**POLAR MOLECULES AND INTERMOLECULAR BONDING**

1. State whether each of the following bonds is polar:

 C-H O-F As-Cl C-S

 Recall δ+ and δ. Label the following bonds to show polarity: O−P Se−F

 Repeat using symbol +→ (See p.253) O−P Se−F

1. As−Cl bonds are polar. Does this mean that AsCl5 is a polar molecule?

To determine whether a **molecule** is polar, you must consider two things:

* It must have polar bonds
* It must have a shape that gives the molecule an overall dipole

Symmetrical molecule – all peripheral atoms are the same and the central atom has no lone pairs.

E.g. BCl3 SF6 CO2 These are symmetrical molecules. Draw the Lewis diagram and determine the VSEPR shape for each.

 Does AsCl5 fit into this category? Does AsHCl4? Does OF2 fit into this category? Explain for each.

1. Draw a Lewis diagram of each of the following, add the bond dipole arrows, and check to see whether each has an overall dipole. In other words, does the molecule have a positive end and a negative end?
2. OF2 b) NH3 c) CH2O.
3. Knowledge of whether a molecule is polar or non-polar allows you to explain properties of compounds: e.g. CH4 and CH2O

Which of these two would have a stronger attraction between molecules? Why?

How does this affect m. p., b. p., and state at room temperature?

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