

Reading Guide - *Cattle, Corn, and Courage - The Story of Dr. John Matsushima*

Purpose: The purpose of this read-aloud activity is to engage students in a meaningful exploration of the story *Cattle, Corn, and Courage*, fostering literacy skills such as listening comprehension, critical thinking, and theme identification. Students will connect the story's lessons about hard work, problem-solving, respect, and friendship to real-world agriculture, Colorado's history, and the importance of perseverance. By participating in discussions and related activities, students will gain a deeper appreciation for agriculture's role in their lives while practicing key academic standards.

Academic Standard Connections: A read-aloud activity with PreK-5 students using *Cattle, Corn, and Courage* can align with multiple Colorado Academic Standards across various grade levels. Below are the standards that could be met:

Reading, Writing, and Communicating (RWC)

PreK-2: Participate in group reading activities; ask and answer questions about key details; retell familiar stories (RWC 1.2, 2.1).

3-5: Summarize texts; describe characters, settings, and events; compare and contrast story elements (RWC 1.2, 2.1).

Comprehensive Health

PreK-5: Practice hygiene (e.g., handwashing); identify healthy food choices; use communication skills to express ideas and feelings (CH 1.2, 2.1).

Science

PreK-2: Explore objects and properties using the five senses; observe and classify materials (SC 2.1).

3-5: Analyze and interpret data about physical properties; connect agriculture to environmental systems (SC 2.1).

Social Studies

PreK-3: Ask questions about historical events and geographical significance (SS History 1.1, Geography 2.1).

4-5: Analyze historical narratives and locate key agricultural regions in Colorado (SS History 2.1).

Completing the Classroom Reading Experience:

It is recommended that the volunteer/teacher read the book prior to the visit to become familiar with the story.

1. Google Slide presentation.

A Google Slide presentation of all the book pages has been provided to display the pages on a bigger screen (<https://bit.ly/4hrVd5E>) or Literacy Project page on our website (CoAgClassroom.org). Readers may also simply hold up the book to allow students to see the illustrations.



Scan to Access
Educational
Resources

- 2. Introductions.** Guest reader introduces themselves by telling students a little about themselves, their connection to agriculture, and, if they want, sharing any pictures/artifacts of their farm and family.
- 3. Q&A Video with Dr. John Matsushima.** This is a 5-7 minute produced by Western Ag Network designed to introduce students to Dr. Matsushima. The video can be played before or after the book *Cattle, Corn, and Courage* is read to students.
- 4. Worksheets.** Provide each student with a copy of the Active Listening Worksheet and Beef Stick Tasting Experience Worksheet (can be printed back to back)
- 5. Vocabulary.** The vocabulary word list is provided on the Google Slides and in the back of the book. Go through the words and their definitions with students.
- 6. Guided Introduction.** Show the front and back cover of the book to the students. Have an open discussion with students asking these questions:
 - a. Looking at the photos on the front and back cover, what do you predict this story will be about?**
 - b. The title of the book is "Cattle, Corn, and Courage - The Story of Dr. John K. Matsushima." How do you think cattle, corn, and courage are related?**
 - c. What does courage mean to you?**
 - d. Do you know anyone who has cattle?**
 - e. Who will be the main character of this book?**
- 7. Read the book.** As you read, discuss the illustrations of the pages, pointing out significant details that may help students understand the text. Also point out vocabulary words.

Active Listening Worksheet - Provide each student with a copy of the Active Listening Worksheet for them to complete as they listen to the story. For younger students, you could ask the questions out loud to the group as you are reading.

Questions and Answers

1. How did John Matsushima's father (Mr. Kihei Matsushima) and the commission man at the stockyard communicate without speaking the same language?

Answer: They used gestures like pointing, nodding, and shaking their heads to communicate.

Theme: Problem-Solving, Respect

2. Why was Johnny Matsushima's load of cabbages turned away from the dock?

Answer: The load was turned away because some of the cabbages had worms.

Theme: Hard Work, Overcoming Adversity

3. What did Johnny do with the wormy cabbages when he took them back home?

Answer: He fed the wormy cabbages to his father's Hereford cows.

Theme: Problem-Solving, Learning

4. What was Johnny's friend Kenny doing while waiting for his turn in the cattle showring?

Answer: Kenny was sitting in the shade reading a comic book.

