

## CH 105 Supplemental Instruction

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Sessions: Monday, 1:15-2:15, EB 128

Wednesday, 3:30-4:30, EB 133

Office Hour: Thursday, 3:30-4:30, EB 242 (Academic Success Center)

1. Are molecules with resonance structures more or less stable? Give an example of a molecule with resonance.

More stable. Ozone ( $O_3$ )

2. Name the following covalent compounds:

a.  $PH_3$

phosphorous trihydride

b.  $CO$

carbon monoxide

c.  $HI$

Hydrogen monoiodide \*also known as hydrogen iodide

d.  $N_2O_3$

dinitrogen trioxide

3. What is electronegativity? What is the most electronegative element according to the periodic trend?

A measure of an atom's attraction for electrons.  
Fluorine is the most electronegative element.

4. What is the difference between a polar covalent bond and a non-polar covalent bond?

a polar covalent bond is b/w 2 elements with different electronegativities. In a nonpolar covalent bond, the atoms have the same or very similar electronegativities, and it is usually symmetrical.

5. What is the key aspect of the VSEPR theory?

The goal is for electrons to be as far apart as possible from each other.

6. Identify the shapes of the molecules given the number of electron groups:

a. 2 electron groups: linear

b. 3 electron groups: trigonal planar or bent

c. 4 electron groups: tetrahedral, bent, or trigonal pyramidal

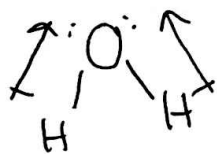
7. Can you identify whether a bond is ionic, covalent nonpolar, or covalent polar? What are the differences between each of these?

ionic = nonmetal + metal

covalent nonpolar = 2 nonmetals w/ same or similar electronegativities / symmetrical molecule.

covalent polar = 2 nonmetals w/ different electronegativities. (partial positive + partial negative).

8. For covalent polar, you need to be able to draw the dipole moment. How do you do that? Demonstrate with water.



put a positive sign on the least electronegative element and draw the arrowhead towards the more electronegative element.

