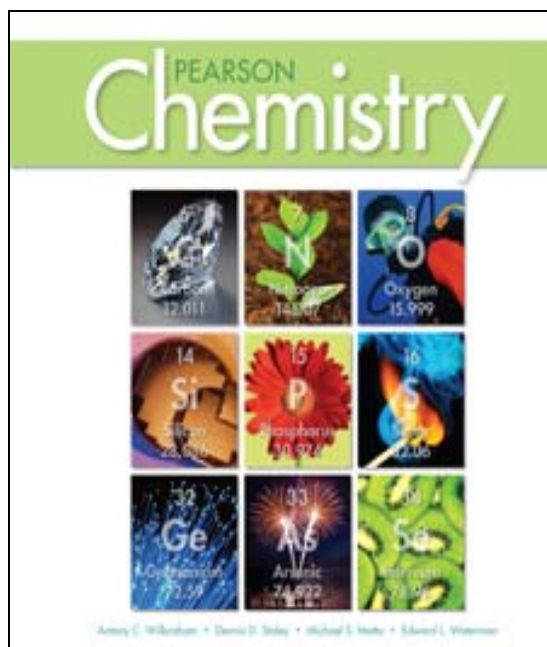


A Correlation of  
**Pearson  
Chemistry**  
©2012



To

**Ohio's  
New Learning Standards  
for Science, 2011  
Chemistry, High School  
Science Inquiry and Application  
Course Content**

**A Correlation of Pearson Chemistry ©2012 to  
Ohio's New Learning Standards for Science – Chemistry, 2011**

**INTRODUCTION**

This document demonstrates how ***Pearson Chemistry*** ©2012 meets Ohio's New Learning Standards for Science, 2011, Chemistry, Grades 9-12. Science Inquiry and Application references are to the Student and Teacher Edition feature and page levels. Course content references are to the chapter and section levels.

***Pearson Chemistry*** combines proven and tested content with cutting-edge digital support and hands-on learning opportunities. This program provides you with everything you need to engage and motivate your students, as well as the tools to support the varied types of learners in your classroom.

The program is designed to connect curriculum, instruction, and assessment to the “Big Ideas” of chemistry that develops deep understanding.

***Pearson Chemistry*** provides all of the problem-solving and math support that students need to be successful in the course, with ample opportunity for practice both in the Student Edition and in the program's digital resources.

***Pearson Chemistry*** helps you meet the unique learning styles of each student in your classroom with a variety of resources. A variety of assessment opportunities helps you monitor student progress ensure student success on high-stakes tests.

**Pearsonchem.com** provides cutting-edge digital content that engages students and teachers – anytime, anywhere, with numerous practice opportunities and visual support, including interactive art and animations. Online tutors step students through chemistry and math problems, expanding learning beyond the classroom.

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Ohio's New Learning Standards for Science - Chemistry	Pearson Chemistry ©2012
<b>COURSE DESCRIPTION</b>	
<p>Chemistry is a high school level course, which satisfies the <b>Ohio Core</b> science graduation requirements of <b>Ohio Revised Code Section 3313.603</b>. This section of Ohio law requires a three-unit course with inquiry-based laboratory experience that engages students in asking valid scientific questions and gathering and analyzing information.</p> <p>This course introduces students to key concepts and theories that provide a foundation for further study in other sciences as well as advanced science disciplines. Chemistry comprises a systematic study of the predictive physical interactions of matter and subsequent events that occur in the natural world. The study of matter through the exploration of classification, its structure and its interactions is how this course is organized.</p> <p>Investigations are used to understand and explain the behavior of matter in a variety of inquiry and design scenarios that incorporate scientific reasoning, analysis, communication skills and real-world applications. An understanding of leading theories and how they have informed current knowledge prepares students with higher order cognitive capabilities of evaluation, prediction and application.</p>	
<b>SCIENCE INQUIRY AND APPLICATION</b>	
<p>During the years of grades 9 through 12, all students must use the following scientific processes with appropriate <b>laboratory safety techniques</b> to construct their knowledge and understanding in all science content areas:</p>	
<ul style="list-style-type: none"> <li>• Identify questions and concepts that guide scientific investigations;</li> </ul>	<p>This process is met throughout the program. Please find representative pages: <b>SE/TE:</b> Quick Lab, Observe: p. 17; Quick Lab, Analyze: p. 39; Small-Scale Lab, Analyze: p. 51; Quick Lab, Analyze And Conclude: p. 109; Small-Scale Lab, Analyze Data: p. 120; Quick Lab, Analyze And Conclude: p. 142; Quick Lab, Analyze And Conclude: p. 180; Quick Lab, Analyze And Conclude: p. 354; Small-Scale Lab, Analyze: p. 374; Small-Scale Lab, Analyze: p. 475</p>
<ul style="list-style-type: none"> <li>• Design and conduct <b>scientific investigations</b>;</li> </ul>	<p>This process is met throughout the program. Please find representative pages: <b>SE/TE:</b> Quick Lab, Design an Experiment: p. 17; Quick Lab, Procedure: p. 39; Small-Scale Lab, Design an Experiment: p. 51; Small-Scale Lab, Design an Experiment: p. 92; Small-Scale Lab, Design an Experiment: p. 149; Small-Scale Lab, Design an Experiment: p. 184; Small-Scale Lab, Design an Experiment: p. 324; Small-Scale Lab, Design an Experiment: p. 374; Small-Scale Lab, Design an Experiment: p. 399; Small-Scale Lab, Design an Experiment: p. 435</p>