Theme: Respect, Friendship

5. Where is the National Western Stock Show located?

Answer: It is located in Denver, Colorado.

Theme: Learning

6. What was older John doing during World War II?

Answer: John was a student at Colorado A&M College, studying and participating on the livestock judging team.

Theme: Hard Work, Overcoming Adversity

7. How were John and others of Japanese descent treated during the war?

Answer: They faced discrimination and were not allowed in some restaurants, markets, and other places because of their race.

Theme: Overcoming Adversity, Courage and Kindness

8. How do you think John felt when people treated him unfairly?

Answer: He probably felt sad, frustrated, and hurt, but he stayed focused on his studies and goals.

Theme: Courage and Kindness, Overcoming Adversity

9. How did John's college friends help him during the war?

Answer: They ate outside with him when he couldn't enter restaurants, brought him groceries, and helped him repair his shoes.

Theme: Friendship, Courage and Kindness, Respect

10. What job did Dr. Matsushima have after finishing college?

Answer: He became a professor and researcher, teaching about feeding and caring for cattle.

Theme: Learning, Hard Work

11. What made Dr. Matsushima think that cows might like a warm breakfast?

Answer: While eating breakfast in a diner, he saw steam rising from his food and thought about how cattle might enjoy warm feed on cold mornings.

Theme: Problem-Solving, Learning

12. What did Dr. Matsushima put in the warm breakfast for the cows?

Answer: He fed them steam-flaked corn, which was easier for the cattle to digest.

Theme: Learning, Problem-Solving

13. What are two unusual tools or machines Dr. Matsushima used to mix cattle feed?

Answer: He used a cement mixer and later a feed delivery truck.

Theme: Learning, Problem-Solving

14. How did Dr. Matsushima organize his students' names and grades?

Answer: He kept a neatly typed list in a leather book with over 10,000 names and grades.

Theme: Hard Work, Respect

- 8. Check for Understanding.** Ask students the following questions:
- What is steam-flaked corn, and why is it better for cattle feed?**
 - Why do you think Dr. Matsushima's friends helped him during the war, even when it was difficult for them?**
 - What does it mean to support agriculture? How can you support agriculture?**
 - What part of the story did you find most interesting or inspiring? Why?**
 - If you could ask Dr. Matsushima one question, what would it be?**
- 9. Beef Sticks Tasting Experience.** Provide each student with a beef stick and a copy of the Beef Sticks Tasting Experience worksheet. Have the students eat the beef stick and complete the worksheet.
- 10. Reflection.** After the book reading and beef sticks tasting, students can complete a reflection activity. One a separate peice of paper, have students write or draw a reflection about "Cattle, Corn, and Courage - The Story of Dr. John Matsushima" using the following prompts:
- What did you learn from this book about Dr. John Matsushima and agriculture?**
 - What personal reactions did you have while hearing the story and learning about Dr. Matsushima's life?**
 - Has your thinking changed about agriculture? How? Why or why not?**
 - How could you share this story with others?**

Name: _____ Date: _____

Cattle, Corn, and Courage - Active Listening Worksheet

As you listen to the reading of Cattle, Corn, and Courage, provide short answers to the questions. Then, decide which theme(s) the question matches and write the theme name(s) on the line. The themes are: **Hard Work, Problem-Solving, Respect, Overcoming Adversity, Courage and Kindness, Learning, and Friendship.**

1. How did John Matsushima's father (Mr. Kihei Matsushima) and the commission man at the stockyard communicate with each other?

Theme: _____

2. Why was Johnny Matsushima's load of cabbages turned away from the dock?

Theme: _____

3. What did Johnny do with the wormy cabbages when he took them back home?

Theme: _____

4. What was Johnny's friend Kenny doing while waiting for his turn in the cattle showring?

Theme: _____

5. Where is the National Western Stock Show located?

Theme: _____

6. What was older John doing during World War II?

Theme: _____

7. How were John and others of Japanese descent treated during the war?

Theme: _____

8. How do you think John felt when people treated him unfairly?

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13. What are two unusual tools or machines Dr. Matsushima used to mix cattle feed?

