



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

<b>Instructor</b>	Jaycie Heath
<b>Grade Level</b>	Pre-K
<b>Lesson Title</b>	Life Cycle of Dairy Cattle (In Person)

### TEACHER PREPARATION

Learning Goals & Standards/Performance Indicators	
Learning Goals	Standards
1. Upon completion of this lesson students will be able to identify key terms and parts of the life cycle of dairy cattle. <ol style="list-style-type: none"> <li>1. Critical Vocabulary:               <ol style="list-style-type: none"> <li>a. Calf</li> <li>b. Cow</li> <li>c. Newborn</li> <li>d. Heifer</li> <li>e. Yearling</li> <li>f. Mature</li> <li>g. Holstein</li> <li>h. Jersey</li> <li>i. Weaning</li> <li>j. Peak Lactation</li> <li>k. Dry Cow</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. <u>PK.1.R.1</u> Students will actively listen and speak using agreed-upon rules with guidance and support</li> <li>2. <u>PK.1.R.2</u> Students will begin to ask and answer questions about information presented orally or through text or other media with guidance and support</li> <li>3. <u>PK.4.R.1</u> Students will acquire new academic, content-specific, grade-level vocabulary and relate new words to prior knowledge with guidance and support.</li> <li>4. <u>PK.6.R</u> Students will begin to identify pictures, charts, grade-appropriate texts, or people as sources of information on a topic of interest</li> <li>5. <u>PK.S.3</u> Notice and describe similarities and differences among plants, animals, and objects</li> <li>6. <u>PK.S.6</u> Engage in investigations based on curiosity and wondering about the physical and natural world</li> </ol>
Resources and Materials	
<input type="checkbox"/> <a href="#">VT Life Cycle</a> <input type="checkbox"/> Southwest- southland dairy farmers <i>Milk. From Cows to Kids</i> <input type="checkbox"/> <a href="#">NC State Feeding Dairy Heifers</a> <input type="checkbox"/> <a href="#">EPA Lifecycle Production Phases</a> <input type="checkbox"/> <a href="#">US Jersey A Quality Heifer</a> <input type="checkbox"/> <a href="#">PSU Dairy Heifer Growth</a> <input type="checkbox"/> Visuals in the center <input type="checkbox"/> Student tour guides	
Announcement and Other Preliminaries	
<ol style="list-style-type: none"> <li>1. Welcome students to the Ferguson Family Dairy, introduce self and what you do for the dairy, etc.</li> </ol>	

### LESSON DELIVERY

#### Anticipatory Set

- How do people grow? - Life stages of people, as a basis for comparison
  - Provide students with images of people at various life stages to equate to various life stages of cattle
    - Infant, child, teenager, adult, elderly
  - As you show images to students, ask what they would call a person at that age (ex. Baby, kid, grown up, grandma, etc.)
  - Use questioning and sharing to discuss how different people at different life stages can perform different tasks.
  - Explain that the same is true in the cows that give us milk; they are able to do different things at different ages or life stages.
  - Today we are going to learn about what cattle can do at different life stages and learn the words used to describe those stages.

**Direct Instruction**

<p><b>1<sup>st</sup> Learning Goal:</b> Upon completion of this lesson students will be able to identify key parts of the life cycle of dairy cattle. (info from VT Life Cycle and NC State Feeding Dairy Heifers)</p>	
Content Outline	Instructional Strategies
<p><b><u>Newborn calf</u></b></p> <ul style="list-style-type: none"> <li>• A calf is a young cow or bull</li> <li>• “The average Holstein calf weighs from 90 to 100 pounds at birth.” (VT)</li> <li>• “Jersey calves average 60 pounds at birth, with a range in birth weight from 42 to 72 pounds” (US Jersey)</li> <li>• Young dairy calves are raised by the farmer to protect the calf from getting sick or hurt like they could if they were with older cows. Calves live in separate little houses called calf hutches- these are like bedrooms for the calves. Each calf hutch has a nice warm place for the calf to sleep and a door on the front for them to go outside when they want to.</li> <li>• Calves spend around the first two months of their lives in calf hutches.</li> <li>• The farmer feeds the calves milk replacer (like formula for calves) with a bottle or bucket 1-3 times a day, this means someone who works on the farm will see the calves multiple times a day. This helps make sure all the calves are healthy.</li> <li>• Before the calves are moved into group housing, they will get shots and have their horns removed. This is done to protect the calf from getting sick or hurt, and to help</li> </ul>	<ul style="list-style-type: none"> <li>• Would love to have a visual showing the size differences of each age group, I think it's hard for people to get a grasp on how much cattle grow in their first year</li> <li>• Perhaps show prerecorded video (or live feed if we can get that?) of the calves at the dairy, would like them to see calves being bottle fed, what a calf hutch looks like, etc.</li> <li>• Mature Cow- show students to the viewing window and point out the two breeds in the free stall barn before discussing more about the mature cows</li> <li>•</li> </ul>

