Name: _____ Date: _____ CP: _____

Advanced - Root Beer Matters

Materials: 4 small plastic cups, 2 solo cups, 1 cup ice cream per group, 2 cups root beer per group, spoons

Procedure:

1. In 2 small cups add the ice cream first and slowly pour the root beer over the ice cream.
2. In the other 2 cups add the root beer first then put the ice cream on top of the soda.
3. Record your observations under question 1, enjoy your tasty beverage, and complete the rest of this activity.

Data Collection:

1. Which root beer float had more of a reaction, ice cream or root beer first? Explain why you think this happened.

2. Use your phone to find an explanation for the different reactions. Hint: it has to do with nucleation, similar to the Mentos and Coke reaction. Was answer to question 2 correct? Why?

3. Identify which part of the root beer float is a solid, liquid, and gas?

4. Prove your answers to question 3 using at least 2 characteristics of the states of matter for which you identified each part of the root beer float to be. Hint: use your notes from yesterday.

5. Draw the particle arrangement of each item you listed for question 3. Hint: use your notes.

6. Which substance in your root beer float do you think has the highest energy? Explain your reasoning.

7. Do you think the freezing point of ice cream will be the same, less than, or higher than water? Write a hypothesis. Explain why you think this.

8. Use your phone to look up the answer. Hint look up the freezing point of a few main ingredients in ice cream and compare that to the freezing point of water, and/or look up what affects freezing point temperature. Was your hypothesis right or wrong? Why?

9. Do you think an unopened 2 liter bottle of root beer will have the same, more, or less mass as an opened 2 liter bottle of root beer that has gone flat? Write a hypothesis. Explain your reasoning.

10. Test your hypothesis with the scale, unopened soda, opened soda. What your hypothesis right or wrong? Why?

Conclusion:

11. Create an anchor chart to help a younger student understand a root beer float in terms of what you have learned during this lab. Make it informative, colorful, and visually appealing. Include a written explanation on your poster using the following vocabulary terms: solid, liquid, gas, energy, particle arrangement, freezing point, melting point.

2.
http://www.sciencenter.org/chemistry/d/framework_kitchen_chemistry.pdf

http://chemistry.about.com/b/2014/05/30/how-an-ice-cream-soda-or-float-works.htm

https://m.reddit.com/r/explainlikeimfive/comments/2ged2s/eli5_why_do_root_beer_floats_foam_when_you_put/

http://www.eepybird.com/featured-video/coke-and-mentos-featured-video/science-of-coke-mentos/

8.
http://classroom.synonym.com/causes-lower-freezing-point-11366.html

http://ansci.illinois.edu/static/ansc438/Milkcompsynth/milkcomp_freezing.html

https://www.reference.com/science/freezing-point-sugar-water-c5754277b74f97a8

New way to make ice cream for ice cream lab = http://www.carolina.com/teacher-resources/Video/ice-cream-and-freezing-point-depression-video/tr11181.tr