

Chemistry Curriculum Bundle #6



Title	Suggested Dates
VSEPR and bonding	12/6 – 12/17 (9.5 days)

Big Idea/Enduring Understanding	Guiding Questions
Atoms in different combinations form different geometric shapes.	Why do atoms form chemical bonds?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)
<p>7 Science concepts. The student knows how atoms form ionic, metallic, and covalent bonds. The student is expected to:</p> <p>7C construct electron dot formulas to illustrate ionic and covalent bonds;</p>	<p>Characterize ionic bonds, metallic bonds, and covalent bonds. Describe the properties of metals and ionic and covalent compounds. CCRS</p> <p><i>a. Draw Lewis dot structures for simple molecules, including simple hydrocarbons.</i></p> <p><i>b. Use Valence Shell Electron Pair Repulsion (VSEPR) model to predict molecular shapes.</i></p> <p><i>c. Describe nonpolar and polar covalent bonds. Use a chart of electronegativities to determine bond polarity.</i></p> <p><i>d. Determine if a molecule is polar (contains a dipole moment). CCRS</i></p> <p>Including</p> <ul style="list-style-type: none"> • Solid amorphous structures • Solid covalent network structures • Ionic compound structure (crystal lattice) • Metallic bonding (“sea of electrons”) • Explain VSEPR theory in relation to shapes including <ul style="list-style-type: none"> ○ Linear ○ Bent ○ Tetrahedral ○ Trigonal planar ○ Trigonal pyramidal ○ Octahedral (PAP) ○ Trigonal bi-pyramidal (PAP) • Use geometric shapes to determine molecular 	<p>VSEPR Animations Adrian Dingle http://adriandingleschemistrypages.com/vsepr.html</p> <p>http://www.d.umn.edu/~pkiprof/ChemWebV2/AOs/index.html</p> <p>Shapes and Polarities Lab See chemistry resource folder</p>

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	<p style="text-align: center;">polarity</p> <ul style="list-style-type: none"> • Determine the resonance structures (PAP) 	
<p>6E express the arrangement of electrons in atoms through electron configurations and Lewis valence electron dot structures.</p>	<p>Including</p> <ul style="list-style-type: none"> • Describe and differentiate between types of bonds including ionic and covalent • Draw Lewis Dot structures for atoms and compounds • State the octet rule and explain how it influences chemical reactivity • Identify and describe double and triple bonds • Point out common exceptions to octet rule (PAP) • Determine the 4 quantum numbers of an electron (PAP) • Determine the resonance structures (PAP) 	<p>Building Covalent Molecules Lab See chemistry resource folder</p> <p>Lab Lewis Dot See chemistry resource folder</p> <p>Lab Lewis Dot Answers See chemistry resource folder</p> <p>World of Chemistry Video Series: Chemical Bonds http://learner.org/resources/series61.html</p>
<p>7E predict molecular structure for molecules with linear, trigonal planar, or tetrahedral electron pair geometries using Valence Shell Electron Pair Repulsion (VSEPR) theory.</p>	<p>Including</p> <ul style="list-style-type: none"> • Describe covalent bonding and properties <ul style="list-style-type: none"> ○ Polar ○ Nonpolar covalent 	<p>Polar vs. Non-Polar Animation http://www.emu.dk/gsk/fag/fys/ckf/fase1/1fokv/kemisk_binding/ion_kovalent_polaer_kovalent_binding.swf</p>