

## Pre-Lab Assignment: Volatility and Surface Tension of Liquids

1. What is the difference between evaporation and boiling?
2. How can volatility be tested in a laboratory?
3. What are some differences between liquids and solids?
4. What are some differences between liquids and gases?
5. A liquid that has a strong surface tension is likely to behave in what manner when placed in a narrow graduated cylinder?
6. Why does water 'bead up' on a newly waxed car instead of forming a sheet over it?
7. How is surface tension of a liquid related to the intermolecular forces in a liquid? Predict which of the following liquids has the greater surface tension: ethanol ( $\text{C}_2\text{H}_5\text{OH}$ ) or dimethyl ether ( $\text{CH}_3\text{OCH}_3$ ). Explain your answer.
8. How does the vapour pressure of a liquid vary with temperature? At any given temperature would you expect the vapour pressure of acetone,  $\text{CH}_3\text{COCH}_3$ , to be greater or less than vapour pressure of water. Explain your answer.
9. Viscosity is defined as a measure of a fluid's resistance to flow. Using this definition explain the relationship between the intermolecular forces that exist in a liquid and its viscosity.  
Arrange the following liquids in increasing order of viscosity: water, ethanol ( $\text{C}_2\text{H}_5\text{OH}$ ), ethylether ( $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$ ), glycerol.
10. Explain the expression "slow as molasses in January" (definitely not what would describe Mrs Pall's classes!) as related to physical property of liquids. (consider viscosity!).