

LAB: The Shapes of Molecules: Part 2

Students: Please read the following information given below, and then come to class on your lab day with the following already prepared in your notebooks:

1) Date, 2) Partner, 3) Title, 4) Purpose, 5) Materials, 6) Safety, 7) Procedures

- 1. No formal report necessary.**
- 2. The last two pages need to be printed out and will be completed during the lab.**
- 3. These data tables will serve as your data section for this lab.**
- 4. You will hand in the data tables and the questions one week after the completion of the lab.**

Please read the paragraphs below. Using these paragraphs, write your procedures for this lab.

Using the compounds listed in Table 1:

Write the molecular formula of each compound. Using the molecular model building kits, construct a model of the substance. Each colored sphere represents a specific atom and has holes indicating the possible bonding sites. Use the key in the kit to identify what colors represent what atoms. Make a key of what color spheres were used and what element each color represents. Once the model is made, draw the lewis dot diagram and structural diagram in Table 1. Then identify the shape of the molecule, bond polarity (show the math), and molecular polarity. Please show the calculations used to identify the bond polarity and molecular polarity.

Using the compounds listed in Table 2:

Find and write in the electronegativity for each element. Then calculate the difference (remember to show work), and then indicate the bond polarity: ionic, polar-covalent, or nonpolar-covalent.

Using the compounds listed in Table 3:

Based on the information you obtained from this lab, and any information you have learned so far, predict the bond polarity, the molecular shape, and then the molecular polarity of the compounds listed.

LAB: THE SHAPES OF MOLECULES: PART 2

Period _____

Date _____

Name _____

with _____

Due _____

TABLE 1

Name	Molecule Formula	Lewis Dot Diagram	Structural Diagram	Shape	Bond Polarity	Molecular Polarity
Hydrogen						
Nitrogen						
Hydrogen Bromide						
Ammonia						
Carbon Dioxide						
Methane						
Water						

Questions: Use Table 1 to answer the following questions. Answer in complete sentences.

1. Which molecules are non-linear?
2. Which molecules form multiple (double or triple) bonds?
3. Which molecules are polar?

LAB: THE SHAPES OF MOLECULES: PART 2 continued.....
 Period _____
 Date _____

 Name _____
 with _____
 Due _____
TABLE 2:

	Electronegativity	Difference	Bond Polarity
1.	O= Se=		
2.	Cl= Mg=		
3.	Ca= Br=		
4.	O= Cl=		

TABLE 3:

	Bond Polarity	Molecular Shape	Molecular Polarity
1. H ₂ S			
2. CaCl ₂			
3. CCl ₄			
4. NH ₃			