***Lesson Plans for the Week of: 11/28/16 Teacher: Hough Course: Physical Science Period: 1,2,7/8***

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| Elements of  a Lesson | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Objective/  Focus/  Essential  Question | PS.1j,m;2b;3a;4c  --differentiate between atoms and ions | PS.2b;4c  --recognize difference between electron action in ionic bond and covalent bond  --recognize common examples of ionic compounds  --evaluate whether combinations of elements are more likely to form ionic or covalent bonds | PS.2b;4c  --recognize difference between electron action in ionic bond and covalent bond  --recognize common examples of ionic compounds  --evaluate whether combinations of elements are more likely to form ionic or covalent bonds | PS.4c  --identify how organic compounds are different from other compounds  --give examples of common organic compounds | PS.3b,4a,b  --create model of atom for a specified element, with the correct number of protons, electrons, and valence electrons (# neutrons given), placing all particles in the correct location in the atom  --Differentiation: same as above, but student will use the correct number of neutrons as well |
| Lesson/Act.  Type of Presentation | Individual  Bellwork: a) How many valence electrons are in an atom of fluorine? b) How many valence electrons do atoms want to have? (review from previous lesson)  Whole group:  Teacher uses Phet simulation (with charge window open) to illustrate that atoms can gain or lose valence electrons. Demonstrate positive and negative ions.  Notes:  Ions are formed when atoms gain or lose valence electrons. Define positive and negative ions.  Individual:  Student classwork:   1. Differentiate between atom and ion. 2. Determine charge on an ion   *Hunting the Elements*, as time permits | Individual:  Bellwork:  1) Name one difference between an atom and an ion.  2) Name two differences between a compound and an element.  Two groups:  1) Upper students: Students will investigate ionic and covalent bonds:  a) types of elements which react to form the different bonds  b) what valence electrons do to form the bonds  c) why atoms form bonds  d) examples of compounds with each of the bonds: examples of ionic compounds: table salt and rust; examples of covalent compounds: water and carbon dioxide  d) define polar and nonpolar bonds  2) remaining students go over same topics—guided investigation: either divide questions among group—answers written on whiteboard, presented to small group  Use web sites to illustrate ionic bonds and ionic compounds  If time permits: Hunting the Elements video | Individual:  Bellwork: 1. In covalent compounds, the valence electrons are \_\_\_\_\_\_\_ between particles.  Whole group:  Look at chemical formulas for 2-3 compounds and model the number of atoms are in one particle (molecule) of that compound: NaCl, H2O, Ca(OH)2  Individual:  1) Students determine elements and number of atoms in one particle of compound  2) Compare and contrast ionic and covalent bonds  3) determine if element combinations are likely to form ionic or covalent bonds | Individual:  Bellwork: Three questions from previous day  Whole group  Go over exit passes from previous day  Notes: Define organic compounds  Give examples of common organic compounds  Individual:  Students will look at chemical formulas and label the substances as organic or not  Two groups:  Group 1: TBA  Group 2: Spiral instruction: vocabulary—compound, element, atom, molecule; proton, neutron, electron, quark—possible organizer  As time permits:  Video: Hunting the Elements | Individual  Atom Model:  Given the periodic table, two or three elements, and the number of neutrons for each element, students will draw a model of an atom of that element with the correct number of protons and electrons, with the correct number of valence electrons placed on the outside of the atom  Differentiation: Group 1 students from Wednesday will draw atom model, but will be given the isotope symbol (ie, they will not be told the number of neutrons in their atom)  Group:  *Hunting the Elements*, as time permits |
| Evaluation | teacher observation of activity; student responses to classwork | Student questions | Student work |  | Correct models of atoms |
| Extension/  Homework | No homework | Apply concepts in next lesson | Focus on organic compounds |  |  |

MATERIALS:

Monday: Teacher-made notes and classwork; copies of periodic table

Tuesday: Web sites: www.explorelearning.com and visionlearning.org

Wednesday: Web sites: www.explorelearning.com and visionlearning.org; http://www.doe.virginia.gov/testing/sol/standards\_docs/science/2010/lesson\_plans/physical\_sci/matter/sess\_PS-4c.pdf

Thursday:

Friday: Web sites: www.explorelearning.com and visionlearning.org and Phet simulation “Build an Atom”