**Pre-Activity Quiz**

1. Consider a molecule of carbon monoxide (C O):

1. Do you think the electrons in the triple bond pull closer to the C atom or the O atom, or are they equally shared? Use the concept of electronegativity to explain your response.
2. Is the bond polar or non-polar?

2. In today’s engineering challenge, you will sketch out Lewis dot diagrams for various molecules and polyatomic ions. Then you will construct each molecule using a molecular model kit. The kits contain three different representations: colored balls, short sticks and long flexible springs.

1. Each colored ball corresponds to a different atom. How can you determine which color to use for each atom?
2. For what bond type do you think the short sticks are used?
3. If you were to build a triple bond, what would you use to represent a triple bond and how many would you use?

3. You will become familiar with different geometries of simple molecules.

1. Name the theory used to predict molecular shapes of these molecules?
2. What if a molecule contains a central atom bonded to two identical outer atoms with the central atom surrounded by a lone pair of electrons? Name the geometry of this molecule. List the bond angles in this particular molecule.
3. What if a molecule contains a central atom bonded to four identical outer atoms without any lone-pair electrons on the central atom? Name the geometry of this molecule. List the bond angles in this particular molecule.

4. What are the advantages of constructing a 3D molecular model compared to a ball-and-stick model?

5. How does the VSEPR theory help to identify the overall geometry of a molecule?

1. How do unshared electron pairs affect a molecule’s bond angles?