

Physical Science, 1st Quarter  
2017-2018

**Tennessee Department of Education Pacing Guide & Resources:**

[http://tncurriculumcenter.org/index.php?option=com\\_curriculum&controller=pacing&task=view&course\\_id=3202&subject\\_id=1](http://tncurriculumcenter.org/index.php?option=com_curriculum&controller=pacing&task=view&course_id=3202&subject_id=1)

Course Level Expectations	Checks for Understanding
<b><i>Physical Science: Embedded Inquiry</i></b>	
CLE 3202.Inq.1 Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.	3202.Inq 1. Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.
CLE 3202.Inq.2 Design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.	3202.Inq 2. Design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.
CLE 3202.Inq.3 Use appropriate tools and technology to collect precise and accurate data.	3202.Inq 3. Use appropriate tools and technology to collect precise and accurate data.
CLE 3202.Inq.4 Apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.	3202.Inq 1. Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.
CLE 3202.Inq.5 Compare experimental evidence and conclusions with those drawn by others about the same testable question.	3202.Inq 2. Design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.
CLE 3202.Inq.6 Communicate and defend scientific findings.	3202.Inq 3. Use appropriate tools and technology to collect precise and accurate data.
	3202.Inq 4. Apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.
	3202.Inq 5. Compare experimental evidence and conclusions with those drawn by others about the same testable question.
	3202.Inq 6. Communicate and defend scientific findings.

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Course Level Expectations	Checks for Understanding
<i>Physical Science: Embedded Technology &amp; Engineering</i>	
CLE 3202.T/E.1 Explore the impact of technology on social, political, and economic systems.	3202.T/E.1 Select appropriate tools to conduct a scientific inquiry.
CLE 3202.T/E.2 Differentiate among elements of the engineering design cycle: design constraints, model building, testing, evaluating, modifying, and re-testing.	3202.T/E.2 Apply the engineering design process to construct a prototype that meets developmentally appropriate specifications.
CLE 3202.T/E.3 Explain the relationship between the properties of a material and the use of the material in the application of a technology.	3202.T/E.3 Explore how the unintended consequences of new technologies can impact human and non-human communities.
CLE 3202.T/E.4 Describe the dynamic interplay among science, technology, and engineering within living, earth-space, and physical systems.	3202.T/E.4 Present research on current engineering technologies that contribute to improvements in our daily lives.
	3202.T/E.5 Design a series of multi-view drawings that can be used by other students to construct an adaptive design and test its effectiveness.
	3202.T/E.6 Evaluate the overall benefit to cost ratio of a new technology.

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Course Level Expectations	Checks for Understanding
<b><i>Physical Science: Embedded Mathematics</i></b>	
CLE 3202.Math.1 Understand the mathematical principles behind the science of physics.	3202.MATH.1 Understand the mathematical principles behind the science of physics.
CLE 3202.Math.2 Utilize appropriate mathematical equations and processes to solve basic physics problems.	3202.MATH.2 Utilize appropriate mathematical equations and processes to solve basic physics problems.
	3202.Math.3 Apply and interpret rates of change from graphical and numerical data
	3202.Math.4 Analyze graphs to describe the behavior of functions.
	3202.Math.5 Interpret results of algebraic procedures.
	3202.Math.6 Model real-world phenomena using functions and graphs.
	3202.Math.7 Articulate and apply algebraic properties in symbolic manipulation
	3202.Math.8 Apply geometric properties, formulas, and relationships to solve real-world problems.
	3202.Math.9 Make decisions about units, scales, and measurement tools that are appropriate for problem situations involving measurement.
	3202.Math.10 Collect, represent, and describe linear and nonlinear data sets developed from the real world.
	3202.Math.11 Make predictions from a linear data set using a line of best fit.
	3202.Math.12 1 Interpret a data set using appropriate measures of central tendency.
	3202.Math.13 Choose, construct, and analyze appropriate graphical representations for a data set.
	3202.Math.14 Use concepts of length, area, and volume to estimate and solve real-world problems.

