

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

**SCIENCE: IPC-Physical Science**

TEKS	Comments	Louisiana GLE
(IPC.1) Scientific Processes. The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.		The Abilities Necessary to Do Scientific Inquiry Understanding Scientific Inquiry
(IPC.1.A) demonstrate safe practices during field and laboratory investigations;	<i>Approximate</i>	SI GLE 10. Given a description of an experiment, identify appropriate safety measures (SI-H-A7)
(IPC.1.B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.	<i>Not specifically addressed in LA GLEs</i>	
(IPC.2) Scientific Processes. The student uses scientific methods during field and laboratory investigations.		The Abilities Necessary to Do Scientific Inquiry Understanding Scientific Inquiry (SI).
(IPC.2.A) plan and implement experimental procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	<i>Approximate</i>	SI GLE 1. Write a testable question or hypothesis when given a topic (SI-H-A1)  SI GLE 3. Plan and record step-by-step procedures for a valid investigation, select equipment and materials, and identify variables and controls (SI-H-A2)  SI GLE 4. Conduct an investigation that includes multiple display data appropriately (SI-H-A2)  SI GLE 6. Use technology when appropriate to enhance laboratory investigations and presentations of findings (SI-H-A3)
(IPC.2.B) collect data and make measurements with precision;	<i>Implied</i>	SI GLE 4. Conduct an investigation that includes multiple trials and record, organize, and display data appropriately (SI-H-A2)  PS GLE 1. Measure the physical properties of different forms of matter in metric system units (e.g., length, mass, volume, temperature) (PS-H-A1)  PS GLE 2. Gather and organize data in charts, tables, and graphs (PS-H-A1)
(IPC.2.C) organize, analyze, evaluate, make inferences, and predict trends from data;	<i>Implied</i>	PS GLE 2. Gather and organize data in charts, tables, and graphs (PS-H-A1)  SI GLE 4. Conduct an investigation that includes multiple trials and record, organize, and display data appropriately (SI-H-A2)

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		<p>SI GLE 5. Utilize mathematics, organizational tools, and graphing skills to solve problems (SI-H-A3)</p> <p>SI GLE 9. Write and defend a conclusion based on logical analysis of experimental data (SI-H-A6) (SI-H-A2)</p> <p>SI GLE 15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4)</p>
(IPC.2.D) communicate valid conclusions.	<i>Implied</i>	<p>SI GLE 5. Utilize mathematics, organizational tools, and graphing skills to solve problems (SI-H-A3)</p> <p>SI GLE 6. Use technology when appropriate to enhance laboratory investigations and presentations of findings (SI-H-A3)</p> <p>SI GLE 7. Choose appropriate models to explain scientific knowledge or experimental results (e.g., objects, mathematical relationships, plans, schemes, examples, role-playing, computer simulations) (SI-H-A4)</p> <p>SI GLE 9. Write and defend a conclusion based on logical analysis of experimental data (SI-H-A6) (SI-H-A2)</p>
(IPC.3) Scientific Processes. The student uses critical thinking and scientific problem solving to make informed decisions.		Understanding Scientific Inquiry
(IPC.3.A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	<i>Implied</i>	<p>SI GLE 11. Evaluate selected theories based on supporting scientific evidence (SI-H-B1)</p> <p>SI GLE 12. Cite evidence that scientific investigations are conducted for many different reasons (SI-H-B2)</p> <p>SI GLE 13. Identify scientific evidence that has caused modifications in previously accepted theories (SI-H-B2)</p> <p>SI GLE 15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4)</p> <p>SI GLE 16. Use the following rules of evidence to examine experimental results:  (a) Can an expert's technique or theory be tested, has it been tested, or is it simply a subjective, conclusive approach that cannot be reasonably assessed for reliability?  (b) Has the technique or theory been subjected to peer review and publication?  (c) What is the known or potential rate of error of the technique or theory when applied?</p>

