

Title/Author: *From Cow to Ice Cream* by Bertram T. Knight

Suggested Time to Spend: 5 Days (1 week)

Common Core grade-level ELA/Literacy Standards: RI.1.1, RI.1.2, RI.1.3, RI.1.7; W.1.2, W.1.8; SL.1.1, SL.1.2, SL.1.4, SL.1.5, SL.1.6; L.1.1, L.1.2

Lesson Objective:

Using reading, writing, speaking and listening, and language skills, teachers will read the help students understand that words and pictures work together to provide information.

Teacher Instructions

Before the Lesson

1. Read the Big Ideas and Key Understandings and the Synopsis below. **Please do not read this to the students.** This is a description to help you prepare to teach the book and be clear about what you want your children to take away from the work.

Big Ideas/Key Understandings/Focusing Question

Big Idea: Manufacturing in general relies on the specialized work of people to transport and market goods and services.

Focusing Question: How does the manufacturing of *ice cream* rely on the specialized work of multiple people and processes?

Synopsis

The manufacturing process relies on the interdependence of human and natural resources. There is a systematic manufacturing process that includes multiple steps in a sequential order to produce ice cream. The pictures provide

information to allow students to make inferences about who the workers are in the story. The book is written in passive voice, but by using the photographs, students should be able to ascertain who is doing the work in the story.

2. Go to the last page of the lesson and review “What Makes this Read-Aloud Complex.” This was created for you as part of the lesson and will give you guidance about what the lesson writers saw as the sources of complexity or key access points for this book. You will of course evaluate text complexity with your own students in mind, and make adjustments to the lesson pacing and even the suggested activities and questions.
3. Read the entire book, adding your own insights to the understandings identified. Also note the stopping points for the text-inspired questions and activities. *Hint: you may want to copy the questions vocabulary words and activities over onto sticky notes so they can be stuck to the right pages for each day’s questions and vocabulary work.*
4. Consider pairing this series of lessons on *From Cow to Ice Cream* with a text set to increase student knowledge and familiarity with the topic. A custom text set can be found [here](#). *Note: This is particularly supportive of ELL students.*

Note to teachers of English Language Learners (ELLs): Read Aloud Project Lessons are designed for children who cannot read yet for themselves. They are highly interactive and have many scaffolds built into the brief daily lessons to support reading comprehension. Because of this, they are filled with scaffolds that are appropriate for English Language Learners who, by definition, are developing language and learning to read (English). This read aloud text includes complex features which offer many opportunities for learning, but at the same time includes supports and structures to make the text accessible to even the youngest students.

This lesson includes features that align to best practices for supporting English Language Learners. Some of the supports you may see built into this, and /or other Read Aloud Project lessons, assist non-native speakers in the following ways:

- *These lessons include embedded vocabulary scaffolds that help students acquire new vocabulary in the context of reading. They feature multi-modal ways of learning new words, including prompts for where to use visual representations, the inclusion of student-friendly definitions, built-in opportunities to use newly acquired vocabulary through discussion or activities, and featured academic vocabulary for deeper study.*

- *These lessons also include embedded scaffolds to help students make meaning of the text itself. It calls out opportunities for paired or small group discussion, includes recommendations for ways in which visuals, videos, and/or graphic organizers could aid in understanding, provides a mix of questions (both factual and inferential) to guide students gradually toward deeper understanding, and offers recommendations for supplementary texts to build background knowledge supporting the content in the anchor text.*
- *These lessons feature embedded supports to aid students in developing their overall language and communication skills by featuring scaffolds such as sentence frames for discussion and written work (more guidance available here) as well as writing opportunities (and the inclusion of graphic organizers to scaffold the writing process). These supports help students develop and use newly acquired vocabulary and text-based content knowledge.*

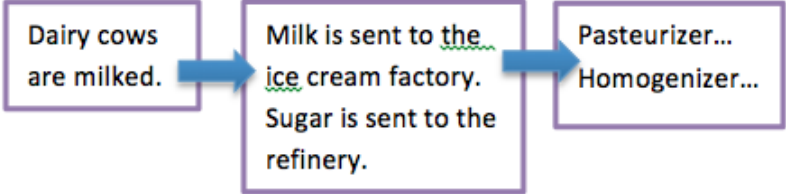
The Lesson – Questions, Activities, and Tasks

