Liquids Practice sheet

1. For each of the following pairs of molecules, choose the one that answers the question and explain why you made that choice.
   1. Which substance has the stronger London dispersion forces? NCl3 or NI3?
   2. Which substance is the more polar? CO2 or CO?
   3. Which substance is able to form hydrogen bonds? CH3CH2OH or CH3OCH3? Draw a picture showing the hydrogen bonding interactions.
2. Name and distinguish between the two components of a solution.
3. If we say that two liquids are miscible, what does that mean?
4. Chlorine gas is a good oxidizing agent which is often used to purify municipal water supplies and ensure that it is safe to drink. If Cl2 has a solubility of 8.0 g/kg at 1.23 atm, what will the solubility of the gas be at a pressure of 0.052 atm?
5. Define the term viscosity.
6. Which would be expected to have a higher viscosity, butane (C4H10) or dodecane (C12H26) and why?

1. The four major attractive forces between particles are ionic bonds, dipole-dipole attractions, hydrogen bonds, and dispersion forces (8 points).
   1. Classify each compound by its predominant attractive or intermolecular force among atoms or molecules of the same type.

MgF2

HF

HBr

N2

* 1. Based upon the intermolecular forces present, rank the substances according to the expected boiling point for the substance from highest to lowest boiling point.