NAME _____ PREF ____ SECTION SC_____ DATE _____

Experiment 12: Ice Cream Making An Application of Colligative Properties

Equipment (per group of 2): 1 small zip-lock bag, 1 large zip-lock bag or tennis ball container, 1 spoon
Materials (per group of 2): 1/2 cup of milk, 1/4 teaspoon of vanilla or other flavoring, 1 tablespoon sugar, ice, salt (NaCl).

Safety: Table covers are provided to keep food materials from contamination. If you work at the covered table, you should be able to eat the ice cream.

Procedure: (Record your data and observations as you work.)

1. Put 1/2 cup of milk, vanilla and sugar into the small zip-lock bag.
2. Squeeze out the air as you seal the bag.
3. Put ice into a tennis ball container (or large bag) to about 1/3 (250 mL).
4. Roll the small bag of milk into a cylinder and place it into the tennis ball container (or large bag).
5. Fill the container with ice. (About 250 mL more).
6. Add 6 tablespoons (about 50 mL) of NaCl (Kosher or table salt).
7. Cap/seal the container.
8. Gently agitate the mixture by shifting the ice from side to side or rolling the container on the table until the milk mixture becomes hard.

Observations and Analysis:

9. Describe what happens to the ice and salt mixture. _____

10. Describe how the temperature of the ice mixture and the milk mixture change. _____

Conclusions:

11. Explain why the ice cream forms (solidifies) in terms of the endothermic and exothermic processes that occur. _____

12. Which way is the heat flowing? _____

13. What do you observe to defend you answers to 11 and 12? _____