Questions/Activities/Vocabulary/Tasks	Expected Outcome or Response (for each)																								
<p>FIRST READING: Read aloud the entire book (or chapter) with minimal interruptions. Stop to provide word meanings or clarify only when you know the majority of your students will be confused.</p>	<p>The goal here is for students to enjoy the book, both writing and pictures, and to experience it as a whole. This will give them some context and sense of completion before they dive into examining the parts of the book more carefully.</p>																								
<p>SECOND READING: Preteach selected vocabulary. See end notes and choose words your students might struggle with to preteach.</p> <p>As you read the selection, fill in a graphic organizer (g.o.) chart to help students categorize words and ideas to make connections between the human and natural resource in the story. (See sample g.o. to the right)</p> <p>Read selected pages to identify the workers and the machines they use in the manufacturing process. Use the questions below to help identify the details and additional information in the</p>	<p>Sample Graphic Organizer</p> <p style="text-align: center;">Focus on Workers and Machines Who or What is Doing the Work?</p> <table border="1" data-bbox="1052 1146 1864 1390"> <thead> <tr> <th>Workers</th> <th>Machines</th> <th>Actions</th> <th>Ingredients</th> </tr> </thead> <tbody> <tr> <td><i>farmer</i></td> <td><i>milking machine</i></td> <td></td> <td></td> </tr> <tr> <td><i>Tractor driver</i></td> <td><i>Tractor</i></td> <td></td> <td></td> </tr> <tr> <td></td> <td><i>Conveyor belt</i></td> <td></td> <td></td> </tr> <tr> <td><i>Truck driver</i></td> <td><i>Truck</i></td> <td></td> <td></td> </tr> <tr> <td><i>Etc...</i></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Workers	Machines	Actions	Ingredients	<i>farmer</i>	<i>milking machine</i>			<i>Tractor driver</i>	<i>Tractor</i>				<i>Conveyor belt</i>			<i>Truck driver</i>	<i>Truck</i>			<i>Etc...</i>			
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<p>pictures.</p> <p>Teacher Questions: (Read selected pages below before asking the noted questions)</p> <p>Pg. 9: What’s going on in this picture? Who is milking the cows? <i>Add information about farmers and milking to g.o.</i></p> <p>Pg. 10 & 11: What’s going on in this picture? Who is driving the tractor? <i>(Give the students word for tractor driver)</i>. On page 11, I see a conveyor belt moving sugar. What else going on in this picture? Who is driving the truck? What is the truck doing? <i>Add information to g.o</i></p> <p>Pg. 14 & 15: What’s going on in this picture? What is the worker doing?</p> <p>Pg. 16 & 17: What’s going on in this picture? Is there evidence that people work with these machines?</p> <p>Pg. 18 & 19: What’s going on in this picture? I see a lot of dials on this machine. Is there evidence that people work with the machine on pg. 19?</p> <p>Pg. 22 & 23: What’s going on in this picture? What do you see that makes you say that?</p> <p>Pg. 24 & 25: What’s going on in this picture? What do you see that makes you say that?</p>	<p>Possible student responses:</p> <p>Pg. 9: I see people milking cows. Farm workers (farmers) are milking the cows.</p> <p>Pg. 10 & 11: A tractor is moving sugar. A worker is driving the tractor. I see a truck. A truck driver is driving the truck. The truck is taking (hauling) sugar away.</p> <p>Pg. 14 & 15: I see a blade. I see a worker with headphones. He is operating the machine.</p> <p>Pg. 16 & 17: There are machines working with the ice cream. There are stairs leading up to each machine.</p> <p>Pg. 18 & 19: The worker mixes in different flavors. Someone has to read the dials on the machine.</p> <p>Pg. 22 & 23: The ice cream is being put into the container. The machines are making ice cream bars.</p> <p>Pg. 24 & 25: Ice cream sandwiches are being made. Ice cream is going into the freezer.</p>

