Molecule Building Simulation

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Find the website for pHET simulations.
2. Open the program entitled “Molecule Shapes” under Chemistry Programs.
3. Build the Lewis structure of the following molecules before building them on the computer.
4. Build the molecules on the simulation (make sure to include lone pairs of electrons on the central atom)
5. Check the boxes for “Molecule Geometry” and “Show bond angles” and fill in the following chart. Give a brief sketch of what the model looks like in the final box.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Molecule | Lewis Drawing | Bond° | Shape Name | 3-D Drawing,  |
| H2 |  |  |  |  |
| CH4 |  |  |  |  |
| NH3 |  |  |  |  |
| H2O |  |  |  |  |
| CO2 |  |  |  |  |
| HCN |  |  |  |  |
| CH2O |  |  |  |  |

Directions Continued:

1. Next, open the simulation titled “Molecule Polarity.”
2. Click on the tab “Real Molecules.”
3. Click the boxes under “Bond Dipoles” to see if the compounds you built had polar bonds (a gray arrow will show up if yes)
4. Click on the box under “Molecular Dipole” to see if the compound you built is a polarity molecule (a red arrow will show up if yes)
5. Make a prediction as to what the Intermolecular force will be for that molecule.

|  |  |  |  |
| --- | --- | --- | --- |
| Molecule | Bond Polarity  | Molecule Polarity | Intermolecular Force |
| H2 |  |  |  |
| CH4 |  |  |  |
| NH3 |  |  |  |
| H2O |  |  |  |
| CO2 |  |  |  |
| HCN |  |  |  |
| CH2O |  |  |  |

Predict the following shapes and angles (surrounding the central atoms) for the following. Determine what type of polarity and IMF forces also

H2Si2 N2O4 CH3F