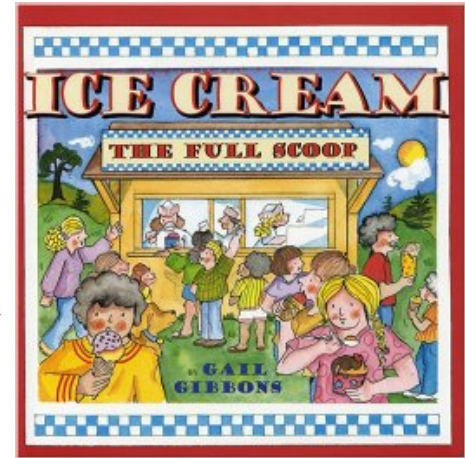


February 2017 Book of the Month
Ice Cream: The Full Scoop
By: Gail Gibbons

Gail Gibbons takes you on a trip, outlining each step of the ice cream making process—from the farm to our tummies! We learn the history of the first ice cream, which was actually dairy-free, and how ice cream has always had a social aspect to it. We follow the milk from the cow to the cooling tank; from the farm to the ice cream factory, and Gibbons describes each step of the process with her rich text and brightly illustrated pages.



Fun Facts:

- Almost 10 percent of all milk produced by cows in the United States and Canada is used to make ice cream. ¹
- Grocery stores didn't start selling ice cream until the 1930s. ¹
- Annual consumption of ice cream in America averages about 15 quarts per person. ¹
- The average cow produces 6-8 gallons of milk per day. ²
- Each dairy cow in North Carolina provides an average of 2,439 gallons of milk per year. ³
- North Carolina ranks 28th in the nation in milk production, 29th in the nation in the number of milk cows, and 24th in the nation in the number of licensed dairy operations. ³
- In 2016, cash receipts for the sale of milk by dairy farmers amounted to \$177 million in North Carolina. ³
- Milk is the state beverage of North Carolina.
- July is National Ice Cream Month. It was designated by President Ronald Reagan in 1984. ⁴

Activities

Ice Cream Flow Chart

Have students design a flow chart using pictures from the book, internet or hand drawn pictures to depict the process milk goes through to become ice cream. Each arrow in the flow chart should represent a process described in the book. Have students label the pictures and processes in the flow chart. See the example below.



Economy of Ice Cream⁵

Take a poll of the class to determine students' favorite type of ice cream: vanilla, chocolate or strawberry. Create a chart on the board to record students' responses to the poll. Ask students to work in groups or as a class to create a graph to illustrate the information. Review with the students the purpose of graphs in displaying important information. Define economist to the class (a person who collects data, creates graphs, and interprets graphs to determine changes in the market). Ask the class, why would it be beneficial for someone in the dairy industry (or any other agriculture industry) to be interested in the changes within the agriculture market?

Kick the Can Ice Cream⁶

Materials:

- 1 large metal or plastic coffee can with lid (1 for every 5 students)
- 1 small metal or plastic can/jar with a tight sealing lid (1 for every 5 students)
- Duct tape
- Scissors
- Stopwatch (1 for every 5 students)
- Small cup and spoon (1 per student)
- Milk (2% or whole works best; 2 cups for every 5 students)
- Sugar (1/4 cup for every 5 students)
- Vanilla (optional, 1 tsp)
- Rock Salt
- Ice
- Towel

Procedure:

1. Place the milk, sugar, and vanilla in the small can. Seal the small can and place it in the large can. Put the ice and spring rock salt to fill up the remaining area in the large can. Put on the lid and seal it with duct tape.
2. The students will then set the stopwatches for 10 minutes. When you give them the go-ahead, tell them to keep the can in motion. They can kick, shake, throw, or roll the cans (if inside, it is better to advise the students to shake or roll the cans).
3. As the groups finish their 10-minute challenge, check the consistency of the ice cream. Some groups may need a few more minutes for the ice cream to fully set. Set the stopwatch and encourage the groups again to keep the can in motion, if this is the case.
4. Once the ice cream has fully set, retrieve the small can out of the large can. Wipe off the outside of the small can with a towel, and unseal the lid. Dish out the ice cream into small cups for each group.

Alternative Option: if cans are not available, use two sizes of locking plastic freezer bags instead. Place the ingredients in a quart-sized bag. Seal with duct tape. Place this in a gallon-sized bag and surround with ice and rock salt. Seal with duct tape. Instead of kicking, pass the bag quickly between students standing in a circle.

Questions for K-2:

- *What happened to the milk?* Listen for: Vocabulary regarding the change: it froze, it got hard, it turned to ice, etc.
- *Where does milk come from?* Listen for: Cows, dairy, etc.
- *Where does a cow live, and who takes care of it?* Listen for: Lives: farm or ranch; Care: farmer or rancher

Questions for 3-5:

- *How did the milk turn from a liquid (milk) to a solid (ice cream)?* Listen for: The ice and salt make the milk mixture freeze.

Questions for 6+:

- *Why did we add salt to the ice surrounding the small can?* Listen for: Adding salt to the ice lowers the freezing point. This allows it to freeze other liquids (the milk).
- *How does milk go from a cow to your ice cream cone?* Listen for: Correct process: dairy cow being milked, milk transported via truck to the milk plant; milk going through pasteurization, etc.; milk going through the ice cream making process at the plant, including packaging; ice cream being transported to the grocery store; etc.

Links:

- Discover Dairy and Animal Care (video)
<https://www.youtube.com/watch?v=NVAeW3CInzk>
- Inside the Blue Bell Ice Cream Factory (video)
<https://www.youtube.com/watch?v=9qJbSz-eCq0>
- Milk: The Scoop on Chemical and Physical Changes (lesson plan)
http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=246&search_term_lp=ice%20cream

Sources:

1. Gibbons, Gail. *Ice Cream: The Full Scoop*. New York: Holiday House, 2006. Print.
2. http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=246&search_term_lp=ice%20cream
3. <http://southeastdairy.org/wp-content/uploads/2015/09/2016-North-Carolina-Facts-Sheet.pdf>
4. <https://cleveland.ces.ncsu.edu/2007/07/national-ice-cream-month-and-beyond/>
5. <http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=255>
6. http://myamericanfarm.org/files/Science_Day_Camp_Kit.pdf