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		(d) Were standards and controls applied and maintained? (e) Has the technique or theory been generally accepted in the scientific community? (SI-H-B5) (SI-H-B1) (SI-H-B4)
(IPC.3.B) draw inferences based on data related to promotional materials for products and services;	<i>Implied</i>	SI GLE 15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4)
(IPC.3.C) evaluate the impact of research on scientific thought, society, and the environment;	<i>Implied</i>	SI GLE 14. Cite examples of scientific advances and emerging technologies and how they affect society (e.g., MRI, DNA in forensics) (SI-H-B3)
(IPC.3.D) describe connections between physics and chemistry and future careers;	<i>Not specifically addressed in LA GLEs</i>	
(IPC.3.E) research and describe the history of physics, chemistry, and contributions of scientists.	<i>Not specifically addressed in LA GLEs</i>	
(IPC.4) Science Concepts. The student knows the laws governing motion.		Forces and Motion
(IPC.4.A) calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines;	<i>Implied</i>	PS GLE 31. Differentiate between speed and velocity (PS-H-E2)  PS GLE 32. Plot and compare line graphs of acceleration and velocity (PS-H-E2)  PS GLE 33. Calculate velocity and acceleration using equations (PS-H-E2)  PS GLE 36. Measure and calculate the relationships among energy, work, and power (PS-H-F1)  PS GLE 37. Model and explain how momentum is conserved during collisions (PS-H-F2)
(IPC.4.B) investigate and describe applications of Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits;	<i>Approximate</i>	PS GLE 34. Demonstrate Newton's three laws of motion (e.g., inertia, net force using $F = ma$ , equal and opposite forces) (PS-H-E3)
(IPC.4.C) analyze the effects caused by changing force or distance in simple machines as demonstrated in household devices, the human body, and vehicles;	<i>Implied</i>	PS GLE 36. Measure and calculate the relationships among energy, work, and power (PS-H-F1)
(IPC.4.D) investigate and demonstrate mechanical advantage and efficiency of various machines such as levers, motors, wheels and axles, pulleys, and ramps.	<i>Implied</i>	PS GLE 36. Measure and calculate the relationships among energy, work, and power (PS-H-F1)
(IPC.5) Science Concepts. The student knows the effects of waves on everyday life.	<i>Implied</i>	Interactions of Energy and Matter
(IPC.5.A) demonstrate wave types and their characteristics through a variety of activities such as	<i>Implied</i>	PS GLE 41. Identify the parts and investigate the properties of transverse and compression waves (PS-H-G1)

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modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves;		
(IPC.5.B) demonstrate wave interactions including interference, polarization, reflection, refraction, and resonance within various materials;	<i>Implied</i>	PS GLE 43. Investigate and construct diagrams to illustrate the laws of reflection and refraction (PS-H-G1)
(IPC.5.C) identify uses of electromagnetic waves in various technological applications such as fiber optics, optical scanners, and microwaves;	<i>Approximate</i>	PS GLE 50. Identify positive and negative effects of electromagnetic/mechanical waves on humans and human activities (e.g., sound, ultraviolet rays, X-rays, MRIs, fiber optics) (PS-H-G4) (PS-H-G3)
(IPC.5.D) demonstrate the application of acoustic principles such as in echolocation, musical instruments, noise pollution, and sonograms.	<i>Implied</i>	PS GLE 49. Describe the Doppler effect on sound (PS-H-G3)
(IPC.6) Science Concepts. The student knows the impact of energy transformations in everyday life.		Energy, Chemical Reactions
(IPC.6.A) describe the law of conservation of energy;	<i>Implied</i>	PS GLE 26. Illustrate the laws of conservation of matter and energy through balancing simple chemical reactions (PS-H-D5) (PS-H-D3) (PS-H-D7)  PS GLE 40. Demonstrate energy transformation and conservation in everyday actions (PS-H-F2)
(IPC.6.B) investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation;	<i>Implied</i>	PS GLE 40. Demonstrate energy transformation and conservation in everyday actions (PS-H-F2)
(IPC.6.C) analyze the efficiency of energy conversions that are responsible for the production of electricity such as from radiant, nuclear, and geothermal sources, fossil fuels such as coal, gas, oil, and the movement of water or wind;	<i>Implied</i>	PS GLE 39. Distinguish among thermal, chemical, electromagnetic, mechanical, and nuclear energy (PS-H-F2)  PS GLE 40. Demonstrate energy transformation and conservation in everyday actions (PS-H-F2)
(IPC.6.D) investigate and compare economic and environmental impacts of using various energy sources such as rechargeable or disposable batteries and solar cells;	<i>Implied</i>	PS GLE 50. Identify positive and negative effects of electromagnetic/mechanical waves on humans and human activities (e.g., sound, ultraviolet rays, X-rays, MRIs, fiber optics) (PS-H-G4) (PS-H-G3)
(IPC.6.E) measure the thermal and electrical conductivity of various materials and explain results;	<i>Not specifically addressed in LA GLEs</i>	
(IPC.6.F) investigate and compare series and parallel circuits;	<i>Approximate</i>	PS GLE 45. Evaluate diagrams of series and parallel circuits to determine the flow of electricity (PS-H-G2)
(IPC.6.G) analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnets;	<i>Approximate</i>	PS GLE 46. Diagram a magnetic field (PS-H-G2)  PS GLE 47. Explain how electricity and magnetism are related (PS-H-G2)
(IPC.6.H) analyze the effects of heating and cooling processes in systems such as weather, living, and mechanical.	<i>Not specifically addressed in LA TEKS</i>	
(IPC.7) Science Concepts. The student knows		The Structure and Properties of Matter

