



# Charming Cheese Cottage Cheese Craze



**Purpose:** Students make fresh cottage cheese and discover the science (changing a liquid to a solid), art, and craft involved in the development of specialty cheese.

**Background:** The United States ranks second in the world for cheese production and produced about 6 million tons of cheese in 2020. In 2021, it was estimated that over 55,000 people were employed in the cheese production industry in the United States. Cheesemaking is a science, an art, and a craft. Science is the tool to transform milk into cheese. Art accounts for the creative skills used in the development of new cheese flavors and varieties. Crafts represent activities requiring skill. Cheesemaking requires many skills.

## Cheese Facts:

- It takes approximately 10 pounds of milk to make 1 pound of cheese.
- The holes found in Swiss cheese are known as "eyes" to a cheese maker.
- Cheddar cheese is not naturally yellow. All cheese is white, like the milk it is made from. Yellow cheeses have had a coloring added to them.
- Mozzarella was once only made with milk from a water buffalo. Today mozzarella is most often made from milk produced by cows.

**Materials:** ½ gallon whole milk, ¼ cup lemon juice or vinegar, ¼ to ½ teaspoon salt, 4-quart saucepan, strainer or colander, mixing bowl, large coffee filters

## Activity:

1. Pour the milk into a saucepan and bring to a bare simmer—just below a boil, around 200 degrees Fahrenheit.
2. Remove the milk from heat and stir in the lemon juice or vinegar. The milk should begin to curdle immediately.
3. Cover the milk and let stand for 10 minutes. This gives time to allow the acid to totally separate the curds and whey.
4. Strain the curds using a colander lined with a coffee filter.
5. After strained, spoon the curds into a container and refrigerate.

## Cheese Making Vocabulary:

**Casein:** A protein that makes up about 80% of milk.

**Cheese:** A food made from pressed curds of milk.

**Coagulate:** To change to a solid or semi-solid state.

**Culture:** Beneficial bacteria in the cheese making process that changes lactose into lactic acid, helps coagulate (set) milk, and helps the whey to drain.

**Curd:** Clumps of casein (coagulated protein) that separates from the liquid when milk coagulates.

**Enzyme:** Protein catalyst, which speeds up a specific chemical reaction.

**Lactose:** A disaccharide sugar present in milk which contains glucose and galactose units.

**Rennet:** A complex set of enzymes produced in the stomach of young ruminant animals.

**Whey:** Liquid that drains from the curd of clotted milk; contains lactose, proteins, water-soluble vitamins, and some minerals.