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<p>THIRD READING: (Focus on Actions)</p> <p>Prior to reading, as a whole group use a picture walk to browse the book, and refresh their memories and look for additional detail from the pictures from the first read. We are going to add actions that appear in the photos.</p> <p><i>The questions and responses will be similar to the first read, but the focus for this read will be on recording the actions take by the workers and the machines onto the graphic organizer.</i></p> <p>Teacher Questions: (Read selected pages below before asking the noted questions)</p> <p>Pg. 9: What’s going on in this picture? Who is doing the work? What work is the farmer doing?</p> <p><i>Add information about milking to g.o.</i></p> <p>Pg. 10 & 11: What’s going on in this picture? Who is driving the tractor? What is the action? On page 11, I see a conveyor belt moving sugar. What else going on in this picture?</p> <p><i>Add information to g.o</i></p> <p>Pg. 14 & 15: What’s going on in this picture? What is the machine doing? What is the worker doing and why?</p>	<p>Sample Graphic Organizer: Add the actions</p> <table border="1" data-bbox="1052 472 1892 760"> <thead> <tr> <th>Workers</th> <th>Machines</th> <th>Actions</th> <th>Ingredients</th> </tr> </thead> <tbody> <tr> <td><i>farmer</i></td> <td><i>milking machine</i></td> <td><i>milking cows</i></td> <td></td> </tr> <tr> <td><i>Warehouse worker</i></td> <td><i>Tractor Conveyor belt</i></td> <td><i>Moving sugar</i></td> <td></td> </tr> <tr> <td><i>Truck driver</i></td> <td><i>Truck</i></td> <td><i>Transporting</i></td> <td></td> </tr> <tr> <td><i>Etc.</i></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Pg. 9: I see people milking cows. Farm workers (farmers) are milking the cows.</p> <p>Pg. 10 & 11: A worker is driving the tractor. A truck driver is driving the truck. The Conveyor belt is moving the sugar to the refinery. The truck is taking (hauling) sugar away.</p> <p>Pg. 14 & 15: The blade <i>blends</i> the milk and sugar. The worker is watching the machine to make sure it works properly.</p>	Workers	Machines	Actions	Ingredients	<i>farmer</i>	<i>milking machine</i>	<i>milking cows</i>		<i>Warehouse worker</i>	<i>Tractor Conveyor belt</i>	<i>Moving sugar</i>		<i>Truck driver</i>	<i>Truck</i>	<i>Transporting</i>		<i>Etc.</i>			
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<p>Pg. 16 & 17: What’s going on in this picture? What is the machine doing?</p> <p>Pg. 18 & 19: What’s going on in this picture? I see a lot of dials on this machine. What is the machine doing? What evidence is there that people work with the machine on pg. 19?</p> <p>Pg. 22 & 23: What’s going on in this picture? What is the machine doing? What do you see that makes you say that?</p> <p>Pg. 24 & 25: What’s going on in this picture? What is the machine doing? What do you see that makes you say that?</p>	<p>Pg. 16 & 17: The <i>pasteurizer</i> heats and cools each mix. The homogenizer makes the mix <i>smooth</i> and <i>even</i>.</p> <p>Pg. 18 & 19: The worker mixes in different flavors. He adds flavors. The machine chills the mix and adds bubbles.</p> <p>Pg. 22 & 23: They are packing the ice cream. They are molding the ice cream onto sticks. They are dipping the ice cream into chocolate.</p> <p>Pg. 24 & 25: Ice cream sandwiches are being made. Ice cream is going into the freezer.</p>
<p>FOURTH Read (Focus on ingredients)</p> <p><i>The questions and responses will be similar to the previous reads, but the focus for this read will be on recording the ingredients used in the process.</i></p> <p>Teacher Questions: (Read selected pages below before asking the noted questions)</p> <p>Pg. 9: How do these workers help us produce ice cream? What ingredient do they gather? <i>Add information about milking to g.o.</i></p> <p>Pg. 10 & 11: How do these workers help us produce ice cream? What ingredient do they work with?</p>	<p>Sample Graphic Organizer: focus on ingredients</p> <p>Pg. 9: The workers help us get milk.</p> <p>Pg. 10 & 11: The workers are taking the sugar to the factory.</p>