Theme: _____

Theme: _____

14. How did Dr. Matsushima organize his students' names and grades?

Theme: _____

Name: _____ Date: _____

Beef Sticks Tasting Experience Worksheet

Rules:

1. Wash your hands before handling food, even your own.
2. Wait to sample until everyone is ready.
3. If you don't like it, you will have to explain why.

Questions to answer after tasting:

1. Before today, I have eaten a beef stick before (circle one): Yes No Not Sure

2. I like beef sticks... (circle your choice)



A Lot!



Somewhat



Not Very Much

Explain your choice above:

3. Use your five senses to describe the beef sticks (*younger students can draw arrows or thumbs*):

Color: _____

Texture: _____

Smell: _____

Taste: _____

Sound: _____

4. Would you eat beef sticks again (circle one)? Yes No Maybe

5. What details did you notice on the packaging of the beef stick?

Beef Sticks for Backpacks is a non-profit organization helping feed Colorado kids on the weekends. All beef sticks produced for Beef Sticks for Backpacks are made at Colorado State University by Ram Country Meats. Over 2.5 million sticks have been distributed since 2019.



Japanese Americans in Colorado During WWII

History Colorado Virtual Field Trip



It is through a partnership between Colorado Agriculture in the Classroom and History Colorado that we are proud to provide a video on Japanese Americans in Colorado during WWII. Thank you Rachael Storm, Ph.D., Curator of Business + Industry of History Colorado for creating this video. The video can be accessed on the [CoAITC YouTube Channel \(@coagclassroom\)](#), using this link <https://bit.ly/3CjNbwT>, or scanning this code.



Watch the History Colorado Virtual Field Trip Video. Read each question and on a separate piece of paper answer in complete sentences using details from the video. Review your answers and be ready to discuss with the class.

Think: Why is it important to remember this history?

1. Why did some Japanese Americans have to leave their homes during World War II?
2. What was life like for Japanese Americans living in Amache, the concentration camp in Colorado?
3. How did Japanese Americans try to make life better while living in Amache?
4. What did Governor Ralph Carr do to help Japanese Americans in Colorado? Why was this important?
5. Why is it important to remember places like Amache and the experiences of Japanese Americans during WWII?

JAPANESE RAILROAD WORKERS

c. 1900

Sueji Matsushima (standing on the far right in the photo) -
Dr. John Matsushima's grandfather

Sueji Matsushima was born in Kumamoto Prefecture in southern Japan. He left for America by boat from Yokohama around 1900 at the age of 29, and landed in Vancouver, British Columbia, Canada after being at sea for over a month. From Vancouver, he made his way to settle and western Nebraska to work on the Union Pacific railroad and in the sugar beet fields. During the winter months after the sugar beet harvest, he and his friends traveled to Denver to earn pin money (small amounts of extra money earned through temporary or side jobs) by washing dishes at restaurants and doing laundry work at hotels. He missed the train to return to Nebraska on his second or third trek, and that led him to walk northward from Denver along the Platte River. He met a fur trapper named Albert Leyner who was a farmer that had a homestead. This meeting led to a share crop partnership between Sueji and the farmer, mainly raising sugar beets in Lafayette, CO. Sueji saved enough money to send for his son Kihei (Dr. John Matsushima's father) to join him, and eventually his son Kihei moved to south of Platteville to start a farm and purchased it in 1931.

Courtesy of Matsushima Family



As you watch the History Colorado video on Japanese Americans Living in Colorado during WWII, keep your eyes out for this photo!

Immigration Journey Mapping



Plot Sueji Matsushima's Journey

Step 1. Find Japan on the map

- Locate Kumamoto Prefecture in southern Japan.
- Mark it with a red dot and label it "Sueji's birthplace".

Step 2. Trace his travel route across the ocean

- Draw a line from Kumamoto, Japan, to Yokohama (where he left by boat).
- Continue the line to Vancouver, B.C., Canada (where he landed after over a month at sea).

Step 3. Follow his path into the U.S.

- Draw a line from Vancouver to western Nebraska, where he worked on the Union Pacific Railroad and sugar beet fields.

Step 4. Mark his travels to Colorado

- Draw a line from Nebraska to Denver, Colorado, where he worked in restaurants and hotels during the winter.
- Mark Denver with a yellow dot and label it "Denver – Seasonal Work".

