

Lesson 2: From Cow to Carton

Grade Level: 2nd Grade

Time: 60 minutes (Each center rotation is 10 minutes)

Subjects: ELA, Science

Overview: This lesson is Lesson 2 of 5 in the *Milk Comes From a Cow?* unit of the *Growing Readers* micro-curriculum, based on the book series by Kansas author Dan Yunk. Building on the first read in Lesson 1, students deepen their understanding of the journey of milk from farm to table through a video, hands-on learning centers, scientific investigation, and multiple forms of writing. Students recount key ideas from media, observe and classify dairy products by their observable properties, and apply foundational writing skills, including apostrophes for contractions and possessives and the use of reference materials to check spelling. Through informative, opinion, and explanatory writing, students communicate what they learn while reinforcing the farm-to-table connections introduced in *Celebrate Wheat* and expanded in *Milk Comes From a Cow?*

Skillset: Activating and connecting prior knowledge across units, recounting key ideas from media in an organized way, apostrophe use for contractions and possessives, using reference materials to check spelling, observing and classifying materials by observable properties, opinion writing with reasons and linking words, informative writing with facts and definitions, recalling information from experience and sources to answer a question, collaborative conversation, and Kansas connections through dairy farming.

Kansas Academic Standards

Kansas ELA Standards

SL.2.1 Participate in collaborative conversations with diverse partners about topics and texts with peers and adults in small and larger groups to expand language comprehension.

SL.2.2 Recount or describe key ideas or details from a text read aloud, information presented orally or through media.

W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

W.2.2 Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

W.2.11.c Use an apostrophe to form contractions and frequently-occurring possessives.

W.2.11.e Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

Science Standards

2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

National Agriculture Literacy Outcomes

Plants and Animals for Food, Fiber, and Energy

T2.K-2.b Identify animals involved in agricultural production and their uses (i.e., work, meat, dairy, eggs).

T2.K-2.d Identify examples of food and fiber products that come from plants and animals.

Objectives

Science Objectives

Students will be able to:

- Explain that dairy cows need food and water to produce milk.
- Describe what happens to milk after it leaves the cow using the milking simulation as a model.
- Plan and conduct an observation investigation to describe and classify whole milk, skim milk, and heavy whipping cream by their observable properties.
- Sequence the journey of milk from dairy farm to home and explain each step.

English Language Arts Objectives

Students will be able to:

- Recount key ideas and details from the Journey of Milk video in an organized way.
- Use apostrophes correctly to form contractions and possessives in their writing.
- Consult a dictionary or word reference to check and correct spelling during writing.
- Write an informative paragraph that introduces a dairy topic, uses facts and definitions to develop points, and provides a concluding statement.
- Write an opinion piece that introduces a topic, states an opinion, supplies reasons using linking words, and provides a concluding statement.
- Recall information from center experiences and provided sources to answer a question in writing.
- Participate in collaborative conversations and link their comments to the remarks of others during discussion.

Materials Needed

Whole Class:

- Smartboard or display screen
- Dairy MAX YouTube Video: The Journey of Milk
<https://www.youtube.com/watch?v=nx0KYWxrO1k>
- Chart paper and markers (for writing instruction)
- Beginning dictionaries or classroom word reference materials (one per student or pair)

Center 1 — Milk the Cow:

- Cow cutout (one per center)
- Latex gloves (one per student, filled with real milk and tied at the wrist)
- Bucket (one per center)
- Milk the Cow writing sheet — companion document (one per student)

- Pencils
- Beginning dictionaries or word reference cards

Center 2 — Milk Comparison:

- Whole milk (small clear sample cups, one per student)
- Skim milk (small clear sample cups, one per student)
- Heavy whipping cream (small clear sample cups, one per student)
- Milk Comparison Observation Sheet — companion document (one per student)
- Pencils
- Hand wipes or paper towels
- Beginning dictionaries or word reference cards

Center 3 — Map the Journey:

- Journey of Milk picture cards — pre-cut (one set per student — see companion document)
- Journey of Milk sequence sheet with writing lines — companion document (one per student)
- Cow to Cone writing sheet — companion document (one per student)
- Glue sticks (one per student)
- Pencils and crayons
- Beginning dictionaries or word reference cards

Note: Check for milk allergies before Lesson 2. Students with a milk allergy should observe and describe using visual and tactile senses only at the Milk Comparison center and should not taste. Have an alternative activity ready if needed.

