10.7.1: Lecture Demonstration

Viscosity

A group of liquids can be compared relative to each other based on viscosity. This experiment is set up with the liquid in a buret. A stop watch is started and the time is recorded when the liquid passes the starting point and the ending point. These starting and ending points are chosen by the person running the experiment. Typically these points are not too close together and are not too far apart.

Look at the structures below. It may take several seconds for the molecule to show up on the screen. DO NOT SCROLL during this time.

Click on the molecules and hold down your mouse button. Move your mouse to rotate the molecule.

Can you predict how viscous a liquid will be by looking at their molecular structure?

Question 1) How are these five molecules different?

Question 2) If applicable, how are these five molecules similar?

Question 3) What does the red sphere represent?

water	hexane (C_6H_{14})	octane (C_8H_{18})
water	hexane (C_6H_{14})	octane (C_8H_{18})

branched (C_8H_{18})	pentanol

branched (C_8H_{18})	pentanol

BEFORE moving on write down the answer to these two questions

Question 4) Choose the molecule that you think will be the most viscous. Write down your answer on a piece of paper and briefly write why you chose that molecule.

Question 5) Choose the molecule that you think will be the least viscous. Write down your answer on a piece of paper and briefly write why you chose that molecule.

Now watch the videos below and keep these two questions in mind.

Question 6) How does the red sphere affect how fast the liquid falls?

Question 7) How does the time the liquid falls relate to viscosity?

water	hexane (C_6H_{14})	octane (C_8H_{18})
water	hexane (C_6H_{14})	octane (C_8H_{18})

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branched (C_8H_{18})	pentanol

branched (C$_8$H$_{18}$)	pentanol

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