

Ice Cream in a Bag

Standards of Learning

Science 5.4

Objective

Students will:

- Investigate temperature on the phases of matter

Materials (*per student*)

- ½ cup milk or cream
- 2 tablespoons sugar
- 1 teaspoon vanilla
- 6 tablespoons salt
- Ice
- 1 gallon freezer bag
- 1 sandwich bag

Background Knowledge

Dairy is the state's third-largest agricultural commodity. There are more than 100,000 head of dairy cattle in Virginia. The most widely recognized dairy cow is the Holstein, which has black and white spots. The spots are similar to people's fingerprints in that no two cows have the same pattern of spots. Dairy farmers milk their cows at least twice a day. One cow produces 90 glasses of milk a day, and 200,000 in her lifetime. In fact, a cow's udder can hold 25-50 pounds of milk!

Procedure

1. Brainstorm different products that are made with dairy. A popular favorite is ice cream! Tell students that today you will be making ice cream in order to investigate the effect of temperature on the states of matter.
2. Review the states of matter. Ask students if they can think of examples of matter changing states. Tell them that temperature can sometimes cause a change in state of matter.
3. Pass out materials to each student.
4. Add milk, sugar, and vanilla to the sandwich bag and seal. Mix well.
5. Fill the freezer bag 2/3rds full with ice.
6. Add salt to the ice in the freezer bag.
7. Place the sandwich bag containing the milk, sugar, and vanilla in the ice water solution. Make sure the sandwich bag is surrounded by solution.
8. Close the large bag and shake.
9. Observe the change from liquid to solid.
10. Enjoy!

