

FROM COW TO ICE CREAM

2nd Grade Ag in the Classroom Lesson Plan



What students will learn and do:

- Where do milk and other dairy products come from?
- What are the steps of milk production?
- How do farmers keep cows healthy?
- Why are dairy products important in a healthy diet?
- Students will make and eat their own ice cream.

Length of presentation: 50-60 minutes.

Materials needed:

1. Set of 10 dairy farming posters (FB provides)
2. Dairy farm visual aids: udder cloth, rubber milking inflation, and sample vial (FB provides)
3. Ice cream ingredients (**presenter provides**; submit receipts to FB for reimbursement)
 - 2% milk (½ gallon = 8 cups or more than enough for a class of 25)
 - whipping cream or half-and-half (½ gallon)
 - sugar (FB provides)
 - vanilla flavoring
4. Ice cream-making supplies (**presenter provides**)
 - ice (2-3 bags)
 - cooler (large enough to hold milk, cream, and ice)
 - water (if not available in classroom)
 - ½ teaspoon measuring spoon
 - ¼ cup dry measuring cup
 - 1 cup liquid measuring cup
 - scissors
 - heavy towels (one for each group of 4-5 students)
 - heavy cloth gloves
5. Ice cream-making supplies (FB provides)
 - rock salt
 - gallon-size Ziploc freezer bags
 - quart-size Ziploc freezer bags
 - duct tape
 - 5-gallon bucket
 - paper cups
 - plastic spoons
 - napkins
 - recipe cards
6. Student handouts (FB provides)
 - Dairy Ag Mags
 - Dairy stickers
 - Certificates of participation (signed by you in advance)
7. Teacher gift bag – 1 per teacher

Before the presentation:

- Gather all needed supplies.
- Prepare enough ice cream ingredient bags (steps A through C in procedure outlined below) for every five students in the classroom you will be visiting. Seal and duct tape securely closed. Shake gently to distribute sugar.
- Prepare same number of ice/rock salt/water bags (steps E through G below, except do not place ingredient bags within ice mixture, and use only $\frac{1}{2}$ cup water). Seal, but do not tape.
- Place ingredient bags and ice bags in cooler. Separate the ingredient bags from the ice/salt bags with towels or other items to prevent the ingredient bags from freezing prematurely.
- Organize extra ingredients and supplies to make one demonstration batch in the classroom.

Procedure:

1. **Introduce yourself.** Tell the class about yourself, including what you do and how your job or background relates to agriculture. By a show of hands:
 - *How many of you live on a farm?*
 - *How many of you have ever been to a farm?*
 - *Some farms are called dairy farms. What do you think makes certain farms dairy farms?*

2. **Today we're going to learn about dairy farms and make a favorite food product made from the milk produced on dairy farms.** Can anyone guess what food we're going to make? Yes—ice cream! What is the main ingredient in ice cream? **Milk!**

3. Using the set of ten dairy posters, **explain how milk is produced.** As you show each numbered poster in sequence, share the information printed on the back.

Use the provided visual aids to emphasize information shared on the posters. While discussing poster #2, show the cloth, which is one of several types of washable or disposable wipes used to clean cows' teats before they are milked. Then show the rubber inflation, which is the part of the milking machine that gently pulls milk from the cows' teats. Finally, the plastic sample vial should be used to emphasize milk safety when discussing poster #4.

(Optional: before reading the information on each poster, invite a student who is sitting quietly with their hand raised to come forward and describe to the class what they see on the poster. This may increase student engagement as you share the posters.)

4. **Are you ready to learn how to make ice cream?** Pass out the recipe cards. Meanwhile, tell the class that you will need them to help you demonstrate the process of making "plastic bag ice cream." Encourage the students to read their recipe cards and tell you what you will need. Gather/prepare ingredients in this order:
 - a. Quart-size freezer bag
 - b. Add to bag: 1 cup 2% milk, 1 cup cream, $\frac{1}{4}$ cup sugar, and $\frac{1}{2}$ teaspoon vanilla.
 - c. Carefully eliminate excess air from bag, seal firmly and tape zipped end with duct tape.
 - d. Place sealed bag of ingredients inside gallon-size freezer bag. (Do not do this if preparing before presentation!)
 - e. Pour ice into larger bag so that it surrounds ingredient bag.
 - f. Pour 1 cup rock salt over ice.
 - g. Pour $\frac{3}{4}$ cup water over ice and salt. (Use $\frac{1}{2}$ cup if preparing bags before presentation!)

- h. Seal outer bag and tape securely with duct tape.
 - i. Wrap a towel around the outer bag to protect your hands and carefully yet briskly shake.
 - j. Invite teacher and/or adult helper to continue shaking this batch. (They may also eat it!)
5. **Ask the teacher to divide the class into groups of five.** (The ice cream-making process may be easier if each group pushes their desks together.) Invite a child from each group to come forward. As each comes up, place an ingredient bag within an ice/rock salt bag so that the ice surrounds the inner bag. Seal the outer bag and secure with duct tape. Wrap the bag in a towel and give to the student, instructing them to shake the bag gently, turning it over every so often. Students should pass the bag around and continue shaking for 5-10 minutes, or until you can tell by feeling through the bags that the ice cream is getting firm.

Optional: to add some fun and rhythm to the shaking process, teach students the song “We’re Going to Make Some Ice Cream” found in your packet. Sing or chant the words as students shake their bags!

While groups are working, ask helpers pass out a spoon, cup, and paper towel to each child.

6. **As each group’s ice cream is ready, carefully open their outer bag.** Dump the ice and salt water mixture into a large empty bucket. (Do not pour this mixture down the drain—rock salt is very corrosive! After the presentation, pour the salty water outside in gravel or the edge of a parking lot where it won’t harm vegetation.) Thoroughly wipe the ice cream bag with a towel, making sure no salt remains on the bag. Carefully snip one bottom corner of the bag with clean scissors and squeeze enough ice cream into a cup for each child in the group. (The bags will be VERY cold—use clean, heavy cloth gloves to protect your hands).
7. **Discuss the importance of dairy products in a healthy diet.** Remind students that they need at least 3 servings of dairy products each day. For example, milk on cereal in the morning, a carton of chocolate milk with lunch, and a serving of ice cream for dessert in the evening would help meet a child’s daily requirement. Invite children to give examples of other dairy products they enjoy.
8. **Finish up with a quick review** of what the students have learned:
- What is ice cream made from? Milk!*
 - And where does milk come from? Cows!*
 - Where are cows raised? Dairy Farms!*
 - Who takes care of cows? Dairy Farmers!*

9. CONCLUSION

- Invite students to raise their hands and share something new they learned that they are looking forward to telling their parents when they get home (as time allows).
 - Answer any questions.
 - Hand out Dairy Ag Mags, stickers, and signed certificates (students fill in their own names).
 - Remind teacher/class of upcoming **placemat design contest. The deadline for entries is March 10, 2017.** The second grade contest theme is “**Thanks to Dairy Cows.**”
 - Thank class and teacher!
10. Before leaving, give teacher the gift bag. Point out the evaluation link, placemat contest rules/entry forms, and other items. **Remind teacher to submit the online evaluation.**