**Dougherty Valley HS AP Chemistry Name:**

**Evaporation of Alcohols – IMF Experiment Date:**

**Breakout Room group #: Period:**

Use the [LAB PROTOCOL](https://drive.google.com/file/d/1MfEzTN2ZLBagtdOmVga5lgzNXHiapP7C/view?usp=sharing) and this google doc to find your logger pro file with all the data per breakout group number

|  | **Predicted Δ*t* (°C)** | **Explanation**  **[detail]** |
| --- | --- | --- |
| **1-butanol** |  |  |
| **n-pentane** |  |  |
| **methanol** |  |  |
| **n-hexane** |  |  |

| **Data Table** [fill in title]: | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **TRIAL 1** | | | **TRIAL 2** | | |
| **Substance** | ***t*1 (°C)** | ***t*2 (°C)** | **Δ*t* (*t*1– *t*2) (°C)** | ***t*1 (°C)** | ***t*2 (°C)** | **Δ*t* (*t*1– *t*2) (°C)** |
| **ethanol** |  |  |  |  |  |  |
| **1-propanol** |  |  |  |  |  |  |
| **1-butanol** |  |  |  |  |  |  |
| **n-pentane** |  |  |  |  |  |  |
| **methanol** |  |  |  |  |  |  |
| **n-hexane** |  |  |  |  |  |  |

**Processing the data [Discussion questions]**

Complete individually on paper, handwritten for #1-3. **Insert Picture into this google doc**. Use a computer program for #4. **Insert plot into this google doc** at the end after your image of #1-3. Be sure to include your NAME in INK for your image(s)

1. Two of the liquids, n-pentane and 1-butanol, had nearly the same molecular weights, but significantly different Δ*t* values. Explain the difference in Δ*t* values of these substances, based on their intermolecular forces.
2. Which of the alcohols studied has the strongest intermolecular forces of attraction? The weakest intermolecular forces? Explain using the results of this experiment.
3. Which of the alkanes studied has the stronger intermolecular forces of attraction? The weaker intermolecular forces? Explain using the results of this experiment.
4. Plot a graph, smooth curve, of Δ*t* values of the four alcohols (R-OH) versus their respective molecular weights. Plot molecular weight on the horizontal axis and Δ*t* on the vertical axis.