

Ice Cream Extravaganza

Experiment with different types of milk in this ultimate ice cream taste test!

Collect

- 4 quart-sized, zip-top freezer bags
- 4 gallon-sized, zip-top freezer bags
- Sugar
- Vanilla
- 1 cup of each of the following:
 - Heavy cream
 - Whole milk
 - Skim milk
 - A dairy-free milk such as almond, soy, coconut, or hemp
- Rock salt or kosher salt
- Ice
- 4 small bowls
- Spoons
- Three friends to help shake and taste test!



Prepare your mixtures

1. Label one quart-sized bag "Heavy Cream."
2. Pour in the cup of heavy cream, 1/4 sugar, and 1/4 teaspoon of vanilla. Gently mix the ingredients together.
3. Carefully press any extra air out of the bag and make sure it is securely sealed.
4. Repeat steps 1-3 with the remaining milk types, labeling each bag with the type of milk used.

Shake it up

5. Open the gallon-sized bags and fill them about halfway with ice.
6. Add 6 tablespoons of salt to each bag of ice.
7. Put one bag of ice cream mixture inside each gallon bag of ice and salt.
8. Make sure that each gallon bag is securely sealed. Give one bag to each of your friends. Hold the gallon bag by the top and shake vigorously for 5-10 minutes, or until the liquid inside has frozen.

Taste and compare

9. Once the mixtures are frozen, open the gallon bags and remove the quart bags.
10. Open each smaller bag and scoop out the ice cream into four small bowls.
Hint: Leave the empty bag in front of the bowls so that you can remember which ice cream, is which!
11. Sample each ice cream!

12. While you're enjoying your tasty treats, make some observations. Which one tastes creamier? Are some softer than others? Did some take longer to freeze than others?

What's happening?

Emulsions are formed when things that don't usually mix are blended together—mostly water-in-oil or oil-in-water. Mayonnaise, butter, and vinaigrettes are some types of emulsions that you might find in your fridge right now! Milk is an emulsion where the fat molecules are suspended in water. Ice creams that contain a higher fat content often taste richer and creamier. In this experiment, each mixture contained a different amount of fat. The heavy cream contained the most, and the dairy-free may not have contained much at all! Which one was your favorite?

Take it further!

Now that you know the basic process, play around with the recipes and make them your own. Try substituting the plain sugar for other types of sweeteners like brown sugar, agave nectar, or honey. You can also try adding different flavor extracts such as almond, orange, banana, or peppermint.

Want to try another experiment? Pick one recipe and see if the amount of time it takes for your ice cream to freeze affects the texture. Place one batch in the refrigerator for a few hours before shaking. Compare the texture to a batch shaken at room temperature. Faster freezing times usually result in smaller ice crystals, which make for smoother ice cream.

