Physical Science Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Freezing Point Lab**

**Introduction:** We have been exploring heating curves by examining temperature and time patterns as substances melt. We are now going to expand our understanding by examining a scenario where something is freezing.

**Materials:**

* Test tube
* Beaker
* Thermometer
* Melted Crisco

**Procedure:**

1. Fill a beaker 2/3 full of cool water.
2. Obtain a test tube with melted Crisco from your teacher and place it in the beaker.
3. Put your thermometer in the Crisco. Record the temperature every 30 seconds. Continue until you have filled in the entire data table.
4. For the first few minutes, gently move the thermometer up and down in the Crisco between readings. When the Crisco begins to stiffen, leave the thermometer in the middle of the sample.
5. When you are done collecting your data, return the test tube with Crisco back to your teacher. Rinse the thermometer off with warm water and wipe with a paper towel.

**Data Table:**

|  |  |  |
| --- | --- | --- |
| **Time (minutes)** | **Temp (Celsius)**  | **Phase of Matter**  |
| 0 |  |    |
| 0.5 |  |  |
| 1.0 |   |  |
| 1.5 |  |   |
| 2.0 |  |   |
| 2.5 |  |   |
| 3.0 |   |  |
| 3.5 |  |   |
| 4.0 |  |   |
| 4.5 |   |  |
| 5.0 |   |  |
| 5.5 |   |  |
| 6.0 |   |  |
| 6.5 |  |   |
| 7.0 |   |  |
| 7.5 |  |   |
| 8.0 |   |  |
| 8.5 |  |   |
| 9.0 |   |  |
| 9.5 |  |  |

|  |  |  |
| --- | --- | --- |
| **Time (minutes)** | **Temp (Celsius)**  | **Phase of Matter**  |
| 10.0 |  |  |
| 10.5 |   |  |
| 11.0 |  |   |
| 11.5 |  |   |
| 12.0 |  |   |
| 12.5 |   |  |
| 13.0 |  |   |
| 13.5 |  |   |
| 14.0 |   |  |
| 14.5 |   |  |
| 15.0 |   |  |
| 15.5 |   |  |
| 16.0 |  |   |
| 16.5 |   |  |
| 17.0 |  |   |
| 17.5 |   |  |
| 18.0 |  |   |
| 18.5 |   |  |
| 19.0 |  |  |
| 19.5 |  |  |

**Analysis**

1. On the next page, graph your data. (If necessary, separate your pages to make it easier to see the data table and graph, then staple the pages back together.)
2. What is the freezing point of Crisco? How do you know?
3. Ms. Wang will be warming the Crisco back up until it melts into a liquid phase. What temperature do you think she will have to heat it to, and why?
4. When substances change phase, there is a transfer of energy from one substance to another. As the Crisco was freezing, where was energy transferring from? Where was it going to?
5. Compare today’s graph to the heating curves for salt and fresh water (Melting/Boiling Point Lab). What similarities do you notice? What differences do you notice?

**Label each region of the graph with what phase of matter was present and what phase change was occurring (when appropriate)**. Remember to label your axes.

Graph title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