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TN Course Level Expectations	TN Checks for Understanding	Student Friendly "I Can" Statements	Prerequisite Knowledge	ACT Readiness	Instructional Time	TN Ready Questions/ Resources	ACT Questions/ Resources
<p>3202.1 1. Explore matter in terms of its physical and chemical properties.</p>	<p><u>3202.1.1</u> Distinguish among solids, liquids, gases, and plasmas.</p> <p><u>3202.1.2</u> Describe and illustrate the physical differences among solids, liquids, and gases in terms of their mass, volume, density, shape, and particle arrangement.</p> <p><u>3202.1.3</u> Use appropriate units to measure or calculate the mass and volume of substances.</p> <p><u>3202.1.4</u> Calculate the density of substances or objects.</p> <p><u>3202.1.5</u> Construct and interpret a density column.</p>	<p>I can explain the differences among solids, liquids, gases, and plasmas.</p> <p>I can explain and illustrate the physical differences among solids, liquids, and gases.</p> <p>I can explain the differences in physical states of matter in terms of their mass, volume, density, shape, and particle arrangement.</p> <p>I can use the correct units to measure or calculate the mass and volume of substances.</p> <p>I can explain a "density column."</p> <p>I can explain the differences between homogeneous and heterogeneous mixtures.</p>	<p>3202.Math.14 Use concepts of length, area, and volume to estimate and solve real-world problems.</p>	<p><a href="#">All CLR, REL,WMS 402 and *03, ARG, SYN</a></p> <p><a href="#">IOD *01, *02, SIN *01, *02, All EMI</a></p>	<p>7 Days</p> <p>Allow time for Labs</p>		

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	<p><u>3202.1.6</u> Identify substances as homogeneous or heterogeneous mixtures.</p> <p><u>3202.1.7</u> Construct an experiment to separate the components of a mixture.</p>	<p>I can complete an experiment to separate the components of a mixture.</p>	<p>3202.T/E.1 Select appropriate tools to conduct a scientific inquiry.</p>				
<p>3202.1 2. Describe the structure and arrangement of atomic particles.</p>	<p><u>3202.1.8</u> List the three major subatomic particles and distinguish among their location, charges, and relative masses.</p> <p><u>3202.1.9</u> Distinguish between atomic number and atomic mass.</p> <p><u>3202.1.10</u> Define an isotope and describe the use of common isotopes.</p> <p><u>3202.1.11</u> Identify the number of protons, neutrons, and electrons in an atom of an isotope based on its atomic number and atomic mass.</p>			<p><a href="#">All CLR, REL,WMS 402 and *03. SYN</a></p> <p><a href="#">ALL IOD</a></p>	<p>4 Days</p> <p>Allow time for Classroom activities</p>		

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<p>CLE 3202.1.3 Characterize and classify elements based on their atomic structure.</p>	<p><u>3202.1.12</u> Know the chemical symbols for the common elements. <u>3202.1.13</u> Use the periodic table to determine the number of protons, neutrons, and electrons in an isotope of an element. <u>3202.1.14</u> Use the periodic table to identify the characteristics and properties of metals, non-metals, and metalloids. <u>3202.1.15</u> Label a periodic table with oxidation numbers of main group elements, identify elements likely to form ions and use information to construct formulas for compounds. <u>3202.1.16</u> Classify a substance as an element or compound based on its chemical formula or symbol.</p>			<p><a href="#">All CLR, REL,WMS 402 and *03, SYN</a>  <a href="#">ALL IOD</a></p>	<p>5 Days</p>		
<p>CLE 3202.1.4 Investigate chemical and physical changes.</p>	<p><u>3202.1.17</u> Explain ionic and covalent bonding based on the oxidation numbers of the elements in a compound.</p>			<p><a href="#">All CLR, REL,WMS 402 and *03, SYN</a>  <a href="#">All IOD, ALL SIN</a></p>	<p>2 Days</p>		

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	<u>3202.1.18</u> Investigate physical and chemical changes in a laboratory setting.						
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