Step 5. Highlight his journey along the Platte River

- When Sueji missed his train, he walked north along the Platte River and met a fur trapper who helped him start farming.
- Draw this final journey in brown, leading to Lafayette, Colorado.
- Mark Lafayette with a star and label it "Farming in Colorado".

Reflect on the Journey

Answer these questions in complete sentences on a separate piece of paper:

1. What challenges do you think Sueji Matsushima faced during his journey?
2. How do you think he felt when he missed his train and had to walk along the Platte River?
3. How did immigration help shape Colorado's agriculture industry?
4. If you moved to a new country today, what three things would you bring with you? Why?

Share & Discuss

- Once you have finished mapping, pair up with a classmate and compare your maps.
- Discuss your answers to the reflection questions with your partner.
- Be ready to share one interesting fact you learned with the class!

Great job! You have mapped an important journey in Colorado history!

Name: _____ Date: _____

Explore and Compare Corn

Objective: Use your senses to observe, compare, and describe the differences between dent corn kernels and steam-flaked corn.

What You'll Need:

- A small sample of dent corn kernels
- A small sample of steam-flaked corn
- Paper towels or a tray to hold the samples
- This worksheet to record your observations

Instructions:

- **Set Up Your Samples**
 - > Place the dent corn kernels on one side of your tray or paper towel.
 - > Place the steam-flaked corn on the other side.

- **Use Your Senses to Compare**

- > **Look:** Observe the shape, size, and color of each type of corn. Write or draw what you see in the observation chart.

- > **Touch:** Feel the texture of each type of corn. Is it smooth, rough, soft, or hard? Record your answers.

- > **Smell:** Carefully smell each type of corn. Do they have a smell? How are they different? Write it down.

- > **Listen:** Gently shake a handful of each type of corn in your hand or a container. What sound does it make? Describe the sound in your chart.

- **Fill Out the Observation Chart**

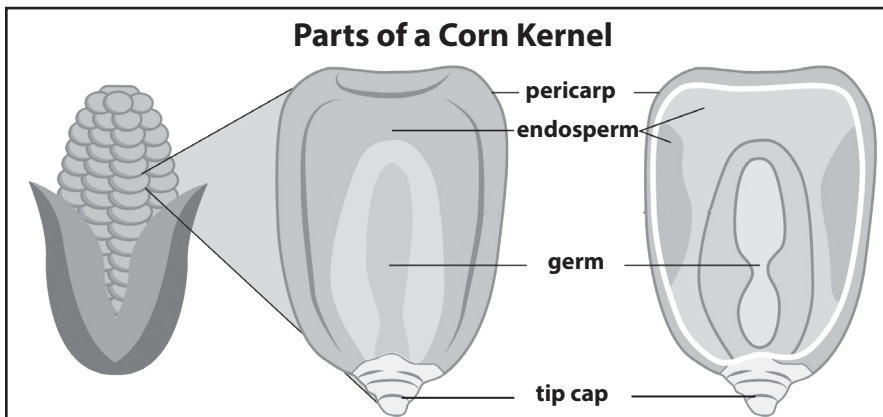
- > Use the chart below to record what you notice about each type of corn. Write words or draw pictures to show what you observe.

Sense	Dent Corn	Steam-Flaked Corn
Look		
Touch		
Smell		
Listen		

Think About It: On a separate piece of paper, answer the following questions after completing your chart.

1. How are the two types of corn the same?
2. How are they different?
3. Why do you think steam-flaked corn looks and feels different than dent corn?
4. Which type of corn might be easier for animals to eat and explain why?

Corn Seed Germination Experiment



The corn seed (kernel) is composed of four main parts: the **endosperm**, the **pericarp**, the **germ**, and the **tip cap**. Each part plays an important role in helping the seed grow. The endosperm makes up most of the dry weight of the kernel and provides the source of energy for the seed. The pericarp is the hard, outer coat that protects the kernel both before and after planting. The germ is the living embryo of the corn kernel. It contains genetic information, vitamins, and minerals that the kernel needs to grow. The tip cap is where the kernel is attached to the cob and is the major entry path into the kernel for water and nutrients.

Hybrids of corn, produced by crossbreeding different varieties, have been developed to grow well in varying conditions and locations worldwide.

Farmers don't save seeds from hybrid corn plants to plant the next year for a few reasons. First, seed companies have special rules that make it illegal to save and replant hybrid seeds.

