

The Science Behind Making Butter

Milk is made up of fats and proteins which are suspended in a liquid. Scientifically, this is known as a colloid or an emulsion. If the milk is allowed to sit for a while, the tiny fat particles float to the top, creating a layer of cream which can be scraped off.

The fat particles or globules in the cream are held together by a skin. When the cream is shaken, the fat globules start to clump together, trapping tiny air bubbles in between them. This results in a light and air-filled mixture known as whipped cream.

If the mixture is shaken even more, these air bubbles burst and the skin around the fat globules bursts, causing the fat particles to spill out. Continued shaking causes the newly freed fat particles to join together, forming a solid fat mixture. This is the butter, which has been separated from the liquid in the cream. The liquid is known as buttermilk and is great for making pancakes and bread more fluffy. Perhaps you could google some buttermilk recipes to use your buttermilk in?

Explore Further

- Does the experiment change if the starting temperature of the cream is different? Try very cold cream or cream that is at room temperature.
- What happens if you place a clean, glass marble in the jar to make the butter? Does the butter form more quickly or more slowly? Why do you think that is?
- Place the butter in iced water and squeeze out any remaining buttermilk. This should look like the butter you find in the supermarket, but without any additives it will not taste the same. What flavourings could you add to your butter to make it even more delicious?

Watch Dr Michelle Dickinson get creamy about coagulation making butter and instant ice cream!

[Making Butter and Instant Ice Cream](#)