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Science in the Kitchen ~ Easy Experiments for Kids

By Jonathan Winter



Jefferson Wake inserts ice-cream solution into bag of salted ice held by brother, Jonathan Photo Jennifer Wake

Do you love ice cream? A hot summer day is a great time to enjoy this yummy treat. Many people think that to make ice cream you need a fancy ice cream maker, but you don't even need a freezer. All you really need are a few ingredients and some patience.

1. Gather these supplies:

- Heavy Cream (Whipping Cream)
- Milk
- Sugar
- Vanilla
- Crushed Ice
- Table Salt or Rock Salt
- Quart size Resealable Plastic Bag
- Gallon Size Resealable Plastic Bag
- Towel or Gloves
- Measuring Cup
- Thermometer (optional)

2. Start your experiment:

Add 1/4 cup sugar, 1/2 cup milk, 1/2 cup cream, and 1/4 teaspoon vanilla to the quart-sized plastic bag. Carefully seal the bag.

Put two cups of the ice in the gallon size plastic bag. Check the temperature of the ice with the thermometer. Add 3/4 cup salt to the bag and mix it in with the ice. Put the sealed small bag in the large bag and close the large bag.

Using gloves or a towel (so your hands don't get too cold), gently squish the small bag around inside the large bag. Make sure that it stays in the salt/ice mixture. Mix it for at least 10 minutes.

Open the gallon bag and measure the temperature of the salt/ice mixture again.

3. What happened?

When you added the salt to the ice, you lowered the freezing point. The salt broke up into its two parts (sodium and chloride ions). When water freezes, it forms crystals. The salt ions got in the way of the water molecules, not allowing the crystals to form. You could use other kinds of salt if you wanted, because of the same ion effect (You can try this experiment with epsom salts if you still have some from the crystal making experiment).

The salt made the slushy ice super-cold so it could freeze the whipping cream.

By gently squeezing and squishing the bag, you kept your mixture from becoming a solid. Hopefully squishing it around mixed some air into it as well. Some store bought ice creams are half air!

Are you ready to taste your experiment? You may want to try adding some fresh berries or other fruit to your ice cream. A slice of pie works too. But the thing that makes ice cream tastes best is when it's eaten with a friend!

Jonathan Winter has been a science teacher at Lafayette Elementary School in Lafayette since 2001. He lives in Moraga with his wife, children, numerous pets - and he experiments frequently in his kitchen.

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