Lesson Procedures

1. Whole Class — Video: The Journey of Milk

- Gather all students together for the whole-class video before centers begin.
- Explain to students: “Before we go to our centers today, we are going to watch a video about the journey milk takes from a dairy farm to our homes. As you watch, pay attention to the key ideas — what happens at each step of the journey. After the video, I am going to ask you to recount those key ideas in order.”
- Play the YouTube video: Dairy MAX: The Journey of Milk
<https://www.youtube.com/watch?v=nx0KYWxrO1k>
- After the video, ask students to recount key ideas:
 - “What were the key steps in the journey of milk? Recount them in order — not just one thing, but the full sequence.”
 - “What was one fact the video gave us about dairy cows or milk production?”
 - “How did what you saw in the video connect to what we read in *Milk Comes From a Cow?*” (Push for organized recounting. Second graders should be able to give at least three steps in sequence, not just a single detail. If responses are vague, prompt: “What happened after that? What came next?”)

2. Apostrophes & Reference Materials

- Explain to students: “At each center today, you are going to write about what you observe, experience, and think. Before we begin, let’s practice two important writing skills that you will use today: apostrophes and using a dictionary to check your spelling.”

- b. Apostrophes for contractions and possessives:
Explain to students: “An apostrophe is a punctuation mark that does two important jobs. First, it helps us make contractions — that is, when we combine two words into one shorter word. Second, it shows that something belongs to someone or something — that is called a possessive. Let’s practice both.”
- c. Model contractions on chart paper:
- “it is → it’s — The apostrophe replaces the letter i. It’s cold outside.”
 - “does not → doesn’t — The apostrophe replaces the letter o. Chocolate milk doesn’t come from brown cows.”
 - “I am → I’m — The apostrophe replaces the letter a. I’m going to milk the cow.”
- d. Model possessives on chart paper:
- “the udder of the cow → the cow’s udder — The apostrophe + s shows the udder belongs to the cow.”
 - “the farm of Farmer George → Farmer George’s farm — The apostrophe + s shows the farm belongs to Farmer George.”
- e. Ask students to generate one contraction and one possessive using dairy vocabulary before writing.
- f. Using reference materials to check spelling:
Explain to students: “Good writers do not just guess at spelling — they check it. At each center today, you have a dictionary or word reference card. When you write a word and you are not sure it is spelled correctly, look it up. Here is how.”
- g. Model using a beginning dictionary:
- “I want to write the word pasteurize. I think it starts with p. I open my dictionary to the p section. I look for pa. I find pasteurize: p-a-s-t-e-u-r-i-z-e. Now I can spell it correctly in my writing.”
- h. Explain to students: “At each center today, if you write a word and are not sure it is right, use your dictionary or word card before moving on. Checking your spelling is part of being a writer.”
3. Center 1 — Milk the Cow. Center setup: Place the cow cutout at the center. Pre-fill latex gloves with real milk and tie them securely at the wrist before the lesson. Set out one glove per student and a shared bucket. Place writing sheets, pencils, and dictionaries at the center.
- a. Explain to students: “At this center, you are going to simulate milking a cow — just like the process we learned about in our book and video. This glove is a model used to help us understand the milking process. It is not exactly how cows are milked, but it helps us see how milk is collected. The glove represents your cow’s udder. Squeeze the fingers over the bucket one at a time to let the milk out. After you finish milking the cow, you will write about what you did and what you learned. Think about what the udder felt like, where the milk goes after it leaves the cow, and what you know about dairy farming from our book and video. You will use those ideas in your writing”
- b. Students take turns squeezing the glove fingers over the bucket to simulate milking.
- c. While milking, prompt oral language:
- “What does the cow’s udder feel like?”
 - “Where does real milk go after the farmer milks the cow?”

