Texas TEKS for Physics (112.47) with *Physics in Context.*

Section C: Knowledge and Skills:

1. Science Processes. The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropiate, and ethical practices. ***The student is expected to:***	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
a. Demonstrate safe practices during field and laboratory investigations: and	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
b. Make wise choices in the use and conservation of resources and the disposal or recycling of materials.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
2.Scientific Processes. The student uses scientific methods during field and laboratory investigation. ***The student is expected to:***	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
a. Plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
b. Make quantitative observations and measurements with precision.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
c. Organize, analyze, evaluate, make inferences, and predict trends from data; and	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
d. Communicate valid conclusions.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
e. Graph data to observe and identify relationships between variables and	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com

f. Read the scale on scientific instruments with precision.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
3.Scientific Processes. The student uses critical thinking and scientific problem solving to make informed decisions. ***The student is expected to:***	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
a. Analyze, review and critique, scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
b. Express laws symbolically and employ mathematical procedures including vector addition and right-triangle geometry to solve physical problems;	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
c. Evaluate the impact of research on scientific thought, society and the environment.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
d. Describe connections between physics and future careers; and	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com
e. Research and describe the history of physics and contributions of scientists.	Embedded in appropiate sections of student text, teachers guide, Lab Manual, Assessment CD & text web-site: www.learningincontext.com

4. Science Concept. The student knows the laws governing motion. ***The student is expected to:***	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
a. Generate and interpret graphs describing motion including the use of real-time technology;	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Analyze examples of uniform and accelerated motion including linear, projectile and circular;	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.

c. Demonstrate the effects of forces on the motion of objects;	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
d. Develop and interpret a free-body diagram for force analysis; and	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
e. Identify and describe motion relative to different frames of reference.	Student Text pp. 4-26, 170-183, 326-350; Teachers Guide pp T4-26, T170-183, T326-350; Lab manual pp. 1.3-1.10, 4.3-4.8, 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
5. Science Concepts. The student knows that changes occur within a physical system and recognizes that energy and momentum are conserved. ***The student is expected to:***	Student Text pp. 230-242, 243-261, 326-338; Teachers Guide pp. T230-242, T243-261, T326-338. 5.3-5.10, 5.11-5.18, and 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
a. Interpret evidence from work-energy theorem;	Student Text pp. 230-242, 243-261, 326-338; Teachers Guide pp. T230-242, T243-261, T326-338. 5.3-5.10, 5.11-5.18, and 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Observe and describe examples of kinetic and potential energy and their transformations;	Student Text pp. 230-242, 243-261, 326-338; Teachers Guide pp. T230-242, T243-261, T326-338. 5.3-5.10, 5.11-5.18, and 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
c. Calculate the mechanical energy and momentum in a physical system such as billiards, cars, and trains; and	Student Text pp. 230-242, 243-261, 326-338; Teachers Guide pp. T230-242, T243-261, T326-338. 5.3-5.10, 5.11-5.18, and 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontxt.com.
d. Demonstrate the conservation of energy and momentum.	Student Text pp. 230-242, 243-261, 326-338; Teachers Guide pp. T230-242, T243-261, T326-338. 5.3-5.10, 5.11-5.18, and 7.3-7.12; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.

6.Science Concept. The student knows forces in nature. ***The student is expected to:***	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
a. Identify the influence of mass and distance on gravitational forces;	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Research and describe the historical development of the concepts of gravitational, electrical, and magnetic force	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
c. Identify and analyze the influences of change and distance on electric forces;	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
d. Demonstrate the relationship between electricity and magnetism;	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
e. Design and analyze electric circuits; and	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
f. Identify examples of electrical and magnetic forces in everyday life.	Student Text pp. 4-26, 27-46, 47-63, 64-79, 262-276; T4-26, T27-46, T47-63, T64-79, T 262-276; Lab Manual pp.1.3-1.36, 5.19-5.35; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
7. Science Concept. The student knows the laws of thermodynamics. ***The student is expected to:***	Student Text pp. 64-79, 157-165, 216-226, 277-294; T64-79, T157-165, T216-226, T277-294; Lab Manual pp. 1.25-1.36, 3.29-3.34,4.33-4.38, 5.35-5.40; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.

a. Analyze and explain everyday examples that illustrate the laws of thermodynamics; and	Student Text pp. 64-79, 157-165, 216-226, 277-294; T64-79, T157-165, T216-226, T277-294; Lab Manual pp. 1.25-1.36, 3.29-3.34,4.33-4.38, 5.35-5.40; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Evaluate different methods of heat energy transfer that result in an increasing amount of disorder.	Student Text pp. 64-79, 157-165, 216-226, 277-294; T64-79, T157-165, T216-226, T277-294; Lab Manual pp. 1.25-1.36, 3.29-3.34,4.33-4.38, 5.35-5.40; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
8. Science Concepts. The student knows the characteristics and behavior of waves. ***The student is expected to:***	Student Text pp. 354-368, 369-382; Teachers Guide pp. T354-368, T369-382; Lab Manual pp.8.1-8.16, 8.17-8.28; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
a. Examine and describe a variety of waves propagated in various types of media and describe wave characteristics such as velocity, frequency, amplitude, and behaviors such as reflection, refraction, and interference;	Student Text pp. 354-368, 369-382; Teachers Guide pp. T354-368, T369-382; Lab Manual pp.8.1-8.16, 8.17-8.28; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Identify the characteristics and behaviors of sound and electromagnetic waves; and	Student Text pp. 354-368, 369-382; Teachers Guide pp. T354-368, T369-382; Lab Manual pp.8.1-8.16, 8.17-8.28; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
c. Interpret the role of wave characteristics and behaviors found in medicinal and industrial applications.	Student Text pp. 354-368, 369-382; Teachers Guide pp. T354-368, T369-382; Lab Manual pp.8.1-8.16, 8.17-8.28; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.

9. Science Concept. The Student knows simple examples of quantum physics. ***The student is expected to:***	Student Text pp. 386-403, 404-420, 468-490, Teachers Guide pp. T 386-403, T 404-420, T468-490; Lab Manual pp. 9.1-9.12, 9.13-9.30, 10.31-10.39; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
a. Describe the photoelectric effect; and	Student Text pp. 386-403, 404-420, 468-490, Teachers Guide pp. T 386-403, T 404-420, T468-490; Lab Manual pp. 9.1-9.12, 9.13-9.30, 10.31-10.39; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.
b. Explain the line spectra from different gas-exchange tubes.	Student Text pp. 386-403, 404-420, 468-490, Teachers Guide pp. T 386-403, T 404-420, T468-490; Lab Manual pp. 9.1-9.12, 9.13-9.30, 10.31-10.39; Appropiate sections in the Assessment CD & Web-site: www.learningincontext.com.