



Lesson: Pasteurization & Homogenization

Objective: To understand the differences between pasteurization and homogenization and the advantages of both. To learn more about different milk products.

Introduction

Have the class prepare a K-W-L chart about what they Know about the environment on a dairy farm, what they Want to know and for when you return, what they Learned. This can be done as in interactive exercise or have the class prepare individual charts to be shared and completed after the tour.

Some suggested questions to get the conversation going:

Question	Answer
Does anyone know what pasteurization means?	Pasteurization is a process that kills harmful bacteria by heating milk to a specific temperature for a set period of time. First developed by Louis Pasteur in 1864, pasteurization kills harmful organisms responsible for such diseases as listeriosis, typhoid fever, tuberculosis, diphtheria, and brucellosis. Even though your milk has been pasteurized, storing it in the refrigerator is still important.
Does anyone know what homogenization means?	To homogenize is to break up fat molecules in a liquid. This does not have any effect on the safety or nutritional value of the milk.
Why do we pasteurize milk?	To make it safe to drink and to enable us to store it for longer periods of time.
Is it only cows milk that is pasteurized?	No, all animal milk that is sold for human consumption must be pasteurized in order that you can be sure that its safe to drink, or to eat products made from it.
Is all milk homogenized?	At Hatcher Family Dairy products you can expect our whole milk and whole chocolate milk is homogenized.
What other milk products are pasteurized	Cheese, cottage cheese, yogurt, frozen yogurt, pudding
What is raw milk?	Raw milk is milk from cows, sheep, or goats that has not been pasteurized to kill harmful bacteria. This raw, unpasteurized milk can carry dangerous bacteria such as Salmonella, E. coli, and Listeria, which are responsible for causing numerous foodborne illnesses. These harmful bacteria can seriously affect the

	<p>health of anyone who drinks raw milk, or eats foods made from raw milk. The bacteria in raw milk can be especially dangerous to pregnant women, children, the elderly, and people with weakened immune systems.</p> <p>No Hatcher Family Dairy products are made with raw milk.</p>
Are there people who believe that pasteurization may not be good for us?	While pasteurization has helped provide safe, nutrient-rich milk and cheese for over 120 years, some people continue to believe that pasteurization harms milk and that raw milk is a safe healthier alternative.
What are some of the dangers of drinking non-pasteurized milk or milk products?	<p>Some symptoms are vomiting, diarrhea, and abdominal pain, flu-like symptoms such as fever, headache, and body ache</p> <p>While most healthy people will recover from an illness caused by harmful bacteria in raw milk - or in foods made with raw milk - within a short period of time, some can develop symptoms that are chronic, severe, or even life-threatening.</p>
What's OK to eat or drink??	<p>Pasteurized milk or cream; hard cheeses such as Cheddar, and extra hard grating cheeses such as Parmesan, soft cheeses, such as Brie, Camembert, blue-veined cheeses, and Mexican-style soft cheeses such as Queso Fresco, Panela, Asadero, and Queso Blanco made from pasteurized milk. Processed cheeses Cream, cottage, and Ricotta cheese made from pasteurized milk; Yogurt made from pasteurized milk; Pudding made from pasteurized milk; Ice cream or frozen yogurt made from pasteurized milk.</p>
What's not OK to eat or drink?	<p>Unpasteurized milk or cream; soft cheeses, such as Brie and Camembert, and Mexican-style soft cheeses such as Queso Fresco, Panela, Asadero, and Queso Blanco made from unpasteurized milk; Yogurt made from unpasteurized milk; Pudding made from unpasteurized milk; Ice cream or frozen yogurt made from unpasteurized milk</p> <p>Safe milk will have the word "pasteurized" on the label. If the word "pasteurized" does not appear on a product's label, it may contain raw milk.</p>

Vocabulary

whole milk
skim milk
2% milk
chocolate milk
yogurt
ricotta
ice cream
queso blanco

queso fresca
asadero
cottage cheese
buttermilk
half 'n half
table cream
panela
pudding

salmonella
listeria
E coli
Jumpin Jimmy
camembert
brie
gelato

Have students define each word and use each word in a sentence.

Place each word in a hat and ask a student to pull a word out of a hat and use that word in a sentence.

Exercises

1. Have the class draw a picture of the processing plant at the Hatcher Family Dairy Farm.
2. Assign the class different parts of the processing plant to draw and assemble into your own in class processing center.
3. Have the class create a news story about someone who drank unpasteurized milk and what happened to them..
4. Have the class write a report on what kind of milk that they like and why. Create a graph of their preferred milk types.
5. Assign the class to report on what milk products that they have at home in their refrigerator and create a graph of the results.