

Student Expectations

Both Texas and Louisiana used the *National Science Education Standards* and Project 2061's *Benchmarks for Science Literacy* and *Science for All Americans* to develop comprehensive plans for K-12 science education. Due to these common origins, student expectations are very similar. Both states specify process skills separately from content, yet they clearly intend for both areas to be addressed simultaneously in the classroom throughout the school year. They also advise that science concepts be introduced and mastered in an interdisciplinary format.

While the Texas Educational Knowledge and Skills (TEKS) address science content in a relatively integrated fashion, the Louisiana Grade Level Expectations (GLEs) cluster expectations for each strand: Physical Science (PS), Life Science (LS), Earth and Space Science (ESS), and Science and the Environment (SE). Both states identify inquiry or process skills, and emphasize that these be developed as the means for acquiring greater depth in content knowledge. Working both cooperatively and independently, students apply critical thinking skills to solve problems, and are to evaluate the results of their scientific investigations and begin to organize information.

One distinction in Louisiana's fourth-grade content standards is the large section of learning expectations in the Life Sciences that relate to nutrition. Texas does not address nutrition in the science class; it is a health course.

Educators should particularly note that whereas unifying themes are explicitly identified and

addressed separately in the TEKS, Louisiana interweaves these concepts throughout their GLEs and Benchmarks.

Assessment

Science assessment methodologies in Texas and Louisiana differ in many ways. Louisiana students are tested using the Louisiana Educational Assessment Program (LEAP 21) at Grade 4. Texas students take the Texas Assessment of Knowledge and Skills (TAKS) at Grade 5. The Louisiana test specifically targets the fourth-grade GLEs, while the Texas test is a comprehensive sampling of identified student expectations from Grades 2 through 5.

Though the Texas and Louisiana science standards are similar overall, few of the TEKS student expectations and corresponding TAKS objectives match perfectly with the Louisiana GLEs. For example, TEKS (4.9.B), which has students "identify and provide examples of inherited traits and learned characteristics" most closely aligns with Louisiana's LS GLE 49, where students are to "compare similarities and differences between parents and offspring in plants and animals." In the latter case, students may not be required to provide examples of learned characteristics. A careful review of the Grade 4 side-by-side analysis will provide more information about such variations.

Coding in the Side-by-Side Analysis

Due to the degree of specificity of the Louisiana standards, some of the Texas Student Expectations (SE's) are matched to more than one Louisiana GLE. For example:

<p>TEKS (4.8.B) compare adaptive</p>	<p>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)</p> <p>LS GLE 51. Describe how organisms can modify their environment to meet their needs (e.g., beavers making dams) (LS-E-C1)</p> <p>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)</p>
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Regarding the codes and content in the middle column on the document:

- Notations regarding TAKS objectives are included in the analysis column.
- Notations are made when concepts are addressed in another grade level in Louisiana.
- *Implied* refers to components of concepts that are understood and addressed in the context of the statement.
- *Similar* means the concept is worded differently.
- *Not specifically addressed* refers to concepts that may be covered, but not necessarily addressed in all classrooms by all teachers.

The number in parentheses following each GLE statement is a reference to the Louisiana Benchmark statement. For example, SI-E-A5 refers to the Science as Inquiry Standard, Elementary School A5 Substandard A, benchmark 5 – using data, including number and graphs, to explain observations and experiments. Benchmark statements are similar to the Texas Knowledge and Skill statements. More information about the Louisiana Benchmarks is available from the Louisiana State Department of Education: <http://www.doe.state.la.us/lde/uploads/2911.pdf>.

There are 72 science GLEs for Grade 4. The first 22, with the prefix SI, constitute the Science as Inquiry strand. These expectations are generally analogous to the Texas Process Standards. Note that the prefixes appearing before the GLE refer to the strand:

- SI = Science As Inquiry
- PS = Physical Science
- LS = Life Science
- ESS = Earth and Space Science
- SE = Science in the Environment