

THE Mission

Mission Accomplished – a review of the story

Let's make sure we accomplished our mission of discovering how milk is made into Wisconsin cheese. Let's see if we can all do the curd science dance.

Step 1: Milk - action like milking a cow

Step 2: Standardize – swish arms together like a paddle mixing the milk together

Step 3: Coagulate – do a jumping jack motion, start wide and bring hands and feet together

Step 4: Cut – pretend to slice through the curds using your arms

Step 5: Stir, Heat and Drain – stir the curds using both arms to make a stirring motion

Step 6: Transform – pretend to flip the piles of curds

Step 7: Press – use both hands to push down the curds

Step 8: Cure - Pretend to check your watch/clock

Curd Taste Test Activity (optional)

Time for some Wisconsin Cheese!

We are going to now taste test some fresh, Wisconsin cheese curds.

Give each student a napkin and 5 oz. cup with 3-4 cheese curds. Remind the students that we are all going to “take a polite bite” and try the curds together.

Ask the students to observe their curd using their senses...

- Is the curd hard or soft?
- Is it solid or liquid?
- What shape is your curd?
- What does your curd smell like?

Have the students taste their curd. Ask for examples of what the curd sounds like when they bite into it.

As the students enjoy their curds, ask them to recall the steps of the cheesemaking process that had to happen to be able to make a cheese curd.



WisconsinDairy.org



DID YOU KNOW?
There are more than 600 different varieties, types and styles of cheese made in Wisconsin.



Teacher's Guide

curd SCIENCE

The Incredible Journey from Milk to Curd

as told by
Violet Anderson,
Kid Scientist
Extraordinaire



Brought to you by the Dairy Farm Families of Wisconsin

CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD

By Violet Anderson

Lesson Overview

CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD takes children on a journey through the “eyes” of second grader and scientist, Violet Anderson, as she discovers how milk is made into Wisconsin cheese. Students will visually experience the process of turning a liquid, milk, into a solid, Wisconsin cheese. The steps of cheesemaking are brought “under the microscope” for students to learn and understand the important role of science in making cheese and the importance of dairy in building healthy bodies.

Lesson Objectives

Students will be able to:

- Describe how milk from Wisconsin Dairy Farms is made into Wisconsin Cheese.
- Describe milk as a liquid and cheese as a solid.
- Understand how cheese can be eaten as one of three daily servings of dairy.

Materials and Advance Preparation

- Online Book: **CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD** by Violet Anderson
- Review Teacher Guide prior to presenting lesson
- Gallon of milk (prop)
- Food and materials for Curd Tasting
- Lab Coat (optional)
- Suggest teachers show our “We are America’s Dairyland” videos- “Cows Make Milk” and “Care of Cows” prior to reading the book. Videos are located on our website at <https://www.wisconsinmilk.com/Youth-and-Schools/Dairy-Education>

Curd Tasting (optional but recommended)

- For 25 students:
- 2 pounds of fresh Wisconsin cheese curds
- Food service gloves
- 25 5 oz plastic cups
- 25 Napkins

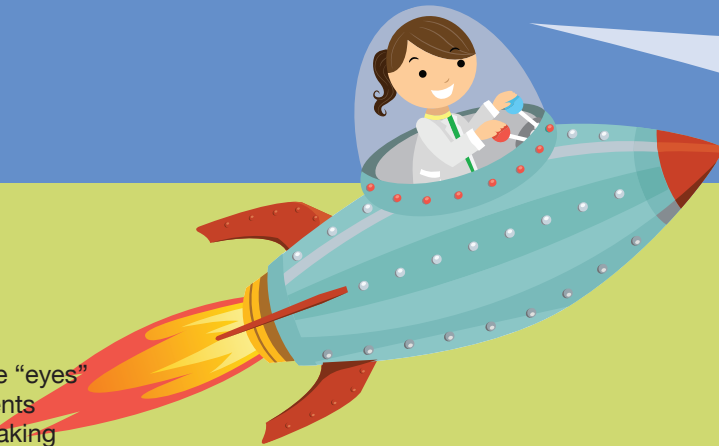
Tips for presenting CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD book

- Read pages 1 & 2 as written.
- Beginning on page 3, the storyline is the text that appears on green. Read the text on the green part of the page first.
- “Did You Know?” highlights “fun facts” of each step in making cheese.
- “Curd’s the Word!” is a special section that gives the definition to highlighted words within the story. Read and discuss “Curd’s the Word!” with students to ensure their understanding.
- “Science Behind the Science” shares more science and technology involved in each step of cheesemaking.
- “Cheesemaking Dance” is a special series of 8 dance moves to be taught after you read each step of cheesemaking in the book.

