



Ag Experience Learning Kit

Ice Cream in a Bag

Students will investigate dairy production in Saskatchewan, then make a delicious frozen treat.

Time Required

Approximately 1 hr depending on the number of students and number of volunteers available.

BACKGROUND

Dairy farms are an important aspect of agriculture in Saskatchewan. Think about all the favorite foods that are made from dairy products: milk, cheese, butter, sour cream, yogurt, etc. Students get a chance to turn milk and cream into another favorite food, ice cream! This activity provides a small taste of the food science and production methods behind the delicious treat!

Materials Provided for Each Student

- Medium Zip-top freezer bag
- ¼ cup milk
- ¼ cup cream
- 1 tablespoon white sugar
- 1.5 mL vanilla and dispenser for group
- Large Zip-top freezer bag
- ¼ cup rock salt
- Sprinkles
- Spoon

Additional Materials Required

- 1 cup measure
- ¼ cup measure
- Tablespoon measure
- Ice (approximately 1 –1.5 cups per student)
- Paper towel or cloth for wiping up spills and salty bags

Suggested Resources

- Foundations of SK Agriculture: Dairy Cows. (English and French versions available) <https://aitc.sk.ca/Portals/0/360/Dairy-Cows/index.html#/>
- Explore Sask Ag– Kid’s website: Present, Farm Animals, Dairy <https://exploresaskag.ca/present/farm-animals/dairy/>

Related Viewing

It takes about 10-15 minutes of “churning” for the milk and cream mixture to become a frozen treat. We recommend watching these short vides on how ice cream is made to help pass the time!

- Ever Wonder? Highlights Kids How is Ice Cream Made? <https://www.youtube.com/watch?v=hO-7cz7gyAY>
- Scholastic News: Learn How Ice Cream is Made <https://www.youtube.com/watch/>



Learn about Dairy production in SK while enjoying a delicious treat!



ACTIVITY INSTRUCTIONS

Note: Students will combine their ice cream ingredients in a sealed bag that is placed inside of a larger bag with ice and salt for the freezing/churning process. The salted ice can be messy, have a few damp cloths or paper towels on hand. Students can eat the ice cream right out of the inner bag (spoons provided!), just make sure to wipe any excess salt water/residue off the bag.

1. On a long table, arrange the ingredients in a line following this order: medium bags, milk, cream, sugar, vanilla, large bags, ice, salt.
2. Have students work down the line, assembling the ingredients in the order they were placed. In a medium-sized freezer bag combine milk, cream, sugar, and vanilla. You will need a $\frac{1}{4}$ cup measure for the milk and cream, and a tablespoon for the sugar. A disposable pipette has been provided for the vanilla. A full squeeze contains 1.0mL, so use a squeeze and a half per student. Ensure the bags are sealed tightly.
3. In a large-sized freezer bag combine ice and rock salt. You will need a 1 cup measure for the ice and a $\frac{1}{4}$ cup measure for the salt. You may choose to generously scoop the ice. Shake the bag gently to distribute the salt.
4. Carefully place the well-sealed bag of ice cream ingredients inside of the bag containing ice and salt. Seal the large bag tightly. Avoid contaminating the ingredients with the salt.
5. Rock the bag back and forth until the ice cream ingredients freeze and thicken. The rocking action helps to keep the liquid moving for even freezing (mimicking churning) while minimizing the chance of leaking or an inner bag explosion.
6. When the milk mixture has reached the desired ice cream consistency, carefully remove the inner bag and dispose of the outer bag containing the salt mixture.
7. Wipe the outside of the inner bag with a damp cloth or paper towel to remove excess salt water, especially near the top to avoid getting salt in the ice cream. Students may wish to roll the top of the bag down to create a little bowl. This ice cream is best eaten right away but can be stored in the freezer. Sprinkles are provided for extra fun. Enjoy!



Tip: We recommend an assembly-line approach to distributing materials and ingredients.



The ice and salt mixture in the outer bag will have melted significantly and may be quite messy. It is best to either collect the bags in a large bucket for draining or resealing the bags and disposing right away.