



## Plastic Bag Ice Cream

This activity is a good supplement to a lesson on dairy farming and dairy products. Ice cream can be made in the classroom using the principle that adding salt to the ice between the plastic bags lowers the freezing point of water. Heat energy is transferred easily from the milk through the plastic bag to the salty ice water causing the ice cream mixture to freeze and the ice to melt.

### Materials Needed (per group of 4):

- 1/4 cup sugar
- 1/2 tsp. vanilla extract
- 1 cup rock salt
- 4 plastic spoons
- 1 gallon resealable freezer bag
- 1 quart resealable freezer bag
- large spoon
- measuring cup
- duct tape
- 4 paper sundae cups, 8 oz.

### Teacher's Materials (per group of 4):

- 1 cup 2% milk
- 1 cup whipping cream or half & half
- Flavorings as desired
- Ice
- cloth towels or mitts
- water

### Procedure:

1. Set up the milk, whipping cream, vanilla, and sugar in an assembly line process for students to help reduce congestion.
2. Add 1 cup milk, 1 cup whipping cream, 1/4 cup sugar (4 tablespoons), and 1/2 teaspoon vanilla to a 1 quart freezer bag for each group. Squeeze out any remaining air, seal tightly and use a strip of duct tape to double-seal the end of the bag.
3. Students will place the quart bag with the ice cream ingredients inside a 1 gallon resealable bag. Pack ice around the small bag and add the rock salt and 3/4 cup water. Squeeze out any remaining air in the 1 gallon bag, seal the bag, and then double-seal the end using the duct tape.
4. Students should carefully shake the bags between their hands while protecting their hands with cloth towels or mitts. This should be done until you can see that the ice cream is frozen.
5. The outer bag can be opened by each group and the ice and salt discarded. Rinse the outside of the bag containing the ice cream ingredients prior to dividing the ice cream into sundae cups for the students to eat. Use the large spoon to serve the ice cream.
6. Eat the ice cream plain or with your favorite toppings and enjoy. Caution: Students who are allergic to milk or milk products should not eat the ice cream.
7. Clean up all laboratory equipment and discard paper sundae cups and plastic spoons.

### Ice Cream Trivia:

- Nearly 9% of the milk produced by U.S. dairy farmers is used to make ice cream.
- It takes 12 pounds of milk to make one gallon of ice cream.
- One gallon of ice cream weighs at least 4 1/2 pounds, with a minimum 10% milkfat.
- In 1984, President Ronald Reagan declared July as National Ice Cream Month, and National Ice Cream Day as the third Sunday in July.
- America's top 5 favorite flavors are, in order: vanilla, chocolate, neapolitan, butter pecan, and chocolate chip.
- The U.S. Ice Cream industry generates about \$20 billion in annual sales.