Properties of Alcohols

Pre-lesson assignment – Textbook page 216-218 (also pages 81-83)

Define the following terms

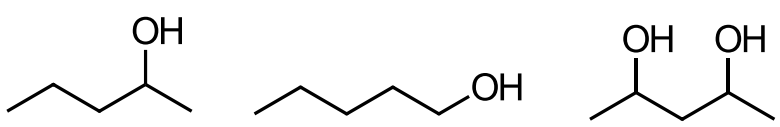
- Hydrogen bond
- Volatility

Now watch the video on hydrogen bonding

Make notes on the properties of alcohols

Use the following questions as guidance

1. Give three uses of alcohols.
2. Name these alcohols:



3. What type of structure would you expect alcohols to have?
4. Explain how the different chain lengths of alkanes leads to different boiling points.
5. Why are O-H bonds polar?
6. Draw a diagram to show how water interacts with a molecule of ethanol.
7. Explain why alcohols dissolve in water.
8. Show how two molecules of ethanol would interact with each other.
9. Why are alcohols less volatile than the alkanes?
10. How does the extent of hydrogen bonding affect boiling point?

Answer sheet

1. Fuel, feedstock, polymers, paint, solvents
2. Pentan-2-ol, pentan-1-ol, pentane-2,4-diol
3. Simple covalent/molecular
4. Larger molecules have more electrons, greater London forces, more energy is required to separate molecules.
5. The oxygen is more electronegative than the hydrogen.
6. Lone pairs, dipoles marked, dashed line.
7. Water molecules can interact with the OH group forming hydrogen bonds.
8. Lone pairs, dipoles marked, dashed line.
9. The hydrogen bonds hold molecules together more strongly – lower boiling point and volatility.
10. The greater the amount of hydrogen bonding, the stronger the intermolecular forces, the higher the boiling point.