

Texas Technology Education Standards- Scientific 8.1
Principles of Technology II with *Physics in Context*
Texas students in grades 10-12 one-science CDedit.

C. Knowledge and Skills:

<p>1. The student uses a systems approach to investigate mechanical, fluid, electrical, and thermal systems. <i>The student is expected to:</i></p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>a. Apply the universal systems model to technological activities; and</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>b. Identify the inputs, processes, outputs and feedback associated with each of the systems.</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>2. The student works safely with mechanical, fluid, electrical, and thermal technology. <i>The student is expected to:</i></p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>a. Master relevant safety tests:</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>b. Follow safety manuals. Instructions, and requirements; and</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>c. Identify and classify hazardous materials and wastes; and.</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>d. Dispose of hazardous materials and wastes appropriately.</p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>3. The student solves problems, thinks CDitionally, and makes decisions related to technology. <i>The student is expected to:</i></p>	<p>Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>

a. Use specified problem-solving strategies;	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
b. Apply critical-thinking strategies;	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
c. Apply decision-making techniques to the selection of technical solutions and	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
d. Evaluate the impact of technology on scientific thought, society and the environment.	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
4. The student applies communication, science, and mathematics knowledge and skills to technological activities. <i>The student is expected to:</i>	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
a. Prepare technical reports and presentations;	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
b. Solve algebraic equations	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
c. Solve problems in English and System International (SI) units; and	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
d. Perform unit conversions.	Embedded in Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
5. The student knows the laws governing motion. <i>The student is expected to:</i>	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; Appropriate sections in the Assessment CD & Web-site: www.learningincontext.com .

<p>a. Analyze examples of uniform and accelerated motion, linear, projectile, and circular motion;</p>	<p>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; Appropriate sections in the Assessment CD & Web-site: www.learningincontext.com.</p>
<p>b. Evaluate the effects of forces on the motion of objects;</p>	<p>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; Appropriate sections in the Assessment CD & Web-site: www.learningincontext.com.</p>
<p>c. Develop and interpret a free-body diagram for force analysis; and</p>	<p>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; Appropriate sections in the Assessment CD & Web-site: www.learningincontext.com.</p>
<p>d. Analyze motion relative to different frames of reference.</p>	<p>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; Appropriate sections in the Assessment CD & Web-site: www.learningincontext.com.</p>
<p>6. The student knows the concept of momentum. <i>The student is expected to:</i></p>	<p>Student Text pp. 324-351; Teachers Guide pp. T324-351; Lab Manual pp. 7.1-7.12; Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>a. Identify linear and angular momentum; and</p>	<p>Student Text pp. 324-351; Teachers Guide pp. T324-351; Lab Manual pp. 7.1-7.12; Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>b. Relate the conservation of momentum to linear and angular motion.</p>	<p>Student Text pp. 324-351; Teachers Guide pp. T324-351; Lab Manual pp. 7.1-7.12; Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com</p>
<p>7. The student knows the concept of waves and vibrations. <i>The student is expected to:</i></p>	<p>Student Text pp. 352-383, Teachers Guide pp. T 352-383; Lab Manual pp. 8.1-8.28; Assessment CD & Web-site support materials WWW.learningincontext.com</p>

a. Identify and evaluate characteristics of wave motion; and	Student Text pp. 352-383, Teachers Guide pp. T 352-383; Lab Manual pp. 8.1-8.28; Assessment CD & Web-site support materials WWW.learningincontext.com
b. Demonstrate how waves transmit energy.	Student Text pp. 352-383, Teachers Guide pp. T 352-383; Lab Manual pp. 8.1-8.28; Assessment CD & Web-site support materials WWW.learningincontext.com
8. The student knows the concept of energy conservation. <i>The student is expected to:</i>	Embedded in Chapter 5 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
a. Evaluate the purpose of energy converters	Embedded in Chapter 5 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
b. Identify converters that change one form of energy to another and	Embedded in Chapter 5 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
c. Evaluate the efficiency of converting energy from one form to another.	Embedded in Chapter 5 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
9. The student knows the concept of energy transduction. <i>The student is expected to:</i>	Embedded in Chapter 5, 6, & 8 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
a. Identify the function of a transducer	Embedded in Chapter 5, 6, & 8 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
b. Distinguish between an energy converter and a transducer; and	Embedded in Chapter 5, 6, & 8 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com

c. Identify transducers that change energy signals from one form to another.	Embedded in Chapter 5, 6, & 8 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
10. The student knows the concept of radiant energy. <i>The student is expected to:</i>	Student Text pp. 384-421; Teachers Guide pp. T 384-421; Lab Manual pp. 9.1-9.30; Assessment CD & Web-site support materials WWW.learningincontext.com
a. Describe radiation and cite examples	Student Text pp. 384-421; Teachers Guide pp. T 384-421; Lab Manual pp. 9.1-9.30; Assessment CD & Web-site support materials WWW.learningincontext.com
b. Compare fission and fusion in terms of end products, energy, advantages, and availability and	Student Text pp. 384-421; Teachers Guide pp. T 384-421; Lab Manual pp. 9.1-9.30; Assessment CD & Web-site support materials WWW.learningincontext.com
c. Compare and contrast different types of radioactive decay.	Student Text pp. 384-421; Teachers Guide pp. T 384-421; Lab Manual pp. 9.1-9.30; Assessment CD & Web-site support materials WWW.learningincontext.com
11. The student knows the concept of light and optics. <i>The student is expected to:</i>	Student Text pp. 422-491, Teachers Guide pp. T422-491; Lab Manual pp. 10.1- 10.39; Assessment CD & Web-site support materials WWW.learningincontext.com
a. Identify characteristics of optical devices	Student Text pp. 422-491, Teachers Guide pp. T422-491; Lab Manual pp. 10.1- 10.39; Assessment CD & Web-site support materials WWW.learningincontext.com
b. Analyze the characteristics of light including reflection, refraction, and interference, and	Student Text pp. 422-491, Teachers Guide pp. T422-491; Lab Manual pp. 10.1- 10.39; Assessment CD & Web-site support materials WWW.learningincontext.com
c. Interpret the effects of wave characteristics in daily applications, such as lasers, and optics in industrial and medical technology.	Student Text pp. 422-491, Teachers Guide pp. T422-491; Lab Manual pp. 10.1- 10.39; Assessment CD & Web-site support materials WWW.learningincontext.com
12. The student knows the concept of time constants. <i>The student is expected to:</i>	Embedded in Chapter 8, 9 & 10 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com

a. Define a time constant; and	Embedded in Chapter 8, 9 & 10 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com
b. Distinguish between a linear and a non-linear increase and decrease of a variable with time.	Embedded in Chapter 8, 9 & 10 of the Student Text, Teachers Guide, Lab Manuals, Assessment CD & Web-site support materials WWW.learningincontext.com