Lesson Presentation**CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD**

Show the students a gallon of milk. Ask them to answer the following:

- What is in this container? (Milk)
- What animal does most milk come from? (Dairy Cow)
- Is milk a solid or a liquid (Liquid)
- What other kinds of foods, called dairy foods, can we make from milk? (Milk, chocolate milk, cheese, yogurt, butter, sour cream, etc.)
- Are most dairy foods solid or liquid? (Solid)
- How many servings of dairy do we need every day? (3)
- Why are dairy foods (milk, yogurt and cheese) healthy for our bodies? (Calcium - strong bones, strong teeth; Protein – strong muscles)
- How could we make all of the liquid milk in this gallon of milk fit into the palm of our hands? (Make it into cheese)

**Did You Know?**

In five minutes, one cow can give about four gallons of milk. That’s enough to supply 64 students with a carton for lunch!



Show the online book cover, **CURD SCIENCE – THE INCREDIBLE JOURNEY FROM MILK TO CURD** by Violet Anderson and share with the students that you are going to read the book about a second grader named Violet who goes on a mission to discover how milk is made into cheese. Explain that Violet is a “kid- scientist” and that today we will need to be scientists to discover exactly how we can make all of the milk in this gallon turn into cheese. (Put on lab coat while explaining – optional)

Today, a fellow scientist, Violet, is going to help us learn how to make Wisconsin cheese. Violet is just like you...she is a Wisconsin 2nd grader who wants to learn how all of the milk from Wisconsin dairy cows is made into real Wisconsin Cheese.

- We have been given a special mission – discover how milk is made into cheese. We are going to “jump” into the story with Violet. As we learn about each step of cheesemaking, we are going to learn a dance move to help us remember how we make real Wisconsin cheese.
- If you accept this challenge we need to say “More cheese, please” on the count of three ...1...2...3...“More cheese, please!”

Read the book following the Tips above.

Milk – Step 1

Curd’s the Word: Capacity means the amount something can hold; volume

Share an example of “capacity” - show the gallon of milk and share with the students that the capacity of the jug is one gallon of milk.

Cheesemaking Dance Step 1: Milk – move hands up and down like you are milking a cow

Standardize – Step 2

Curd’s the Word: Standardize is to make something all the same.

Give a personal example, such as making instant pudding using milk and pudding mix...we mix it until the pudding looks the same, not chunky or too liquid.

Cheesemaking Dance Step 2: Standardize – swish arms together like a paddle mixing the milk together

Coagulate – Step 3

Curd’s the Word: Coagulate means to change a liquid into a solid.

Give an example such as when a scrape on your skin bleeds, but you get a scab.

Cheesemaking Dance Step 3: Coagulate – do a jumping jack motion, start wide and bring hands and feet together

Cut – Step 4

Curd’s the Word: Whey is the watery part of milk that separates from the solid curds during the cheesemaking process.

Give an example such as the liquid in cottage cheese is whey.

Cheesemaking Dance Step 4: Cut – pretend to slice through the curds using your arms

Stir, Heat & Drain – Step 5

Cheesemaking Dance Step 5: Stir, Heat and Drain – stir the curds using both arms to make a stirring motion

Transform – Step 6

Curd’s the Word: Cheddaring is the flipping and turning of the heaps of curds to squeeze out remaining whey.

Cheesemaking Dance Step 6: Transform – pretend to flip the piles of curds

Press – Step 7

Cheesemaking Dance Step 7: Press - use both hands to push down the curds

Cure – Step 8

Curd’s the Word: Cure is the method by which cheese is aged or treated to give it a certain flavor.

Cheesemaking Dance Step 8: Cure- pretend to check your watch/clock