Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block\_\_\_\_\_\_\_\_\_

What’s In a Bond?

Directions:

**Part I: Solid Chemicals**

1. There are 3 containers containing powders labeled A, B and C.
2. In the data table below write 2 qualitative descriptions about the powder.
3. Test the conductivity of each powder using the conductivity tester. Be sure to rinse the conductivity tester between containers. Disconnect the tester while rinsing and drying.
4. Place a scoopula amount of powder on each of the 3 aluminum boats on the hot plate.
5. In the data table below record the time in which it takes each of the powders to melt. Record in seconds in your data table below.
6. Carefully remove the melted solid and the foil from the hot plate.

|  | **Powder A** | **Powder B** | **Powder C** |
| --- | --- | --- | --- |
| Qualitative observations (2) |  |  |  |
| Does the lightbulb light up? |  |  |  |
| Time to melt (in seconds) |  |  |  |

Questions:

1. What powder(s) allowed for conductivity of the tester?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What powder melted the fastest?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Why do you believe that the powders melted at different rates?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part II: Solutions**

1. There are 3 solutions (dissolved in water) at your lab station labeled A, B and C.
2. Record 2 qualitative observations about the solutions in the data table below.
3. Test the conductivity of each solution using the conductivity tester. Be sure to rinse the conductivity tester between containers. Disconnect the tester while rinsing and drying. Record the information in the table below.

|  | **Solution A** | **Solution B** | **Solution C** |
| --- | --- | --- | --- |
| Qualitative observations (2) |  |  |  |
| Does the lightbulb light up? |  |  |  |

Questions:

1. Which solution(s) allowed for conductivity of the tester?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What do you think is the difference between the solution(s) that had the lightbulb light up and the solutions that did not have the lightbulb light up?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Did any of the powders not light up on their own but light up when dissolved in water? If so why do you think this is the case?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part III:

Directions: Conduct the experiments from part I and part II again. Complete the data table below using the information that you see. Make sure to put the same powder in the same boat as before.

|  | **Powder A** | **Solution A** | **Powder B** | **Solution B** | **Powder C** | **Solution C** |
| --- | --- | --- | --- | --- | --- | --- |
| Does the light bulb light up? |  |  |  |  |  |  |
| Time to melt (in seconds)  |  |  |  |  |  |  |

Questions:

1. Are you confident in your observations? Please explain your answer.
2. Given that these are compounds, what could explain the differences you observed in the properties?