



# Butter in a Jar



**Purpose:** Students will learn how to make butter using the states of matter.

## Background:

Since the beginning of civilizations, dairy animals have provided humans with a nutritional product called milk. Dairy animals could be cattle, goats, camels, llamas, sheep, yaks, water buffalo and other mammals. This is still true today. As time passed, the fluid milk dairy cows produced began to take new forms. These new forms were called dairy products. Along with milk, dairy products have played an important role in the history of America since 1611, when the first cows were brought to Jamestown, Virginia.

As technology improved, doctors began to realize how important dairy products were in the human diet. They found it contained calcium, a mineral that builds strong bones and teeth. They also discovered it could help prevent osteoporosis, a serious health problem that affects the bones of older women.

Today, many dairy products are available. Visiting a local grocery store will present one with the many choices that are available for consumers to meet their daily requirement of dairy products.

## Butter Facts:

- It takes 21 pints of milk to make 1 pound of butter.
- Butter is a source of vitamin A, great for the hair, eyes, and skin.
- The color of butter depends on the cow's diet. The more hay and grass it eats, the more yellow the butter.
- One tablespoon of butter has about 12 grams of fat.
- Butter does not have to be kept in the refrigerator. It can be left on the counter at room temperature.
- Butter is about 80% fat. The rest is mostly water.

**Materials:** 8-ounce glass or plastic container with a lid, 4 ounces of high fat heavy whipping cream, liquid measuring cups, salted crackers, butter knife, optional: a pinch of salt

Suggestion 1: Have students in groups of 3-4 to make a jar of butter.

Suggestion 2: Play music to make the activity more fun.

## Activity:

1. Fill the container halfway with **liquid** heavy whipping cream. Option: add a pinch of salt
2. Place the lid tightly on the container.
3. Shake the jar vigorously making sure the **liquid** hits the lid each time. Pass the jar after 30-60 seconds to the next student. Note: Depending on the type of whipping cream, fat content and/or shaking strength, making butter should take about 4-10 minutes.
4. When sloshing stops, open the jar and take a look. You made **liquid** whip cream.
5. Keep shaking until a clump forms. You made **solid** butter. Pour off the **liquid** buttermilk.
6. Use a knife to spread the **solid** butter onto crackers and serve.