



Science Behind: Ice Cream in a Bag

Have you ever made homemade ice cream? It can be a lot of fun, and you end up with a tasty frozen treat! A lot of interesting chemistry is actually needed to make ice cream.

To make ice cream, the ingredients—typically milk (or half and half), sugar and vanilla extract—need to be cooled down. One way to do this is by using salt. If you live in a cold climate, you may have seen trucks spreading salt and sand on the streets in the wintertime to prevent roads from getting slick after snow or ice. Why is this? The salt lowers the temperature at which water freezes, so with salt ice will melt even when the temperature is below the normal freezing point of water. Technically, the temperature that the salt lowers is called the freezing point. When a freezing point is lowered, such as by adding salt to water, the process is called freezing-point depression. As we'll see in this activity, freezing-point depression is not unique to solutions made of water and salt; it also happens with other solutions. (A solution is made when a substance, such as salt, is dissolved and becomes a solute. The medium into which it is dissolved is a solvent—typically a liquid, like water.)



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Ice Cream in a Bag Ingredients & Supplies

What's included in your kit:

- 1/2 cup granulated sugar
- 1 tablespoon vanilla extract
- 8 tablespoons rock salt
- gallon size ziplock bag
- 2 sandwich size ziploc bags

What you need:

- 2 cups milk (you may substitute half and half, almond milk, or soy milk)
- 10 cups ice
- bowl
- spoon
- hand towel/dish towel



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Ice Cream in a Bag Instructions

Stir the milk, sugar and vanilla together in a medium bowl. Pour 1/2 cup of the mixture into a sandwich-size resealable plastic bag. Tightly seal the bag. Put that bag into another sandwich-size resealable plastic bag and tightly seal. Repeat with the remaining batter.

Fill the bag containing salt with ice. Put the small filled bags into large bag and seal. Place the bag in another large bag and seal. Shake the bag until the mixture is frozen and resembles ice cream, about 5 minutes. Remove the bags with the ice cream in it from the outer bag and snip a large piece off one corner of each bag. Pipe the ice cream into a small bowl.



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