Second, hybrid corn is made by crossing two parent plants to create seeds with special traits that help the plants grow better. These first-generation seeds are called F1 seeds.

If you plant seeds from F1 plants, the next generation (F2) won't grow as well because the plants won't have the same strong traits. This means they won't produce as much corn or perform as well.

Let's explore how corn kernels grow into plants! You will observe the difference between dent corn and steam-flaked corn in a simple germination experiment.

What You'll Need

- 2-3 kernels of dent corn
- 2-3 kernels of steam-flaked corn
- 1 damp paper towel
- 1 small ziplock bag
- A marker to label your bag

Steps

1. Label the outside of the ziplock bag. On one side, write Dent Corn, on the other side write Steam-Flaked Corn.
2. Fold the damp paper towel and put it inside of the ziplock bag.
3. Put the kernels of dent corn and steam-flaked corn inside the ziplock bag on each labeled side.
4. Place the bag in a warm, sunny spot, like a windowsill. Corn seeds need a temperature of at least 50 degrees to germinate.
5. Check the kernels once a week for three weeks. Look for signs of growth like sprouts or roots. Record your observations in the table below.

Week	Dent Corn: What do you see?	Steam-Flaked Corn: What do you see?
Week 1		
Week 2		
Week 3		

Which type of corn grew better? Why do you think that happened?