Questions/Activities/Vocabulary/Tasks	Expected Outcome or Response (for each)
<p>Add information to g.o</p> <p>Pg. 14 & 15: How do these workers help us produce ice cream? What ingredients do they work with?</p> <p>Add information to g.o</p> <p>Pg. 18 & 19: How do these workers help us produce ice cream? What ingredient do they add?</p> <p>Add information to g.o</p> <p>Pg. 20 & 21: How do these workers help us produce ice cream? What ingredient do they add?</p> <p>Add information to g.o</p>	<p>Pg. 14 & 15: The worker operates the machine that <i>blends</i> the milk and sugar. The worker add the flavorings. They help with milk, sugar, and cocoa powder.</p> <p>Pg. 18 & 19: The worker mixes in different flavors. He adds flavors. The flavors are vanilla, chocolate, liquid fruit.</p> <p>Pg. 20 & 21: The workers add ingredients to the ice cream. They add fruit, nuts, chocolate chips, cookies, etc...</p>
<p>Final Read (put it all together) Same day as culminating task.</p> <p>Read aloud the entire book, stopping along the way to complete a sequencing graphic organizer to allow students to identify the process of manufacturing in sequence.</p> <p>This is a time to connect with the focusing questions.</p>	<p>Sequencing Graphic Organizer Map (Below is a sample beginning of the graphic organizer. Continue with listing all steps in the sequence.)</p>  <pre> graph LR A[Dairy cows are milked.] --> B[Milk is sent to the ice cream factory. Sugar is sent to the refinery.] B --> C[Pasteurizer... Homogenizer...] </pre>

FINAL DAY WITH THE BOOK - Culminating Task

Matching Activity: Photocopy images from the book, find images of the ingredients and create cards for a card sort activity. Match up the worker, with the machine, and the ingredient, and label images. After the students match up the workers, machines, and

ingredients, have them sequence them together to retell the manufacturing process of ice cream. *Alternatively, students could create tableaux of each stage of the process, or play charades.

Writing Task: Ice cream making is a complicated process. Ice cream goes through many stages before it reaches the store.

Using words and pictures, write about the process of how workers get the ice cream from the cow to the store. Be sure to include the sequence of events and the types of work that people do. Use your matching activity as a reference tool.

Vocabulary

<p style="text-align: center;">These words merit less time and attention</p> <p style="text-align: center;">(They are concrete and easy to explain, or describe events/ processes/ideas/concepts/experiences that are familiar to your students)</p>	<p style="text-align: center;">These words merit more time and attention</p> <p style="text-align: center;">(They are abstract, have multiple meanings, and/or are a part of a large family of words with related meanings. These words are likely to describe events, ideas, processes or experiences that most of your student will be unfamiliar with)</p>
<p>Pg. 8: <u>dairy</u>: a farm devoted to the production of milk</p> <p>Pg. 9: <u>pasture</u>: large field where animals graze</p> <p>Pg. : <u>machine</u>: a device with moving parts, often powered by electricity; something to help workers do their jobs.</p> <p>Pg. 8: <u>factory</u>: a building where people and machines work together in the manufacturing process.</p> <p>Pg. 8: <u>refinery</u>: <i>use the context from the story.</i></p> <p>Pg. 8: <u>flavorings</u>: something added to food to make it taste a certain way. (such as mint or vanilla)</p> <p>Pg. 8: <u>vat</u>: a large container, or a unit of measurement</p> <p>Pg. 14 <u>blade</u>: mixing part of the tool</p> <p>Pg. 15 <u>powder</u>: a fine, dry materials</p> <p>Pg. 16 <u>pasturizer</u>: <i>use the context from the story.</i></p> <p>Pg. 16 <u>bacteria</u>: tiny organisms, invisible to the eye that can make you sick</p> <p>Pg. 16 <u>germs</u>: tiny organisms, invisible to the eye that can make you sick</p> <p>Pg. 17 <u>homogenizer</u>: <i>use the context from the story.</i></p> <p>Pg. 17 <u>even</u>: having a flat surface</p> <p>Pg. 19 <u>chills</u>: to make something cold</p> <p>Pg. 20 <u>chewiness</u>: easily crushed with teeth</p> <p>Pg. 21 <u>crumbled</u>: to break into small pieces</p> <p>Pg. 21 <u>dough</u>: soft mass of flour</p> <p>Pg. 23 <u>molded</u>: to form into a shape</p> <p>Pg. 23 <u>dipped</u>: to coat with something (such as chocolate)</p>	<p>Pg.13 <u>arrive</u>: get to a place</p> <p>Pg. 11 <u>haul</u>: to transport</p> <p>Pg. 15 <u>divided</u>: separate</p> <p>Pg. 17 <u>settle</u>: to stay</p> <p>Pg. 17 <u>smooth</u>: having a continuous even surface</p> <p>Pg. 18 <u>mix</u> (n.): a combination of ingredients</p> <p>Pg. 20 <u>crunch</u> (n.) : sound of food being crushed by teeth</p> <p>Pg.15 <u>base</u>: the mix of ingredients before adding flavors</p> <p>Pg. 14 <u>basic</u>: the simple form of something</p> <p>Pg. 12 <u>tank</u>: a large container for holding and/or transporting goods</p> <p>Pg. 11 <u>tanker</u>: a vehicle that transports liquids</p> <p>Pg. 28 <u>shipped</u>: something that has been sent somewhere</p> <p>“In go the vanilla, chocolate, and liquid fruit flavorings.” This is a difficult sentence structure for young students. This means to “add” the flavors.</p>