- “What did you learn from the video about what happens to milk after it leaves the cow?”
 - d. Writing component: Explain to students: “Now you will write three to four sentences about milking a cow. Your first sentence introduces the topic. Your middle sentence gives one fact or definition. Your last sentence is your concluding statement. I have provided sentence starters on the center writing sheet to help you get started. Use them to introduce your topic, share one fact or definition, and wrap up with a concluding statement.”
 - e. Sentence starters on the center writing sheet:
 - Dairy cows are _____. (introduce topic)
 - The cow’s udder _____. (fact or definition — possessive practice)
 - Without dairy cows, _____. (concluding statement)
 - f. Remind students to check any unsure spellings in their dictionaries before moving on.
4. Center 2 — Milk Comparison. Center setup: Set out three labeled sample cups at each student spot: Whole Milk, Skim Milk, and Heavy Whipping Cream. Place Milk Comparison Observation and Opinion Sheets, pencils, and dictionaries at the center. Have hand wipes available (Check the allergy list before this center begins. Students with a milk allergy observe using eyes and hands only and do not taste.)
- a. Explain to students: “At this center, you are going to observe three different dairy products, all from a cow. As a scientist, your job is to describe and classify each one by its observable properties. Then you are going to write an opinion about which one you prefer — and back it up with reasons.”
 - b. Science investigation: Guide students through each sample systematically:
 - “Look at each sample. Describe its color. Is it white, off-white, or yellowish?”
 - “Describe the thickness. Is it thin and watery, or thick and heavy?”
 - “Smell each sample if possible. Is there a noticeable difference?”
 - “Taste each sample. Describe the flavor and how it feels in your mouth.”
 Students record observable properties for each sample on their observation sheet.
 - c. Explain to students: “All three samples come from a dairy cow. The difference is the amount of fat — or cream — they contain. Skim milk has very little fat, whole milk has more, and heavy whipping cream has the most. That is why they look, feel, and taste different.”
 - d. Writing component. Explain to students: “Now you are going to write three to four sentences about which dairy sample you liked best. I have provided sentence starters on the center writing sheet to help you get started. Use them to state your opinion, give one reason, and wrap up with a concluding statement.”
 - e. Sentence starters on the center writing sheet:
 - The best sample is _____. (state opinion)
 - I think this because _____. (reason with linking word)
 - For these reasons, _____. (concluding statement)
 - f. Remind students to use an apostrophe somewhere in their writing. “Look for opportunities to use contractions or possessives correctly in your writing (e.g., it’s, cow’s, doesn’t). Check unsure spellings in your dictionary.

5. Center 3 — Map the Journey. Center setup: Place pre-cut picture card sets, sequence sheets with writing lines, glue sticks, pencils, crayons, and dictionaries at the center.
- Explain to students: “At this center, you are going to sequence the journey of milk from farm to home using picture cards, then write an organized response that explains each step of the journey.”
 - Review the picture cards before students begin:
 - Cow (Dairy Farm) — “Where does the milk start?”
 - Milk Truck — “How does the milk travel after the farm?”
 - Processing Plant — “What happens to the milk at the processing plant?”
 - Grocery Store — “Where do consumers go to buy the milk?”
 - Home — “Where does the milk finally arrive?”
 - Students arrange the cards in order, glue them onto the sequence sheet, and color them.
 - Writing component. Explain to students: “Now you are going to write three to four sentences that answer this question: How does milk get from a dairy farm to our homes? I have provided sentence starters on the center writing sheet to help you get started. Use your sequence cards, what you remember from our book, and what you saw in the video to fill them in. Be sure to use a transition word to start.”
 - Sentence starters on the center writing sheet:
 - First, the cow’s _____ produces milk. (possessive practice)
 - Next, _____. (add a step)
 - Finally, _____. (last step or concluding thought)
 - Remind students: use information from both the book and the video. Check unsure spellings in your dictionary.
(W.2.8 is met when students draw on at least two sources — the video and the book. Prompt if needed: “What did the video show that the book also talked about?”)
6. Whole Class Closing Discussion: Gather all students back together after rotations are complete.
- Explain to students: “You visited three centers today and did three very different kinds of writing. Let’s share what we wrote and what we discovered.”
 - Recount key ideas from the video; ask students:
 - “Can someone give me an organized recount of the milk journey from the video — at least three steps in order?”
 - “Did anyone notice a detail in the video that surprised you or added to what you already knew from the book?”
 - Share opinion and informative writing:
 - “Who would like to share their opinion paragraph? What opinion did you state, and what reasons did you give?”
 - Who would like to share their informative paragraph from the Milk the Cow center? What topic did you introduce, and what fact or definition did you include?”
 - “Did your paragraph have a concluding statement? What did you write?”
 - “Who used an apostrophe in their writing today? Share the sentence — was it a contraction or a possessive?”
 - Cross-unit connection:

