**Part One:**

1. What does it mean for a molecule to be polar?
2. How are the charges and electrons distributed in a polar molecule?
3. What two factors determine if a molecule will be polar or nonpolar?
4. Label the following structures as polar or nonpolar. What shape are they?

Shape for both:  Polarity:  Polarity:

1. Why is BCl3 be nonpolar when CH2O is polar? Use the pictures below to help you.



1. How can a molecule with polar bonds be nonpolar?
2. What does solubility and insolubility mean? What is the general rule for determining if two substances will be soluble or not?
3. Would a nonpolar solid dissolve in water? Why or why not?
4. If a solid dissolves in oil would you expect it to dissolve in water? Why or why not?
5. Methane and ammonia are insoluble with each other. What would cause that to occur?

**Part Two:** Determine the polarity of the following molecules

|  |  |  |
| --- | --- | --- |
| **Formula** | **Lewis Structure** | **State if the molecule is polar or nonpolar** |
| **SSe2** |  |  |
| **ClO2-1** |  |  |
| **CF4** |  |  |
| **SO3** |  |  |
| **SO2** |  |  |
| **C2H2****(will have C-C bond and no central atom)** |  |  |