Student Sheet Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period\_\_\_\_\_\_\_\_\_

**Title: Thermal Expansion of Liquids**

**Introduction:** Most substances expand when they are heated. In the case of gases, the expansion due to heat can be dramatic. A balloon may become several times larger when it is heated. Solids expand so little that it is hard to measure. How about liquids? In this activity you will measure a heated liquid and see how different liquids behave when they are heated.

**Procedures:**

1. Listen as your teacher explains how the equipment was set up. Some students will be making measurements so be sure you know how to do that.
2. Record the measurements as they are made.
3. Create a graph from the data. Make sure you label the graph axis correctly.
4. Answer the analysis questions and write a thoughtful conclusion.

**Data**

**Liquids**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** |  |  |  |
| **0** |  |  |  |
| **2** |  |  |  |
| **4** |  |  |  |
| **6** |  |  |  |
| **8** |  |  |  |
| **10** |  |  |  |
| **12** |  |  |  |
| **14** |  |  |  |
| **16** |  |  |  |
| **18** |  |  |  |
| **20** |  |  |  |

**Analysis:**

1. Which liquid had the most thermal expansion?
2. Draw the molecules in the three liquids in the boxes below when they are very hot. Label each box with the name of the liquid.

Graph your data here:

1. Why is alcohol used in many thermometers?
2. How were the test tubes like thermometers?
3. How does thermal expansion affect a pop can placed in a freezer?

Conclusion: