

# Cottage Cheese-Making

## Food Science

### Materials:

- 1 quart 2% Milk
- lemon juice or vinegar
- wafer Crackers (optional)
- 1 tablet Rennet (found in the pudding/pie aisle)
- Aluminum pan
- Hot Plate
- Thermometer
- Cheese cloth
- Strong Rubberband
- Clear gallon jar or container
- Small bowl
- Small Dixie cups/spoons
- Flavorings for cottage cheese (optional) Garlic, ranch dressing powder

### Background:

This lesson is designed for students to understand the connection between food and themselves. Where does cheese and butter come from? What is the scientific process for creating cheese? A further discussion of jobs linked to agriculture can be a part of this lesson.

**Objective:** Watch the action of a catalyst (rennet) on milk during the cheese making process.

1. Heat 1 quart of 2% milk in a pan on the hot plate. Heat to 32 degrees C (90degrees F). Remove 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 wooden 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 6 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 cheese cloth 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.....salt, dill chives, ranch dressing powder
8. Students can taste by putting cheese in Dixie cups or by putting on crackers.

*adapted from the Illinois mAGic program*

**Time: 45 minutes**

**Grade Level: 3-4**

### Standards:

Standard 1 : Science as Inquiry  
Standard 2: Physical Science  
Standard 7: History of Science

### Vocabulary Terms:

**Whey:** the watery part of milk that separates after the milk has soured and thickened; water by-product of the cheese making process.

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

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

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