



# LET'S MAKE COTTAGE CHEESE

## **Overview**

This lesson is designed to help students understand how cottage cheese is made. Students will learn how this food came to be, the ingredients of this food and the process the ingredients go through to get to a final product.

## **Objective**

1. Students will watch the action of a catalyst (rennet) on milk during the cheese-making process.

## **Background Information**

Cottage cheese is a fresh cheese with a mild, slightly acidic flavor and small curds. Cottage cheese is part of the family of fresh cheeses that are rindless and not intended to be ripened or aged in order to develop flavor.

Cottage cheese is thought to be the first cheese made in America. For centuries, farmers in Europe made fresh farmhouse cheeses with naturally soured milk, after separating the curds from the whey. Immigrants to America brought the tradition of fresh cheese-making with them and by the mid-1800s the term cottage cheese entered the American vocabulary. Cottage cheese is sold both plain and with added flavorings such as fruit and herbs.

Cottage cheese is made by adding an acid to pasteurized milk which causes a separation of the milk solids from the whey. This can be done by adding a bacterial culture that produces lactic acid or a food-grade acid such as vinegar. After the curd is formed, it is gently cut into pieces that allow additional whey to drain from the curds. The curds are further cooked and pressed gently to expel more whey. The curds are rinsed and salt is added.

Cottage cheese is high in protein and is a good source of riboflavin. Although it contains calcium, much of it is lost in the separation of whey. Some cottage cheese products are fortified with calcium.

**Suggested  
Grade Level:**  
3rd-4th

**Time:**  
45 minutes

**Subjects:**  
Science

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## Vocabulary

**Animal Rennin:** The coagulating enzyme (rennin or chymosin) that is harvested from the stomachs of calves

**Curds:** The thickened or large solid parts that form in soured milk. They are the foundation or beginning of the cheese

**Enzyme:** A catalyst that speeds up the digestive process

**Whey:** The watery part of milk that separates after the milk has soured and thickened, and it is a by-product of the cheese-making process

## Materials

- 1 pint 2% Milk
- Lemon juice or vinegar
- 1 tablet rennet – found in the pudding/pie aisle of grocery store
- Glass measuring cup
- Hot plate
- Thermometer
- Cheesecloth (A coffee filter can substitute)
- Strong rubberband
- Spoon
- Clear gallon jar or Small bowl
- Container
- Small Dixie cups or spoons

### *Optional items*

- Flavorings for cottage cheese: salt, chives, garlic, ranch dressing powder
- Wafer crackers

## Procedures

1. Heat 1 quart of 2% milk in the glass measuring cup on the hot plate. Heat to 32 degrees C (90 degrees F), and then remove milk from the heat.
2. Crush a rennet tablet and dissolve it in 1/3 cup of lukewarm water in the measuring cup.
3. Stir the rennet and water solution into the warmed milk using a spoon. Add lemon juice or vinegar 1 Tablespoon at a time until you clearly see the fat (curd) separating from the whey. Make sure the students look at the changes they can observe before and after adding the vinegar or lemon juice. Do not add more than 3 tablespoons of lemon juice or vinegar.
4. Prepare a large clear container by placing one piece of fine cheesecloth over the container and securing it with a rubberband. The cheesecloth should be shaped like a funnel – not stretched tight.
5. Have an extra person hold the cheesecloth in place. Pour the milk mixture through the cheesecloth. Drain it thoroughly. Hold the cheese in the cheesecloth and rinse with fresh water, several times. Squeeze the cheese curds dry.
6. Place the curds in a bowl and cut them if necessary.
7. Season to taste with salt, dill, chives, garlic, ranch dressing powder, etc.
8. Students can taste the cottage cheese they made by putting cheese in Dixie cups or by spreading it on crackers.

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## Conclusion Questions

1. What is an enzyme?

*A catalyst that speeds up the digestive process.*

2. What is the difference between curds and whey?

*Curds are the thickened or large solid parts that form in soured milk, and they are the foundation or beginning of the cheese. Whey is the watery part of milk that separates after the milk has soured and thickened. It is a by-product of the cheese-making process.*

3. What did the milk look like before the lemon juice or vinegar was added? How about after?

*Before: the milk was a smooth, easy-to-stir liquid. After: the milk curdled and became chunk and thick.*