

Making Cheese



Overview

Students will explore the cheese-making process and put knowledge into action by making cheese.

Estimated time: 60 – 120 minutes (plus 2 hours waiting for cheese to strain)

Food Costs: Approximately \$10

Learning Outcomes

By the end of the lesson, the students will:

- have an awareness of and familiarity with fresh cheese
- understand how cheese is made (this section is appropriate for grades 4-12)
- be able to make homemade paneer, a fresh cheese

Materials

Equipment

- Stove or portable stove
- Heavy saucepan
- Measuring cups and spoon
- Mixing spoon
- Cheesecloth
- Sieve
- Mixing bowl
- Pot filled with water (optional, if a firmer cheese is desired)

Ingredients

- 625 mL milk
- 15 mL lemon juice or vinegar

Photo credit: Pepper Garlic Kitchen

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Procedure

1. Introduction

- Cheese by definition comes from animal milk. The most common is cow's milk, but it can also be made from goat, sheep and buffalo milk. Explain to students that they will be discovering how to make one example (paneer) of a fresh cheese today. Explore the difference between a fresh cheese and an aged (or ripened) cheese:
 - Fresh cheeses are commonly made at home in many countries. Fresh cheeses include cottage cheese, pot cheese, ricotta (Italy), fromage blanc or fromage frais (France), mizithra (Greece), quark (Germany), paneer (South Asia), and queso blanco (Mexico).
 - Aged (or ripened) cheeses are usually made by skilled cheesemakers and take considerably more time to prepare.
- Support students to discover the key processes and ingredients involved in making cheese (note: describing how cheese is made is appropriate for grades 4-12; omit the following section for younger students)
 - ACIDIFICATION
The first step in cheesemaking is to acidify milk. Acidification occurs by adding lemon juice or vinegar to milk, or by culturing milk with lactic acid-producing bacteria such as those found in buttermilk.
 - COAGULATION
The second step in cheesemaking is to coagulate the acidified milk. Coagulation, or forming the curd, sometimes occurs by heating the milk, but in many cheeses, it requires an enzyme such as rennet.
 - CUT & DRAIN CURDS
The third step in cheesemaking is to cut and drain the curds. Depending on which type of cheese is being made, the curds may also be kneaded, pressed, cooked, or salted.
 - AGING
The fourth and final step in cheesemaking is ripening or aging the curds. This step depends on lactic acid bacteria or other cultures. This step is omitted for fresh cheese.
- Remind students which food group milk and cheese come from (Milk and Alternatives).
- Discuss what your class will do with the paneer. Cut it into cubes and eat it on its own? Make a recipe with paneer as an ingredient?
- Explore what remains after making cheese (the whey). Discuss what you can do with the whey (use it in any way you'd use milk in a recipe, such as in pancakes).
- Discuss whether you'll use the whey or discard it.

2. Make paneer (a fresh cheese)

- Share with the class that today you will be making paneer, a fresh cheese commonly used in India, Nepal, and Iran.
- While many cheeses will melt when cooked, paneer does not.
- Follow the instructions to make paneer, found at the end of this lesson.
- Suggestions to make the session successful:

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- Involve as many student volunteers as possible in the food preparation process.
 - Make sure everyone in the classroom washes their hands well.
3. Set aside the paneer to strain for 1-2 hours. Then, have a class discussion:
- Has anyone ever had paneer before? How was it eaten?
 - Points to consider:
 - Unlike other cheeses, paneer doesn't melt when it's cooked.
 - In Indian cuisine, the unpressed version is used in dessert dishes, while the pressed version is typically fried or grilled and used as an ingredient in many dishes. One popular use is in spinach paneer (palak paneer), in which the paneer is cut into cubes and sautéed with spinach and seasonings.
 - In Persian cuisine, this fresh cheese is sliced and served as a side dish with fresh herbs.
 - What different types of cheeses have students explored?
 - What are students' favourite foods/dishes that include cheese?
4. Tasting and wrap up (If this step is the next day, make sure paneer is refrigerated overnight.)
- Provide all students with an *opportunity* to taste. Tasting is not required! Even if some students don't eat the cheese, being a part of the process is a worthwhile eating exposure.
 - Optional: make a dish with the paneer such as palak paneer. You'll need to double the amounts in the paneer recipe to have enough cheese for the palak paneer. Refer to the last page of this lesson plan for the recipe.
 - Create a mindful eating experience:
 - Encourage all students to be sitting down together before they taste the cheese.
 - Before eating the cheese, ask them to take notice of the colour, the shape, and the aroma before taking a bite.
 - After trying the cheese, ask them to take notice of the flavours, the texture and how it compares to other cheeses they've tried before.
 - Has anyone ever made cheese, yogurt or kefir at home? If not, would you want to try it?

For another time: If you want a bit more of a challenge, try making [ricotta](#) or [fromage blanc](#)!

Paneer

Yield: 250 g

Prep time: 1-2 hours to drain; more for firmer cheese

Cook time: 25 minutes

Ingredients

625 mL milk

15 mL lemon juice or vinegar

Equipment

Stove or portable stove

Heavy saucepan

Measuring cups and spoon

Mixing spoon

Cheesecloth

Sieve

Mixing bowl

Pot filled with water (optional, if desire a firmer cheese)

Here's How

1. Wash your hands.
2. Bring milk to a boil in a heavy saucepan, stirring from time to time.
3. As milk starts to rise in the pot, reduce heat and add lemon juice or vinegar. Stir as if stroking gently. Curd should start to form within 10 seconds of adding the lemon juice or vinegar.
4. Remove from heat and let stand for about 5 minutes.
5. Line a sieve with muslin or several layers of cheesecloth. Strain through the cheesecloth and rinse with cold water.
6. Hang over a large bowl for ½ hour to 1½ hours to drain some more. Cheese will be crumbly at this stage.
7. For firmer cheese that can be sliced, wrap the cheese in muslin/cheese cloth and press it for several hours with a heavy weight such as a pot filled with water. If you're pressing the cheese for longer than two hours, keep it in the fridge to prevent the cheese from spoiling.
8. Enjoy paneer and make something with the leftover whey too (if you wish).

Palak Paneer

Yield: 6 servings

Prep time: 10 minutes

Cook time: 20 - 25 minutes

Ingredients

1 pkg (300 g) frozen spinach, defrosted
1/2 cup (125 mL) plain yogurt
2 Tbsp (30 mL) butter
1 Tbsp (15 mL) vegetable oil
1 medium onion
3 garlic cloves
1 tsp (5 mL) ground coriander
1/2 tsp (2 mL) chili powder
1/2 tsp (2 mL) ground cumin
salt, to taste
12 oz (350 g) paneer, cut into bite-sized pieces (about 2 cups/500 mL)

Equipment

Measuring cups and spoons
Cutting board
Chopping knife
Blender
Whisk
Small bowl
Large skillet with cover
Mixing spoon
Stove or portable stove

Here's How

1. Wash your hands.
2. Purée spinach in the blender. In a separate bowl, whisk yogurt until smooth; set both aside.
3. Peel onion and garlic; finely chop the onion; mince the garlic.
4. In the skillet, heat butter and oil over medium-high heat until butter melts.
5. Add onions and garlic; sauté about 2 minutes or until tender.
6. Stir in coriander, chili powder and cumin; sauté for 30 seconds or until fragrant, stirring well to prevent the spices from burning.
7. Stir in puréed spinach, yogurt and salt; reduce heat to medium-low and cook covered for 8-12 minutes or until it starts to bubble.
8. Stir in paneer; cook covered for 5 to 6 minutes or until it softens and is cooked through.
9. Give a final stir and serve warm.

Palak Paneer recipe adapted from:

<http://www.dairygoodness.ca/recipes/palak-paneer>