**1<sup>st</sup> Learning Goal:** Upon completion of this lesson students will be able to identify key parts of the life cycle of dairy cattle.

(info from VT Life Cycle and NC State Feeding Dairy Heifers)

keep other animals or people safe. The farmer will also make sure each animal is eating solid feed and has learned to drink water from a bucket.

### **6 Mo Heifer**

- A heifer is a young female bovine (cattle) that has not had a calf yet.
- “The six-month-old heifer is usually fed silage, hay, and grain. These heifers may also graze (eat grass) in a pasture. Holstein heifers weigh about 400 pounds at this age.” (VT)
- Jersey heifers at this age weigh between 259 and 321 lbs. (PSU)
- These heifers live in groups of similar ages and/or weights and may spend most of their time in a barn (inside) or in a pasture (outside). You might think of these groups like you think of your classes at school, you are all around the same age, so you are in the same class.

### **Yearling**

- “This heifer is called a yearling because she is over one year old. The Holstein heifer weighs about 700 pounds and still has quite a bit of growing to do before she enters the milking herd in another year.” (VT)
- Yearling Jersey heifers weigh between 471 and 548 lbs. (PSU)
- Yearling heifers, like the 6-month-old heifers, are housed in groups and can be inside or outside at this age. Like the 6-month-olds they are checked on each time they are fed.
- Dairy heifers will be bred as yearlings to allow them to calve (have their baby) around two years old. Like humans, cows are pregnant for about 9 months.

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### 2 yr. old Cow

- A cow is a mature female bovine who has had a calf, the grown-up version of a heifer.
- “This cow is two years old and recently had a calf for the first time. She is now producing milk and will keep on growing for the next few years before she is fully mature. [Holsteins] weigh about 1,200 pounds.” (VT)
- Jersey 2-year-olds generally weigh around 790-893 lbs. (PSU)
- This is the first time the farmer can milk the cows they have been raising for the past two years
- “This adult [Holstein] cow weighs over 1,500 pounds. She is five years old and just had her fourth calf. She can eat over 100 pounds of feed a day and can produce over 12 gallons of milk a day.” (VT)
- “The average mature size for Jerseys is approximately 1,000 pounds.” (US Jersey)
- Mature cows live in large free stall barns in groups of mixed ages (2-5+ year old females). You can think about the free stall barn groups like a school- students who aren’t all the same age are all in the same school. Mature cows are milked at least twice a day. Some of the cows at the Ferguson Family Dairy get the chance to be milked more than twice a day because the robot milker lets them to decide when they want to be milked.

### **Learning Activity**

- Students could be provided with a coloring sheet showing the growth stages of dairy cows

### **Assessment**

- Questioning
  - Instructor could ask questions throughout or at the completion of the lesson like
    - “What do we call a baby cow?” (Calf)
    - “How old are the cows we get milk from?” (2, or more)
    - “What are the breeds of cows we learned about?” (Holstein and Jersey)
    - “What is a heifer?” (A cow that hasn’t had a calf/baby)

## Closure

<b>Closing Announcements/Reminders</b>
<ul style="list-style-type: none"><li>• Answer any questions they may have</li><li>• Show them the robot and viewing windows one more time</li><li>• Thank students for coming to the Ferguson Family Dairy</li></ul>