

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). At Grade 6, Louisiana focuses on Physical Science concepts, which includes the effects of forces on the motions of objects, forms of energy, characteristics and outcomes of energy transformations. Selected concepts related to Science and the Environment are also addressed, but there are no GLEs for Life, or Earth and Space Science. While Texas integrates all four of the science content strands at Grade 6, it should be noted that Louisiana covers a large number of Physical Science concepts, as well as particular Environmental Science concepts, that Texas does not take up until later grades.

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

Texas Assessment of Knowledge and Skills (TAKS) Texas and Louisiana both assess science with a criterion referenced tool. However, the Integrated Louisiana Educational Assessment Program (iLEAP) for sixth-graders specifically targets the Grade 6 GLE's, while the Texas Assessment of Knowledge and Skills (TAKS) for eighth-graders is a comprehensive assessment of Grades 6 through 8. The broad Knowledge and Skills (KS) statements noted as TAKS objectives describe what students should know and be able to do for the Middle School Science TAKS.

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 (6.7.A), which has students "demonstrate that new substances can be made when two or more substances are chemically combined and compare the properties of the new substances to the original substances" matches closely with Louisiana GLE 9, where students "describe the properties of reactants and products of chemical reactions observed in the lab" and GLE 11, where they "compare the masses of reactants and products of a chemical reaction." The TEKS focus on comparing the properties of the new substances resulting from a chemical reaction. The GLEs focus on the materials in a chemical reaction and compares the masses of the reactants and products. A careful review of the Grade 6

side-by-sides will provide more details about the differences of expectations.

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 6.6 B The student knows that there is a relationship between force and motion. The student will identify and describe the changes in position, direction of motion, and speed of an object when acted upon by force.</p>	<p>GLE 14. Construct and analyze graphs that represent one-dimensional motion (i.e., motion in a straight line) and predict the future positions and speed of a moving object (PS-M-B1)</p> <p>GLE 16. Compare line graphs of acceleration, constant speed, and deceleration (PS-M-B1)</p> <p>GLE 20. Draw and label a diagram to represent forces acting on an object (PS-M-B4)</p>
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The number in parentheses following each GLE statement is a reference to the Louisiana Benchmark statement. For example, SI-M-A5 refers to the Science as Inquiry Standard, Middle School A5 Substandard A, benchmark 5—developing models and predictions using the relationships between data and explanations. 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>.

Louisiana groups Science as Inquiry (SI) expectations at the Middle School level (Grades

5-8) into one strand. These 40 GLEs are generally analogous to the Texas Process Standards. For Grade 6, there are an additional 47 content expectations. 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

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.