The Story of Milk

Science Film Festival — Knowledge Through Entertainment

Food Science **Nutrition**

Science Film Festival Films

nine-and-a-half Reporters:
Cheap Milk – Why Milk is Hardly Worth It

Learning Goals

- To identify where milk that we consume comes from.
- To present the various processes involved in milk production and distribution (farm-to-market).
- To infer what factors affect the price of milk in the market.
- To describe what milk is made of.
- To understand the importance of milk in promoting growth and other body functions.
- To infer that changes in prices can also affect changes in the supply of milk products. the milk consumption pattern, and consequently the nutrition of consumers.

Explanation of Scientific Principles

When the price of milk in the market is low, dairy farmers can barely sustain production. On the other hand, if the supply of milk is low, the price of milk can increase and consumers may not be able to afford it, thereby affecting their pattern of consumption and nutrition.

Many children consume milk on a daily basis. Milk is a rich source of protein, which the body needs to grow and maintain normal cellular and body functions. Milk contains 3.3% total protein. Milk proteins contain all 9 essential amino acids required by humans. More information can be found on **www.milkfacts.info**.

Raw milk from the dairy farm is processed to prolong its shelf life and make sure it is free from microorganisms when consumed. They are processed and packed by the processing plant or milk factory before it is distributed to the supermarkets.

Explanation of Connection to the Film

The activity enables the children to understand the farm-to-glass story of milk, i.e., how the supply chain implicates their nutrition. The film shows where ready-to-drink milk comes from, the process of milk production from the dairy farm to the dairy factory, how much milk we consume, how the oversupply of raw milk from the farm can affect the price at which it is bought by the dairy, how this in turn can have a negative feed-back on milk production, and ultimately on its market price.

To connect the film to its young audience, children are asked to infer on how the price of milk may affect its affordability and availability to the consumers, as well as their nutrition. The module threads the supply chain concept with the nutritional value of milk as a rich source of protein.

To be able to show the various forms of protein in milk, the 'Whey and Curd" activity is introduced. Through the guidance of the facilitators, watching the film and doing the activities can also develop critical thinking skills among the participants by learning how to identify, describe, explain and make inferences regarding milk production, distribution and pricing, and nutrition.

Preparation

1. **Line colander with two layers of paper towel, and set over a medium sized bowl.** (You want a bowl deep enough to contain the liquid, but narrow enough that the colander sits high on top).
2. **Add milk to sauce pan.**
3. **Stir continuously as you heat the milk over low heat, stopping until the milk looks like it's about to start simmering.**
4. **Remove from heat.**
5. **Add salt.**
6. **Add vinegar. Stir gently for five seconds. The milk should separate into lumps of white curds and translucent, slightly yellowish liquid whey.**
7. **Using a slotted spoon or fine sieve, gently transfer curds to the paper-lined colander. Allow to drain until desired texture is reached.**

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Materials

- Flow chart of milk production
- A box of milk
- 2 cups of regular pasteurized whole milk (not UHT)
- 1/4 teaspoon table salt
- 2 table spoons white vinegar
- Paper towels
- Regular kitchen materials, such as saucepan, bowls, measuring jug, measuring spoons, wooden spoon, slotted spoon, colander, fine sieve
- Small hot plate

1

Ask students where they think the milk that they drink comes from.

2

Then show them a carton of milk and ask some students to read the nutritional facts printed in the milk container.

3

Ask them what the information on the label tells them about the nutrients found in the milk product. You will get answers such as calcium, fats, and protein, among others.

4

Focus on protein and make the students recall what protein does to the body.

5

Let the children perform the activity "Whey and Curds".

6

Explain to the students that the curds that they see is the protein in milk, which makes them grow taller and enables their bodies to produce substances necessary for normal function.

7

Let the children infer that they need protein to grow and that milk is a good source of protein.

8

Ask children where they think the milk that they drink comes from. You will get answers like cow, goat, or supermarket.

9

Let the children recall the concepts in the film and let students describe the farm-to-market process and what happens to milk production if the farmers do not get to earn enough from selling unprocessed milk. You will get answers like they may not produce as much milk and that there might be a shortage of milk supply in the market.

10

Ask the children how this situation might affect their nutrition. Let the students infer that the prices of milk affect milk production in a dairy farm and consequently, their nutrition.

- gosciencegirls.com/curds-whey-ricotta-cheese-edible-food-science-kids/
- www.rebellions.info/milk-flow-chart-6915efe36860e83be50a5a/
- www.milkfacts.info
- tinkerlab.com/cool-science-experiments-make-curds-whey/