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relationships exist between properties of matter and its components.		
(IPC.7.A) investigate and identify properties of fluids including density, viscosity, and buoyancy;	<i>Implied</i>	PS GLE 1. Measure the physical properties of different forms of matter in metric system units (e.g., length, mass, volume, temperature) (PS-H-A1)
(IPC.7.B) research and describe the historical development of the atomic theory;	<i>Implied</i> <i>(Chemistry GLE 8 focuses on the historical perspective of atomic theories. In Louisiana, the historical development and historical models of atoms are taught as the concepts related to atomic theory and models of atoms.)</i>	PS GLE 5. Identify the three subatomic particles of an atom by location, charge, and relative mass (PS-H-B1)
(IPC.7.C) identify constituents of various materials or objects such as metal salts, light sources, fireworks displays, and stars using spectral-analysis techniques;	<i>Implied</i> <i>(Using spectral analysis to identify materials is addressed in Grade 8 in Louisiana.)</i>	PS GLE 48. Compare properties of waves in the electromagnetic spectrum (PS-H-G3)
(IPC.7.D) relate the chemical behavior of an element including bonding, to its placement on the periodic table;	<i>Implied</i>	PS GLE 7. Describe the results of loss/gain of electrons on charges of atoms (PS-H-B1) (PS-H-C5)  PS GLE 10. Identify the number of valence electrons of the first 20 elements based on their positions in the periodic table (PS-H-B3)  PS GLE 12. Classify elements as metals or nonmetals based on their positions in the periodic table (PS-H-C2)
(IPC.7.E) classify samples of matter from everyday life as being elements, compounds, or mixtures.	<i>Implied</i>	PS GLE 11. Investigate and classify common materials as elements, compounds, or mixtures (heterogeneous or homogeneous) based on their physical and chemical properties (PS-H-C1)
(IPC.8) Science Concepts. The student knows that changes in matter affect everyday life.		Chemical Reactions
(IPC.8.A) distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle;		PS GLE 21. Classify changes in matter as physical or chemical (PS-H-D1)
(IPC.8.B) analyze energy changes that accompany chemical reactions such as those occurring in heatpacks, cold packs, and glow sticks to classify them as endergonic or exergonic reactions;	<i>Implied</i>	PS GLE 22. Identify evidence of chemical changes (PS-H-D1)
(IPC.8.C) investigate and identify the law of conservation of mass;	<i>Implied</i>	PS GLE 26. Illustrate the laws of conservation of matter and energy through balancing simple chemical reactions (PS-H-D5) (PS-H-D3) (PS-H-D7)
(IPC.8.D) describe types of nuclear reactions such as fission and fusion and their roles in applications such	<i>Implied</i>	PS GLE 8. Evaluate the uses and effects of radioactivity in people's daily lives (PS-H-B2)

