



Lessons presented by
Oklahoma State University
 Ferguson Family Dairy Visitor Center
 With Southwest-Southland Dairy Farmers

Instructor	Jaycie Heath
Grade Level	3-5
Lesson Title	Dairy Facts (Scheduled In Person)

TEACHER PREPARATION

Learning Goals & Standards/Performance Indicators	
Learning Goals	Standards
1. Upon completion of this lesson students will be able to understand what makes dairies in Oklahoma unique.	1. <u>SS: 3.4</u> The student will identify and describe basic economic activities creating prosperity in the state of Oklahoma. 2. <u>SS: 3.4.3</u> Examine how the development of Oklahoma’s major economic activities have contributed to the growth of the state, including, mining and energy industry, agriculture, aviation, tourism, tribal enterprises, and military installations. 3. <u>WG.5</u> The student will analyze agricultural and commercial land use
Resources and Materials	
<input type="checkbox"/> Southwest- southland dairy farmers <i>Milk. From Cows to Kids</i> <input type="checkbox"/> Sunup TV: Dairy Cattle in SW Oklahoma? You Better Believe It 5/7/16 <input type="checkbox"/> Sunup TV: Technology enhancements in the dairy industry 9/15/18 <input type="checkbox"/> Sunup TV: Beef milk vs. dairy cow milk 12/8/18 <input type="checkbox"/> National Ag in the Classroom: It's a MOO-stery! <input type="checkbox"/> Oklahoma Ag in the Classroom: Dairy Facts <input type="checkbox"/> USDA Agricultural Census 2017 <input type="checkbox"/> Visuals in the center <input type="checkbox"/> Student tour guides	
Announcement and Other Preliminaries	
1. Welcome students to the Ferguson Family Dairy, introduce self and what you do for the dairy, etc.	

LESSON DELIVERY

Anticipatory Set

- Can you imagine what it would be like if you lived before people had cars, machines, and grocery stores? How do you think those people got their food?
 - Well early people learned how to work *with* the animals; people made sure the animals were healthy and had plenty of food, and the animals helped people perform tasks. This is what we call domestication.
 - “Early cattle served a triple purpose for the humans who raised them. They provided meat, milk, and labor. Cattle are no longer used as beasts of burden,

but they still provide us with meat and dairy products.” (Oklahoma Ag in the Classroom: Dairy Facts)

- As time went on people learned that some cattle were better at making milk and others were better at making meat, much like you might be better at math and someone else might be better at science. Early people saw this as an opportunity to specialize cattle in one area or another, so they began breeding them to be better at producing milk or better at producing meat. This made two very different kinds of cattle: dairy cattle, those that produce milk for us, and beef cattle, those that produce meat for us.
- Today we are going to learn all about dairy cattle and dairy farms here in Oklahoma, and why they are so important to us.

Direct Instruction

1st Learning Goal: Upon completion of this lesson students will be able to understand what makes dairies in Oklahoma unique. (info from Oklahoma Ag in the Classroom, National Ag in the Classroom, and Sunup Tv)

Content Outline	Instructional Strategies
<p><u>Dairy Favorites</u></p> <ul style="list-style-type: none"> ● Can you think of some of your favorite things that come from dairy? (ex. Ice cream, cheese, milk) <ul style="list-style-type: none"> ○ Immigrants arriving at Ellis Island were served vanilla ice cream as part of their "Welcome to America" meal. (OAC) ○ The first ice cream parlor in America opened in New York City in 1777. Before the invention of the milking machine, cows were milked by hand in the same stalls where they ate and slept. By the early 1930s dairymen began to set up special rooms just for milking (OAC) ○ The first commercial ice cream plant was established in 1851 by Jacob Fussell.(OAC) ○ The ice cream cone made its debut at the 1904 World's Fair in St. Louis. (OAC) ○ It takes about 12 pounds of milk to make one gallon of ice cream. ○ Vanilla is America's favorite ice cream flavor (NAC) ○ Milk was named Oklahoma's official 	<ul style="list-style-type: none"> ● This lesson should rely on student responses to guide fact presentation. ● A lot of back-and-forth questioning. ● Some potential questions have been provided.