- “How is the journey of milk similar to the journey of wheat in *Celebrate Wheat*? How is it different? Link your answer to something a classmate said.”
- e. Kansas Connection: Explain to students: “Dairy farms are the starting point of the journey we mapped today. If you live in the country, you may have seen dairy cows in a pasture — that farm is where the journey of your milk begins. If you live in town or the city, you may have only ever seen milk on a grocery store shelf — but now you know the full story behind it. Whether you are closest to the cow or closest to the store, every carton of milk traces back to a farmer who started that journey”
 - f. Ask students:
 - “Do you know anyone who works on a dairy farm or lives near one? If not, do you know someone who works in a grocery store or restaurant where dairy products are sold?”

Assessment: Student understanding is assessed through teacher observation during center rotations and whole-class discussion, as well as through three student writing products: the Milk the Cow informative paragraph, the Milk Comparison opinion paragraph, and the Map the Journey written response. Teacher should note whether students can recount key ideas from the video in an organized, multi-step way, use apostrophes correctly for contractions and possessives, consult a dictionary independently during writing, write an informative paragraph that introduces a topic, uses facts and definitions to develop points, and provides a concluding statement, write an opinion paragraph that introduces a topic, states an opinion, supplies reasons with linking words, and provides a concluding statement, and recall information from the book, video, and center experiences to produce an organized written response. Unprompted connections between the milk journey and the wheat journey from *Celebrate Wheat* indicate meaningful cross-unit learning transfer and should be noted.

Supplemental Activities: Display the completed Map the Journey sequence sheets and written responses alongside the wheat farm-to-table anchor chart from the *Celebrate Wheat* unit. Invite students to compare the two journeys in writing: “Write one sentence that tells how the journey of milk and the journey of wheat are similar, and one sentence that tells how they are different.” This comparison directly supports W.2.8 and gives students practice recalling information from two different sources. Display opinion paragraphs from the Milk Comparison center and invite students to do a gallery walk, noting which linking words their classmates used and whether each paragraph included a concluding statement.

Author: Kelsy Sproul, Literacy Specialist, 2026 KFAC Teacher of the Year, KFAC Curriculum Advisory Council, Former Elementary Teacher. Edited by Marissa Cook, KFAC intern, Kansas State University Secondary Education.

Student Name: _____

From Cow to Carton

Dairy cows are

The cow's udder

Without dairy cows

Student Name: _____

Milk Comparison Observation

Circle your observations for each type.

Whole Milk

Color	White	Cream	Yellow
Thickness	Thin	Medium	Thick
Taste	Plain	Sweet	

Skim Milk

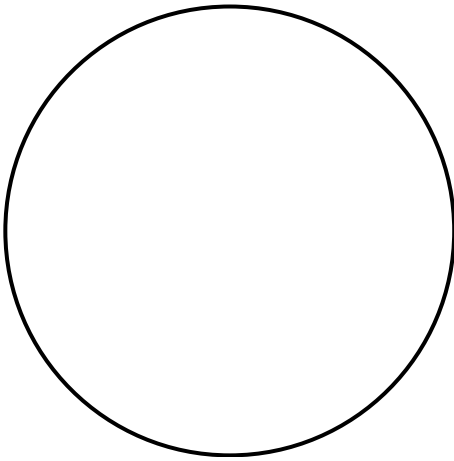
Color	White	Cream	Yellow
Thickness	Thin	Medium	Thick
Taste	Plain	Sweet	