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Ohio's New Learning Standards for Science - Chemistry	Pearson Chemistry ©2012
<ul style="list-style-type: none"> <li>• Use technology and mathematics to improve investigations and communications;</li> </ul>	<p>This process is met throughout the program. Please find representative pages:  <b>SE/TE:</b> Quick Lab, Analyze And Conclude: p. 72; Small-Scale Lab, Analyze: p. 92; Small-Scale Lab, Analyze: p. 120; Small-Scale Lab, Analyze and Conclude: p. 149; Small-Scale Lab, Analyze and Conclude: p. 324; Small-Scale Lab, Analyze: p. 399; Quick Lab, Analyze And Conclude: p. 404; Small-Scale Lab, Analyze and Conclude: p. 545; Quick Lab, Analyze And Conclude: p. 571; Small-Scale Lab, Analyze and Conclude: p. 583</p>
<ul style="list-style-type: none"> <li>• Formulate and revise explanations and models using logic and evidence (critical thinking);</li> </ul>	<p>This process is met throughout the program. Please find representative pages:  <b>SE/TE:</b> Quick Lab, Explain: p. 180; Quick Lab, Predict: p. 207; Small-Scale Lab, Explain: p. 374; Quick Lab, Predict: p. 437; Small-Scale Lab, Explain: p. 475; Quick Lab, Predict: p. 519; Small-Scale Lab, Infer: p. 583; Quick Lab, Explain: p. 778; Quick Lab, Infer: p. 818; Quick Lab, Explain: p. 896</p>
<ul style="list-style-type: none"> <li>• Recognize and analyze explanations and models; and</li> </ul>	<p>This process is met throughout the program. Please find representative pages:  <b>SE/TE:</b> Small-Scale Lab, Analyze Data: p.324; Quick Lab, Explain: p. 354; Quick Lab, Analyze Data: p. 404; Small-Scale Lab, Compare: p. 435; Quick Lab, Analyze Data: p. 467; Small-Scale Lab, Analyze Data: p. 583; Small-Scale Lab, Relate Cause and Effect: p. 635; Chemistry and You, Explain: p. 681; Quick Lab, Relate Cause and Effect: p. 750; Small-Scale Lab, Relate Cause and Effect: p. 752</p>

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<b>Ohio's New Learning Standards for Science - Chemistry</b>	<b>Pearson Chemistry ©2012</b>
<ul style="list-style-type: none"> <li>• Communicate and support a scientific argument.</li> </ul>	<p>This process is met throughout the program. Please find representative pages:  <b>SE/TE:</b> Quick Lab, Draw Conclusions: p. 142; Small-Scale Lab, Draw Conclusions: p. 200; Quick Lab, Draw Conclusions: p. 207; Quick Lab, Analyze And Conclude: p. 279; Small-Scale Lab, Draw Conclusions: p. 435; Small-Scale Lab, Draw Conclusions: p. 508; Small-Scale Lab, Draw Conclusions: p. 635; Small-Scale Lab, Draw Conclusions: p. 670; Chemistry and You, Draw Conclusions: p. 671</p>
<b>COURSE CONTENT</b>	
The following topics may be taught in any order. There is no ODE-recommended sequence.	
<b>STRUCTURE AND PROPERTIES OF MATTER</b>	
<ul style="list-style-type: none"> <li>• Atomic structure</li> </ul>	<b>SE/TE:</b> Chapters: 4, 5, 6, 7, 8
<ul style="list-style-type: none"> <li>• Evolution of atomic models/theory</li> </ul>	<b>SE/TE:</b> Chapter 4, Sections: 4.1, 4.2; Chapter 5, Section 5.1
<ul style="list-style-type: none"> <li>• Electrons</li> </ul>	<b>SE/TE:</b> Chapter 4, Section 4.2; Chapter 5, Section 5.1
<ul style="list-style-type: none"> <li>• Electron configurations</li> </ul>	<b>SE/TE:</b> Chapter 5, Sections: 5.1, 5.2, 5.3; Chapter 6, Section 6.2; Chapter 7, Section 7.1; Chapter 8, Section 8.2
<ul style="list-style-type: none"> <li>• Periodic table</li> </ul>	<b>SE/TE:</b> Chapters: 2, 6
<ul style="list-style-type: none"> <li>• Properties</li> </ul>	<b>SE/TE:</b> Chapter 2, Section 2.3; Chapter 6, Sections: 6.1, 6.2
<ul style="list-style-type: none"> <li>• Trends</li> </ul>	<b>SE/TE:</b> Chapter 6, Section 6.3
<ul style="list-style-type: none"> <li>• Intramolecular chemical bonding</li> </ul>	<b>SE/TE:</b> Chapters: 7, 8
<ul style="list-style-type: none"> <li>• Ionic</li> </ul>	<b>SE/TE:</b> Chapter 7, Sections: 7.1, 7.2, 7.3
<ul style="list-style-type: none"> <li>• Polar/covalent</li> </ul>	<b>SE/TE:</b> Chapter 8, Sections: 8.1, 8.2, 8.3, 8.4
<ul style="list-style-type: none"> <li>• Representing compounds</li> </ul>	<b>SE/TE:</b> Chapters: 2, 7, 8, 9, 19, 22