Extension learning activities for this book and other useful resources

- Make ice cream with the students. Provides linguistic support so that students can experience the consistency, textures, and materials for what they are working with. This will be an enhanced vocabulary lesson.
- Explore descriptive words seen in the book. Use page 26 as the model for the lesson. Taste test batches of ice cream to use words such as chocolately, crunch, chewiness, smooth, etc. . . *Note: This is particularly supportive of English Language Learners.*
- Create your own flavor of ice cream. Give it a name, and create a poster. (Advertisement)
- Share the video from the History channel “Hands on History: Making Ice Cream.”
<https://www.history.com/videos/hands-on-history-making-ice-cream>

Note to Teacher

- California Social Studies Standard 1.6: Identify the specialized work that people do to manufacture, transport and market goods and services.

What Makes This Read-Aloud Complex?

1. Quantitative Measure

Go to <http://www.lexile.com/> and enter the title of your read-aloud in the Quick Book Search in the upper right of home page. Most texts will have a Lexile measure in this database.

<p><u>Lexile: 720</u></p> <p><u>Ages 5-11</u></p>

Most of the texts that we read aloud in K-2 should be in the 2-3 or 4-5 band, more complex than the students can read themselves.

2-3 band	420-820L
4-5 band	740-1010L

2. Qualitative Features

Consider the four dimensions of text complexity below. For each dimension*, note specific examples from the text that make it more or less complex.

<p>Slightly Complex</p> <p>Explicitly stated: Step by step process on how ice cream is made. Provides concrete information. “Twice each day, cows come in from the pasture to be milked from machine.”</p> <p style="text-align: right;">Meaning/Purpose</p>	<p>Slightly Complex</p> <p>Sequential: Development of ice cream.</p> <p>Graphics are essential to understanding of vocabulary. Student must infer who the workers are through the use of graphics.</p> <p>Structure</p>
<p>Very Complex.</p> <p style="text-align: right;">Language</p> <p>Heavy Vocabulary: refinery, chewiness, “in goes the flavors.”</p> <p>High academic vocabulary present.</p> <p>Some use of Varied Sentence Structures</p>	<p>Knowledge Demands</p> <p>Very complex</p> <p>Subject matter knowledge: pasteurize, homogenize, bacteria, milking</p>

*For more information on the qualitative dimensions of text complexity, visit http://www.achievethecore.org/content/upload/Companion_to_Qualitative_Scale_Features_Explained.pdf

3. Reader and Task Considerations

What will challenge my students most in this text? What supports can I provide?

The vocabulary will be a challenge. We will support with additional visuals, frontload vocabulary, use cognates for English Learners.

Build background using graphic organizers, color code the text on the g.o.,

How will this text help my students build knowledge about the world?

Make connections to the everyday world. Introduce the manufacturing process and farming. Learn about Farm to Table integrations.

4. Grade level

What grade does this book best belong in?

First Grade

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