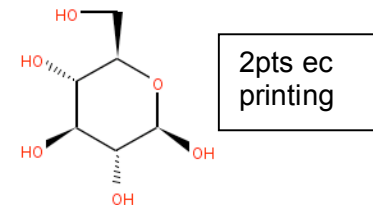


Lab: Bond with Me



PreLab:

1. What is a bond?

2. Explain the difference between an ionic bond & a covalent bond.

Part 1: Crystal Structure

1. Place a little bit of each substance on the piece of black paper, in the corresponding box.
2. Use a magnifying glass to make 1 observation and 1 drawing about each substance. Write these observations in the data table below.
3. View each of the substances at the 5 microscope stations. Please do not touch or adjust the microscopes. Record your observations.

	Magnifying Glass: description	Microscope: description	Drawing
Sugar (Sucrose)			
Pure Via Stevia (Dextrose)			
Equal (Aspartame)			
Salt (NaCl)			
Epsom Salt			

THINK ABOUT IT:

- Do you see any patterns between the salts & sugars? Explain.

- Is observation enough to determine what type of bond each substance is made of? Explain.

Part 2: Melting Point

1. Tear off 5 long strips of aluminum foil. Shape one end of one strip into a small spoon or bowl. Make sure the bottom of the bowl is only one layer of foil. The edges may have more layers. Crumple the rest of the foil strip together to make the handle of the spoon.
2. Place a *small* amount of sugar into one foil spoon. There should be enough sugar to be visible, but there should not be a thick layer of sugar on the bottom of the spoon.
3. Hold the bottom of the spoon above the flame (not IN the flame) while a partner uses a stopwatch to record how long it takes for the sugar to melt. Record observations in the table below. If it does not melt after 2 minutes, it probably never will. *If the substance or spoon starts smoking, remove from the flame!* BE CAREFUL: the aluminum foil will get hot!!!!
4. Repeat steps 1-4 with all substances.

Melting Observations (include time)

Sugar	Pure Via Stevia (Dextrose)	Equal (Aspartame)
Salt (NaCl)	Epsom Salt	

THINK ABOUT IT:

- Did you notice any patterns? Explain.

What do you think determined how quickly each substance took to melt?

- What differences did you observe between the sugar & salt solutions?

- How can you explain those differences?

Conclusion Questions:

1. What were the different structures you observed? _____

2. Which substance has the highest melting point? _____

3. Use the concepts of ionic and covalent bonding to explain why some substances have higher melting points than others.

4. Use the concepts of ionic and covalent bonding to explain why some substances are able to conduct electricity better than others.

5. What is a metallic bond? (Use your book!) How is a metallic bond different from a covalent or ionic bond?

ONLINE: Use the Internet to answer the following questions:

7. What are the chemical formulas for Stevia Pure Via & Equal? How do they differ from regular sugar?

8. What is Epsom salt? How does it differ from regular table salt?

Conclusion Paragraph:

In a minimum of 5 sentences... describe what you learned, what you found most interesting about the lab, and how this lab helped you to understand the differences between ionic & covalent bonds.
