

Introduction:

August 19th is National Soft Ice Cream Day! We all love to eat ice cream, but did you ever think about how ice cream is made? We start off with liquid ingredients and turn it into a tasty solid treat! This *phase change* from liquid to solid is called **freezing**!

Materials:

- Measuring utensils
- Two small and two large ziploc bags
- 8 cups of ice cubes
- ½ Cup Table Salt
- One cup Half and Half, Milk or Heavy whipping cream
- 2 Tablespoons Sugar
- ½ Teaspoon Vanilla Extract
- Gloves or Oven Mitts

Procedure:

1. In a small ziploc bag, mix a ½ cup of Half and Half, 1 tablespoon of sugar, and a ¼ teaspoon of vanilla extract.
2. In a large ziploc bag, place 4 cups of ice and add a ½ cup of table salt to the ice.
3. Place the small ziploc bag, sealed, into the large ziploc bag.
4. Shake for 5 minutes with gloves on, and compare the consistency of the mixture in the smaller bag before and after!
5. Repeat steps 1 to 4 for a second batch, but this time, don't add any salt to the large ziploc bag. What's changed?

The Science behind this Experiment:

You've probably noticed that the bag with ice and salt froze the ice cream and kept the ice frozen much longer than the bag without the salt! This is because when salt and ice are mixed, the *salt lowers the temperature at which the ice freezes*, to below 0°C. This allows the ice to melt and allows for the cream mixture to freeze faster at a lower temperature!

Here's a real life example! We put salt on the roads to prevent ice from freezing. Remember that adding salt lowers the temperature at which ice freezes, so this melts the ice on our roads and keeps us safe!

Don't forget about the bag of cream that didn't freeze! Pop it back into the bag with the salt and shake away! Happy National Soft Ice Cream Day!