color, luster, hardness, and effervescence (ESS-E-A5)
(4.11.B) summarize the effects of the oceans on land; and	<i>TAKS Objective Addressed in 8th Grade in LA</i>	
	<i>Not specifically addressed in the elementary in TX</i>	ESS GLE 60. Identify various types of weather-related natural hazards and effects (e.g., lightning, storms) (ESS-E-A4) ESS GLE 61. Identify safety measures applicable to natural hazards (ESS-E-A4)
(4.11.C) identify the Sun as the major source of energy for the Earth and understand its role in the growth of plants, in the creation of winds, and in the water cycle.	<i>TAKS Objective implied</i>	LS GLE 40. Explain the functions of plant structures in relation to their ability to make food through photosynthesis (e.g., roots, leaves, stems, flowers, seeds) (LS-E-A3) ESS GLE 58. Draw, label, and explain the components of a water cycle (ESS-E-A3) SE GLE 71. Describe and explain food chains/webs and the directional flow of energy in various ecosystems (e.g., construct a model, drawing, diagram, graphic organizer) (SE-E-A2) SE GLE 72. Predict and describe consequences of the removal of one component in a balanced ecosystem (e.g., consumer, herbivores, nonliving component) (SE-E-A2)
	<i>Not specifically addressed in the elementary in TX</i>	ESS GLE 65. Compare a solar and a lunar eclipse (ESS-E-B2) ESS GLE 66. Diagram the movement of the Moon around Earth and the movement of Earth around the Sun (ESS-E-B2)

		ESS GLE 67. Explain the changing appearance of the Moon and its location in the sky over the course of a month (ESS-E-B3)
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