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<b>Ohio's New Learning Standards for Science - Chemistry</b>	<b>Pearson Chemistry ©2012</b>
• Formula writing	<b>SE/TE:</b> Chapter 2, Section: 2.3; Chapter 7, Section 7.2; Chapter 8, Section 8.1; Chapter 9, Sections: 9.2, 9.3, 9.4, 9.5
• Nomenclature	<b>SE/TE:</b> Chapter 9, Sections: 9.1, 9.2, 9.3, 9.4, 9.5
• Models and shapes (Lewis structures, ball and stick, molecular geometries)	<b>SE/TE:</b> Chapter 8, Sections: 8.2, 8.3, 8.4; Chapter 19, Section 19.1; Chapter 22, Sections: 22.1, 22.2, 22.3, 22.4
• Quantifying matter	<b>SE/TE:</b> Chapter 10, Sections: 10.1, 10.2, 10.3
• Phases of matter	<b>SE/TE:</b> Chapter 2, Sections: 2.1, 2.2
• Intermolecular chemical bonding	<b>SE/TE:</b> Chapters: 8, 13, 15, 16
• Types and strengths	<b>SE/TE:</b> Chapter 8, Section 8.4
• Implications for properties of substances	<b>SE/TE:</b> Chapter 8, Section 8.4; Chapter 13, Sections: 13.2, 13.3; Chapter 15, Section 15.1; Chapter 16, Sections: 16.1, 16.3
• Melting and boiling point	<b>SE/TE:</b> Chapter 13, Sections: 13.2, 13.3; Chapter 15, Section 15.1; Chapter 16, Section 16.3
• Solubility	<b>SE/TE:</b> Chapter 16, Section 16.1
• Vapor pressure	<b>SE/TE:</b> Chapter 13, Section 13.2; Chapter 15, Section 15.1; Chapter 16, Section 16.3
<b>INTERACTIONS OF MATTER</b>	
• Chemical reactions	<b>SE/TE:</b> Chapters: 11, 13, 14, 16, 17, 18, 19
• Types of reactions	<b>SE/TE:</b> Chapter 11, Sections: 11.2, 11.3
• Kinetics	<b>SE/TE:</b> Chapter 13, Section 13.1; Chapter 14, Section 14.1; Chapter 16, Section 16.1; Chapter 18, Sections: 18.1, 18.2
• Energy	<b>SE/TE:</b> Chapter 17, Sections 17.1, 17.2, 17.4; Chapter 18, Section 18.5

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<b>Ohio's New Learning Standards for Science - Chemistry</b>	<b>Pearson Chemistry ©2012</b>
• Equilibrium	<b>SE/TE:</b> Chapter 18, Sections: 18.1, 18.2, 18.3, 18.4
• Acids/bases	<b>SE/TE:</b> Chapter 19, Sections: 19.2, 19.3, 19.4, 19.5
• Gas laws	<b>SE/TE:</b> Chapter 14
• Pressure, volume and temperature	<b>SE/TE:</b> Chapter 14, Sections: 14.1, 14.2, 14.4
• Ideal gas law	<b>SE/TE:</b> Chapter 14, Section 14.3
• Stoichiometry	<b>SE/TE:</b> Chapters: 10, 12, 16
• Molar calculations	<b>SE/TE:</b> Chapter 10, Sections: 10.1, 10.2; Chapter 12, Sections: 12.1, 12.2
• Solutions	<b>SE/TE:</b> Chapter 16, Section 16.4
• Limiting reagents	<b>SE/TE:</b> Chapter 12, Section 12.3
• Nuclear Reactions	<b>SE/TE:</b> Chapter 25
• Radioisotopes	<b>SE/TE:</b> Chapter 25, Sections: 25.1, 25.4
• Nuclear energy	<b>SE/TE:</b> Chapter 25, Sections: 25.1, 25.2, 25.3