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as medicine and energy production;		PS GLE 9. Compare nuclear fission to nuclear fusion (PS-H-B2)
(IPC.8.E) research and describe the environmental and economic impact of the end-products of chemical reactions.	<i>Implied</i>	PS GLE 28. Identify chemical reactions that commonly occur in the home and nature (PS-H-D7)
(IPC.9) Science Concepts. The student knows how solution chemistry is a part of everyday life.		Atomic Structure
(IPC.9.A) relate the structure of water to its function as the universal solvent;	<i>Not specifically addressed in LA GLEs</i>	
(IPC.9.B) relate the concentration of ions in a solution to physical and chemical properties such as pH, electrolytic behavior, and reactivity;	<i>Implied</i>	PS GLE 13. Predict how factors such as particle size and temperature influence the rate of dissolving (PS-H-C3)  PS GLE 23. Classify unknowns as acidic, basic, or neutral using indicators (PS-H-D2)  PS GLE 25. Determine the effect of various factors on reaction rate (e.g., temperature, surface area, concentration, agitation) (PS-H-D4)
(IPC.9.C) simulate the effects of acid rain on soil, buildings, statues, or microorganisms;	<i>Implied</i>	PS GLE 22. Identify evidence of chemical changes (PS-H-D1)
(IPC.9.D) demonstrate how various factors influence solubility including temperature, pressure, and nature of the solute and solvent;	<i>Implied</i>	PS GLE 13. Predict how factors such as particle size and temperature influence the rate of dissolving (PS-H-C3)
(IPC.9.E) demonstrate how factors such as particle size influence the rate of dissolving.	<i>Implied</i>	PS GLE 13. Predict how factors such as particle size and temperature influence the rate of dissolving (PS-H-C3)
		LA PS GLE's not addressed in TX IPC
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 3. Distinguish among symbols for atoms, ions, molecules, and equations for chemical reactions (PS-H-A2)
		The Structure and Properties of Matter
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 4. Name and write chemical formulas using symbols and subscripts (PS-H-A2)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 6. Determine the number of protons, neutrons, and electrons of elements by using the atomic number and atomic mass from the periodic table (PS-H-B1)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 10. Identify the number of valence electrons of the first 20 elements based on their positions in the periodic table (PS-H-B3)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 14. Investigate and compare methods for separating mixtures by using the physical properties of the components (PS-H-C4) (PS-H-C1)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 15. Using selected elements from atomic numbers 1 to 20, draw Bohr models (PS-H-C5) (PS-H-B3)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 16. Name and write the formulas for simple ionic and covalent compounds (PS-H-C5)

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	<i>Not specifically addressed in TX TEKS</i>	PS GLE 17. Name and predict the bond type formed between selected elements based on their locations in the periodic table (PS-H-C5)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 18. Diagram or construct models of simple hydrocarbons (four or fewer carbons) with single, double, or triple bonds (PS-H-C6)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 19. Analyze and interpret a graph that relates temperature and heat energy absorbed during phase changes of water (PS-H-C7)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 20. Predict the particle motion as a substance changes phases (PS-H-C7) (PS-H-C3)
		Chemical Reactions
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 24. Identify balanced equations as neutralization, combination, and decomposition reactions (PS-H-D3)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 27. Distinguish between endothermic and exothermic reactions (PS-H-D6)
		Forces and Motion
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 29. Differentiate between mass and weight (PS-H-E1)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 30. Compare the characteristics and strengths of forces in nature (e.g., gravitational, electrical, magnetic, nuclear) (PS-H-E1)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 35. Describe and demonstrate the motion of common objects in terms of the position of the observer (PS-H-E4)
		Energy
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 37. Model and explain how momentum is conserved during collisions (PS-H-F2)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 38. Analyze diagrams to identify changes in kinetic and potential energy (PS-H-F2)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 42. Describe the relationship between wavelength and frequency (PS-H-G1)
	<i>Not specifically addressed in TX TEKS</i>	PS GLE 44. Illustrate the production of static electricity (PS-H-G2)