



Ice Cream in a Bag

Materials:

- ½ cup of heavy whipping cream or half and half
- 1 tsp vanilla extract
- 2 ½ teaspoons sugar
- 2 sandwich-sized Ziploc bags
- 1 gallon-sized Ziploc bags
- Ice cubes
- 6 tablespoons Kosher salt
- Dishtowel, gloves, or oven mitts

Directions:

1. Put the cream, vanilla extract, and sugar into one of the sandwich bags. Gently press all of the air out, and tightly seal the bag.
2. Place this bag into the second sandwich bag and tightly seal it.
3. Fill the gallon bag halfway with the ice cubes.
4. Add the kosher salt.
5. Place the bag bundle containing the cream and other ingredients into the middle of the ice. Seal the larger bag tightly.
6. Shake the bag for 5-10 minutes. Use towels, gloves, or oven mitts to keep your hands from getting too cold!

Why It Works:

“The same reason salt is used on icy roads and sidewalks in winter explains why salt is mixed with ice to make ice cream. Salt causes the ice to melt. When salt and ice mix, the freezing point of the ice is lowered and the freezing point reached depends on the amount of salt used. The more salt is added, the lower the temperature can get before the saltwater solution freezes. For example, water will normally freeze at 32°F (0°C). A 10% salt solution freezes at 20°F (-7°C) and a 20% solution freezes at 2°F (-17°C). When salt is added to ice (or snow), some of the ice melts because the freezing point is lowered. Keep in mind, however, that heat must come from somewhere to melt the ice. The heat that causes melting comes from the surroundings and, in this case, it’s from the warmer cream mixture. By lowering the temperature at which ice freezes, you were able to create an environment in which the cream mixture could freeze at a temperature below 32°F (0°C) and become ice cream. The shaking (or stirring in an ice cream maker) moves the warmer cream mixture from the inside to the outside of the bag so it can freeze evenly. That way you make a smoother product. It also adds air to the final product so it’s fluffed up a little bit. Yum!”

This experiment was found on *Growing a [Jeweled Rose](#)*.

The science behind this experiment was found on [Steve Spangler Science](#).