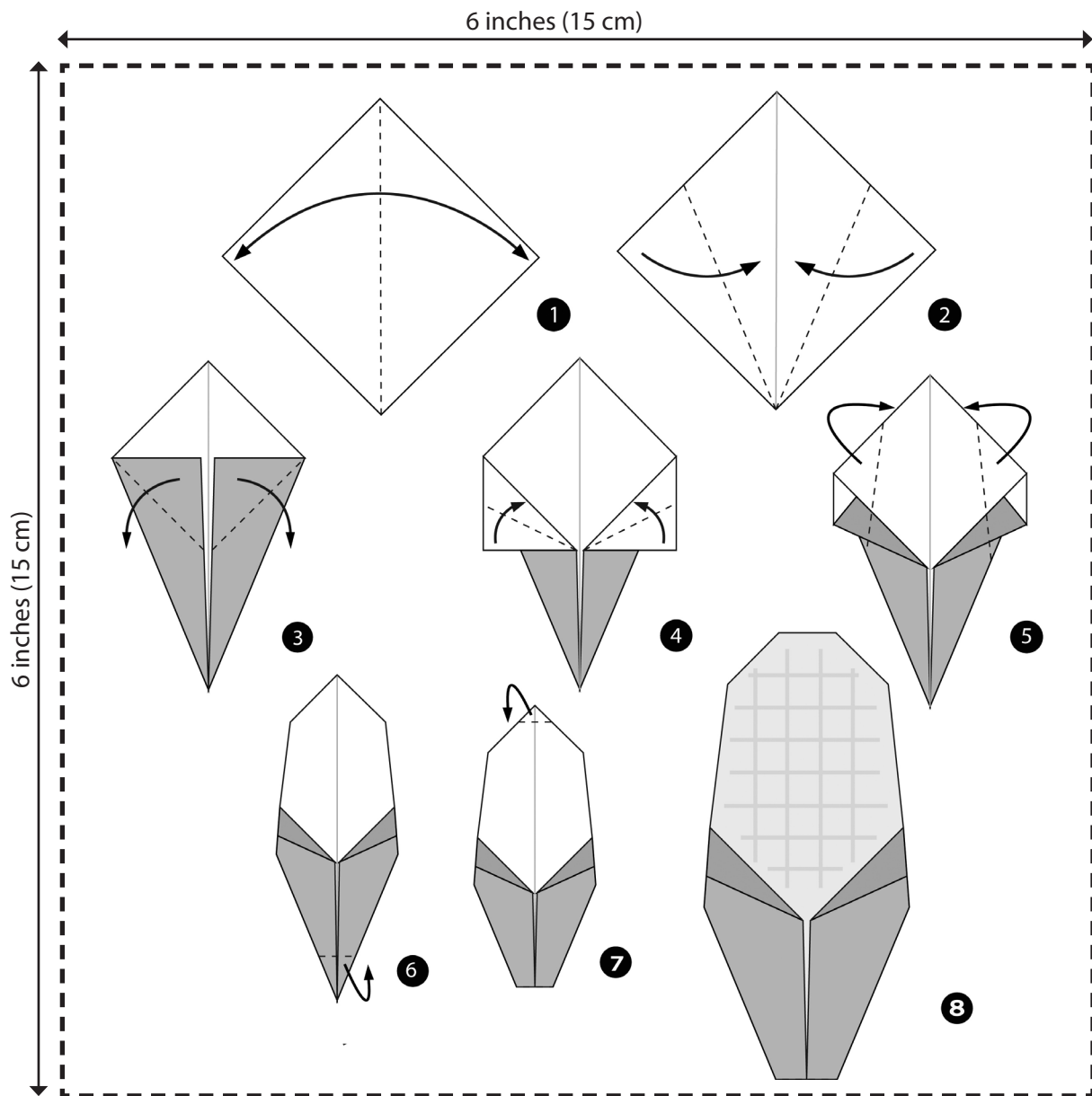
Corn Origami

Cattle, Corn, and Courage - The Story of Dr. John Matsushima

Dr. Matsushima's family celebrates their Japanese heritage by making Origami for fun. Below is a square that you can fold into a realistic ear of corn with just a few simple steps.

Origami is the art of folding paper to make shapes and objects that look like things in real life. The word "origami" comes from Japanese words that mean "to fold" (oru) and "paper" (kami). Most origami uses just one square sheet of paper. Many people believe origami was invented in Japan about a thousand years ago, but it may have started in China. No one knows for sure.

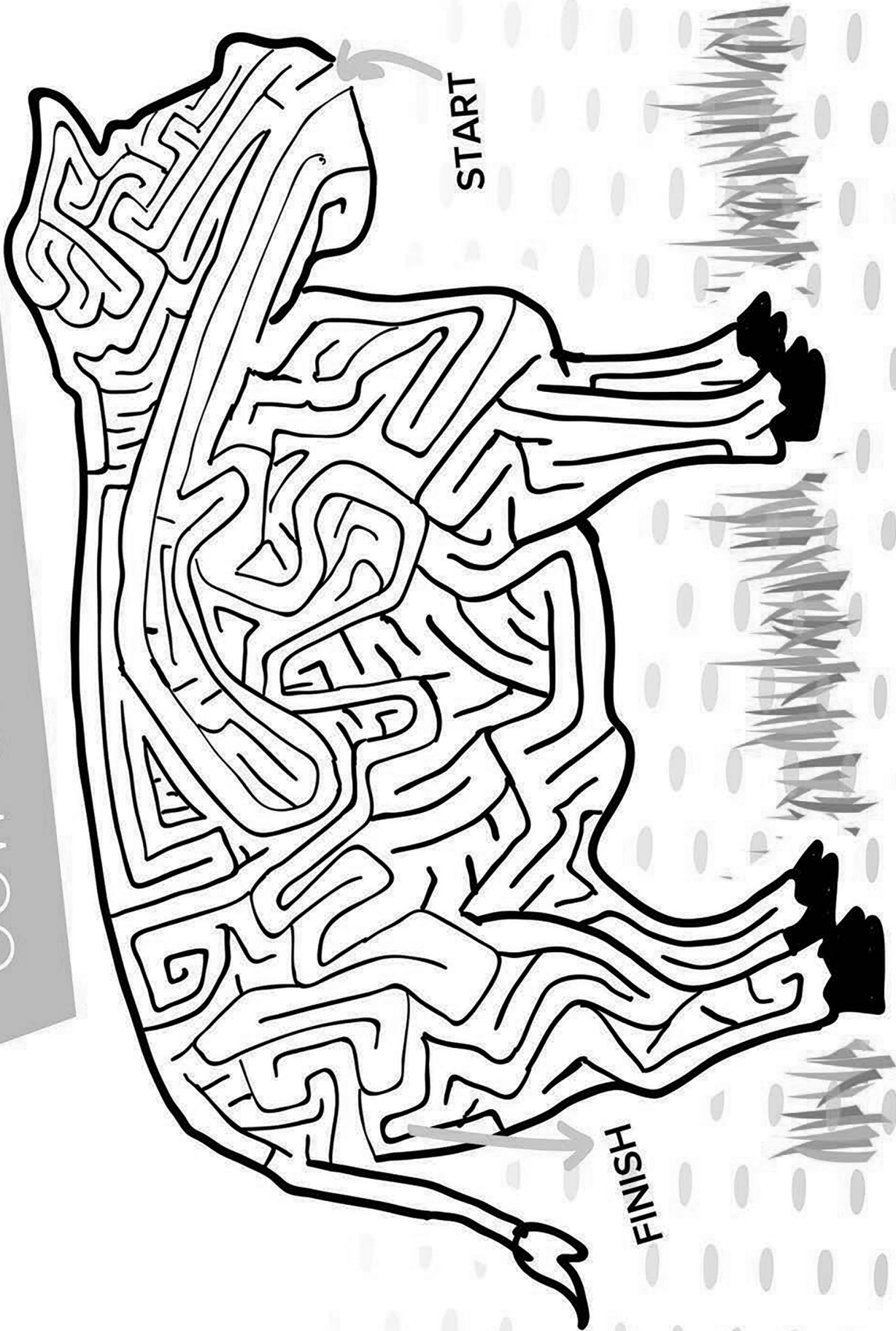
Using white paper, trace and cut out a square of paper that is 6 inches by 6 inches (15 cm by 15 cm). The dotted square below is to scale, meaning it is 6 inches by 6 inches. Follow the folding directions to make your very own origami ear of corn. After folding, color the shucks (the green leaves around the ear of corn) green and the ear of corn yellow. You can even draw lines to show the kernels of corn. And there you have it!



