**Boiling Point Lab**

**Objective:** To determine what happens to the properties of liquids as they reach the boiling point.

**Hypothesis:**

*Part 1:* When heated water reaches the boiling point the temperature will _______ because ____________________________

*Part 2:* When a solute, such as salt, is added to water the boiling point will _______ because ____________________________

**Materials:** (Fill in list of materials used)

**Procedure:**

1. Follow all SAFETY RULES.
2. Assemble equipment according to the diagram on the board.
3. Fill a large test tube with water sample, insert thermometer and stopper and mark the level of the liquid.
4. Record the starting temperature of your water sample.
5. Light the burner and record temperature every minute until rapid boiling occurs.
6. Continue to record the temperature for another 5 minutes after boiling starts.
7. Turn off burner.
8. Repeat the procedure for your second water sample containing a solute.
9. Graph your data in a double line graph.

**Data:**

<table>
<thead>
<tr>
<th>Time (in minutes)</th>
<th>Temperature of Water (in °C)</th>
<th>Temperature of Salt Water (in °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusion: (State if your hypothesis’ were correct or not and support your conclusion).

Conclusion Questions:
1. Describe what happens to the temperature of the liquid when it reaches the boiling point?

2. Why can’t a liquid get any hotter then it’s boiling point?

3. Based on your results, explain what adding a solute does to the boiling point of a liquid and why this occurs.

4. Why are the boiling points of water and salt different?

5. Look at your graph. Identify which time frame on your graph shows increasing kinetic energy and explain how you can tell.

6. What is the name of the phase change that is occurring in this lab?

7. You found an unknown liquid and determined that it’s boiling point was 100 °C. What would you identify this liquid as? Explain why you know the identity of the liquid.

Summary: (Write a brief 3 paragraph summary using our standard format).