**Standard 1:**

1. What does VSEPR state? What determines the shape of a molecule?
2. ****What is the following shape? How many lone pairs and atoms bonded does it have? Why is there a downward angle to the molecule rather than being flat?

**Standard 2:**

1. Describe a polar molecule including charge and electron distribution. How can a molecule with polar bonds be nonpolar?
2. ****Add polarity arrows/symbols to HOCl as needed. What shape is it? Is HOCl polar or nonpolar? Why is it polar or nonpolar?

**Standard 3-4:**

1. Explain why intermolecular forces are not chemical bonds like intramolecular forces.
2. Define the three intermolecular forces.
3. Fill in the following chart

|  |  |  |
| --- | --- | --- |
| Type of IMF | Type of molecule that experiences this forces | Relative strength  |
| Dispersion Forces |  |  |
| Dipole-Dipole  |  |  |
| Hydrogen Bonding |  |  |

1. How does the type of force affect boiling points? Why does it have this effect?
2. Identify the intermolecular forces for SeBr2 or AsCl3. Which substance would you expect to have a higher boiling point? Explain why.



1. How can solubility determine polarity? Explain why a polar and nonpolar molecule are not soluble using intermolecular forces.
2. Answer the following questions based off the chart below:

|  |  |  |  |
| --- | --- | --- | --- |
| Compound | Boiling point | Surface tension | Soluble with water  |
| **A** | -5oC | Low | No |
| **B** | 35oC | Medium | No |
| **C** | 65oC | High | Yes |

* 1. Which substance(s) would likely be polar?
	2. Which substance(s) would you expect to be soluble with oil?
	3. Rank the substances from weakest to strongest intermolecular forces.
1. What are three special properties of water? Explain why water has each property.
2. Why is water polar?

**Standard 1-3 Lewis Structure Practice**

1. Draw the Lewis structure for the following including polarity arrows/charges. Identify the **shape**, state if the molecule is **polar or nonpolar,** and the **types of intermolecular forces.**
2. SiO32-
3. ICN
4. H2O