Heavy Whipping Cream

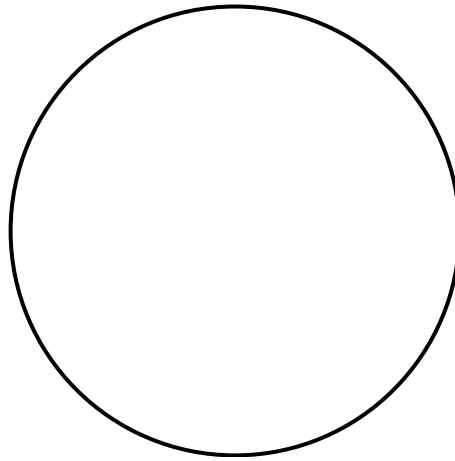
Color	White	Cream	Yellow
Thickness	Thin	Medium	Thick
Taste	Plain	Sweet	

Milk Comparison Observation

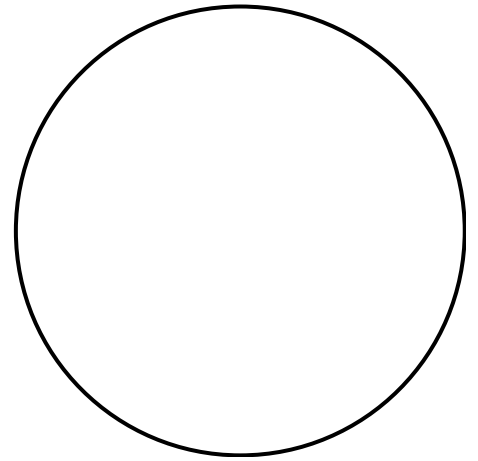
Draw the sample in the correct circle.



Whole Milk



Skim Milk



Heavy Whipping Cream

Complete the sentence frame.

My favorite is because

[illegible]

From Cow to Cone!

Glue the sequence cards into the correct boxes below.

First

second

Third

Fourth

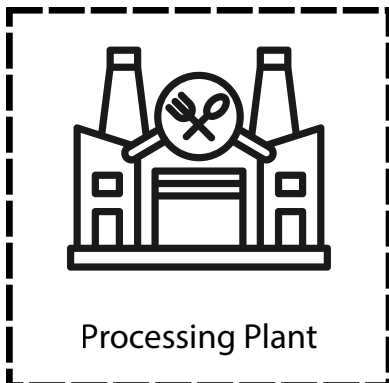
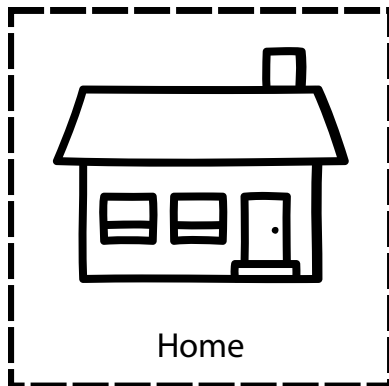
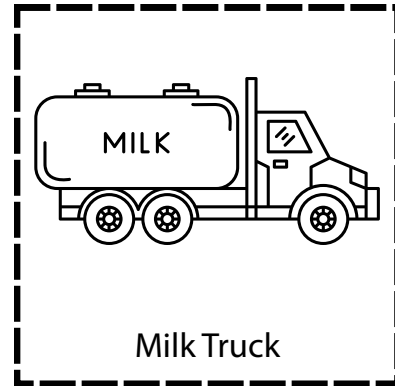
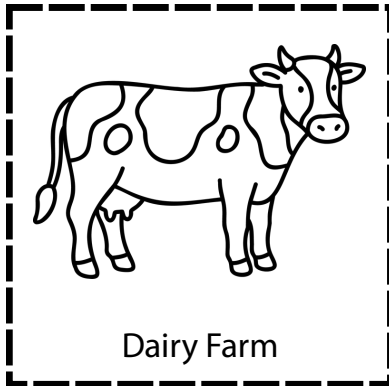
4717

[illegible]

Sequence Cards

Carefully cut out the cards below.

Then, glue them to the Sequence Sheet.



Center 1: Milk the Cow

Dairy cows are

The cow's udder

Without dairy cows,

Center 2: Milk Comparison

The best sample is

I think this because

For these reasons,

Center 3: Cow to Cone

First, the cow's

produces milk. Next,

Finally,