

CHEMISTRY LAB: ELECTRON DOT DIAGRAMS FOR COVALENT COMPOUNDS

WHAT TO TURN IN:	Data Table	Questions #1-4
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Objectives

- To review element names and symbols
- To practice writing electron dot diagrams for covalent compounds
- To compare and contrast ionic-bond and covalent-bond compounds
- To relate electron dot diagrams to formation of compounds

Materials

- Colored pencils or thin markers
- White paper
- Ruler, if needed

Procedure

1) Obtain or construct a table with ten rows and six columns as shown below.

If making your own:

- Turn the paper sideways for more room.
- Use a ruler.
- The rows must be large enough to write and draw.

1	2	3	4	5	6
Compound Formula	Element #1 Dot Diagram	Element #2 Dot Diagram	Compound Dot Diagram	VSEPR Shape	Is the overall molecule POLAR or NONPOLAR?
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

2) Follow the steps to writing the electron dot diagram of a binary molecular compound:

- Write the compound formula.
- Write the dot diagrams of each element. *Ions do not form here!*
- Write the formula's dot diagram by sharing the electrons.

3) Use the VSEPR table on the back of this sheet to determine molecular shape. If there is more than one central atom in the molecule, more than one shape should be listed.

4) For overall molecular polarity: if the molecule is symmetrical all around, is it NONPOLAR. If it is asymmetrical, it is POLAR.

ENTRIES FOR DATA TABLE
1) BF_3
2) IBr
3) CH_4
4) H_2
5) OF_2
6) PCl_3
7) Br_2
8) NH_3
9) H_2O
10) CO_2

Questions

- 1) Why are all 10 of these compounds *binary molecular* compounds?
- 2) Compare and contrast *molecule* and *formula unit*.
- 3) Which bond is stronger, ionic or covalent? Why?
- 4) How is the electron dot diagram of an ionic compound different from the dot diagram of a molecular (covalent) compound?