Learning Activity: Modeling Covalent Molecules

This is another one of those things that you have to do in order to learn. After all, would you ever solve a jigsaw puzzle just by having someone tell you the basic rules of how to put together a jigsaw puzzle? Of course not! And this is just like that—I've given you the rules and some basic instructions, but now it's your turn to actually learn how to draw molecular models.

For the following, you may draw out your answers in any format you like, but it is probably easiest to do them on a piece of paper.

For the following, draw the appropriate molecular structure. Some are standard nomenclature, and some are names that I had previously asked you to be familiar with; you may wish to review the associated nomenclature lesson. Be sure to include all lone pairs in your structures.

1. Carbon dioxide

2. Nitrogen (Remember HOFBrINCl!)

3. Boron trifluoride (Hint: Boron is an exception. It's "octet" is full with 6 electrons.)

4. Methane

5. Ammonia

6. Water

7. Sulfur hexafluoride (Hint: Sulfur can have an *expanded octet*. It will have 12 electrons in its valence shell in this structure.)

Challenge problem: Draw ethanol (C_2H_5OH) and briefly state where you might find it. Be sure to follow the drawing conventions we use in this class! (The same ones you have been using all lesson).