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state beverage on November 2, 2002 (OAC)

- It takes about 23 pounds of milk to make one pound of butter. (OAC)
- Factories produce cheese in 500-pound blocks. (OAC)
- All cheese is naturally white. Yellow cheeses are yellow because color is added to them. (OAC)

Milk- what is it?

- Did anyone have milk with your breakfast?
 - Milk comes from a cow's udder. It is produced after the cow gives birth to her first calf (OAC)
 - We get meat from beef cows and milk products from dairy cows. Although females from all cattle breeds produce milk and meat, some cattle are better at giving milk, and some are better at providing meat. (OAC)
 - Milk is 87% water, 3.4% fat, 3.4% protein, and 4.8% lactose, which makes it more nutritionally diverse than water (Sunup tv)
 - A protein in milk called casein is used to make white school glue (OAC)
 - One quart of milk weighs 2.15 pounds. (OAC)
 - The cow that produces the most milk is the Holstein. (OAC)

Modernization

- Did you all know that there weren't cellphones that long ago? Things are constantly changing so we get cooler technology all the time, and the same has happened for dairies.
 - In the past, a person could take up to 1 hour to milk 6 cows by hand. Today, a person can milk 100 or more cows per

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hour using modern machines and technology. (NAC)

- The invention of the milking machine made it possible for the dairy operator to milk quickly and to keep everything cleaner than ever before. Not only was this more sanitary, it also cut down on the dairy operator's work. (OAC)
- In 1856, Dr. Louis Pasteur discovered that heat killed bad germs. Today we use this process, called pasteurization, to make milk safe to drink. (OAC)
- Cows produce twice the amount of milk today than they did during the 1960s. (OAC)
- Today's dairy farms use 10 percent of the land, 23 percent of the feed and 35 percent of the water that was required to produce the same amount of milk in 1944. (Animal Agriculture Alliance). (OAC)
- Before modern milk delivery, when people traveled and wanted milk, they had to take their cows with them. (NAC)

Dairy Cows

- Show students to viewing window for this one and ask them what they see.
 - As of 2017, there were over 400 Dairy farms in the state of Oklahoma (USDA)
 - As of 2017, there were around 93,000 total dairy cows and heifers in Oklahoma (USDA)
 - Oklahoma dairy cows produce 1.3 billion pounds of milk annually. The average Oklahoma herd produces nearly 3 million pounds of milk per year. (OAC)
 - Some common dairy cattle have markings that make them easy to

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recognize. Holstein cattle are probably the easiest to recognize because they are white with black spots. But dairy cattle, like beef cattle, come in many different colors. (OAC)

- Each day a cow spends six hours eating and eight hours chewing its cud. (OAC)
- The average dairy cow consumes 300 pounds of water each day. (OAC)
- Dairy cows produce, on average, 6-8 gallons of milk per day while the average beef cow can only produce 2-4 gallons a day while nursing a calf. (OAC)

Dairy Farmers

- Do you know who takes care of the cows here and how much work it takes to take care of a cow?
 - On the dairy farm, the farmer's workday begins and ends with milking. (OAC)
 - One of the dairy operator's most important jobs is keeping everything very clean. That is the only way to make sure bacteria doesn't get into the milk and cause it to spoil. (OAC)
 - The U.S. dairy industry conducts more than 3.5 million tests each year to certify the milk we drink is safe and wholesome (NAC)

Learning Activity

- Provide the students with coloring sheets that depict the facts and have fill in the blank style captions.

Closure

Closing Announcements/Reminders

- Answer any questions they may have
- Show them the robot and viewing windows one more time
- Thank students for coming to the Ferguson Family Dairy