



Ice Cream in a Bag

Explore the history of ice cream and dairy products, and the chemistry of ice, salt, and exothermic reactions.

Recipe

1. Fill the large bag half full of ice and add the rock salt. Seal the bag.
2. Put milk, vanilla, and sugar into the small bag and seal it. You can use two bags to prevent leaking.
3. Place the small bag inside the large one, sealing it again, carefully.
4. Shake until the mixture is ice cream, which takes about 5 minutes.
5. Wipe off the top of the small bag, then open it carefully. Enjoy!

Materials

- 1 gallon-size plastic food storage bag
- Ice cubes
- 6 tablespoons rock salt
- 1 pint-size resealable plastic food storage bag
- ½ cup milk or half & half
- ¼ teaspoon vanilla
- 1 tablespoon sugar

Tip

A ½ cup of milk will make about 1 scoop of ice cream; double the recipe if you want more.

Classroom Activities

English Language Arts/History

- Research the origin of the ingredients, discuss how transportation systems are part of the distribution system for these ingredients. Locate the nearest place in their community that ice cream is produced.
- Have students research the history of ice cream or other dairy products and present their findings to the class.

Math

- Before the activity, have students estimate the amount of milk needed for the experiment. Then, calculate actual amount needed. Calculate the cost of the milk that was used.
- Have students multiply and divide fractions to determine the amount of supplies needed for 1 scoop of ice cream for each person in the whole class, half the class, etc.

Science

- Create a food chain or food web with cows and humans and explain the relationships.
- Have students write down their observations and discuss the process of how milk turned into ice cream, describing the physical and chemical properties.



California Standards:

Grade 1

ELA CC: RI.1.10; SL.1.1
Math CC: 1.OA.1, 1.MD.4

Grade 2

ELA CC: RI.2.10; SL.2.1
Math CC: 2.OA.1, 2.MD.8
NGSS: 2-PS1-1, 4

Grade 3

ELA CC: RI.3.10; SL.3.1; SL.3.4
Math CC: 3.OA.1, 3.MD.2
NGSS: 3-LS4-3

Grade 4

ELA CC: RI.4.10; SL.4.1, 4
Math CC: 4.NF.4c, 4.MD.2

Grade 5

ELA CC: RI.5.10; SL.5.1, 4
Math CC: 5.NF.1, 2
NGSS: 5-PS1-3, 4, 5-PS3-1

Adapted from "Acres of Adventures Activity Guides" by 4-H