Name: _____

Date: _____

COW GRAZE MAZE



Name: _____ Date: _____

Cattle, Corn, and Courage Vocabulary Word Search

E G L G L S N O T T R E I N M V S E V L D
G P T E N F O L D N R T R I A L P M G R U
A X T Z V L I V E S T O C K B U Y E R A I
L J N A T F A M N R W D U Q Z E M D L A R
I D A C V M Q Z N R O C D E K A L F C D E
S Z N U D G K Y M L Q A W S E P A Q D R Y
H C I N Q U V E D V D E G T A T G B C O T
K O M N F P U E L W G R G R Z R W B Z F L
H B U B K D Z A M I F N A P I N A U X E Y
X B R L U K R P X F I E A Y O C D X K R F
Y L Y R I I H L Y G K D K I D X U Q T E I
I E X L M A S O D W D U T L N E Q L V H U
V R G D H A R U V M K U I B A J E K T B R
A W A N B F J P H B L V G Q M H X F V U F
Q F H F I H F U B O E J B X N H B E B A R
Q H X E N R I V V S L I C T O G U I M F C
B W M H U D W E T V T L U A I P R Y I K K
Y C D E T A M O W B T K L G S K P E Y H O
P X B I R N C E H N A X R R S Q G A Y C V
E R K F I K X W F S C F T Y I V R A E C A
O T J E T B G H D L F C F O M D I Z R E E
V L R R I Q I L E U E W Q F M O M Y W A N
P X N M O R G Q D E E O O E O T R Z B S B
E V M R N U J I K U B X D T C E Y A R R F

admiral
agriculture
beef cattle
bull
burp

cobbler
commission man
corn
courage
evolution

feedyard
flaked corn
heifer
Hereford
infamy

judging team
livestock
livestock buyer
nutrition
ruminant

showring
silage
steer
stockyard
tenfold

Name: _____ Date: _____

Cattle, Corn, and Courage Vocabulary Word Match

Read each definition carefully and choose the correct word from the list at the bottom. Write the matching word on the blank next to each number. Review your answers when you're done!

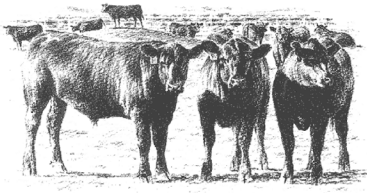
- _____ 1. The science or practice of farming.
- _____ 2. Cattle raised primarily for their meat.
- _____ 3. A loud noise cattle make when gas is released while they are fermenting and digesting their feed.
- _____ 4. A person who helps buy and sell cattle at livestock markets.
- _____ 5. A grain that is often used for food for both people and animals.
- _____ 6. The ability to do something that is scary or difficult.
- _____ 7. The gradual change and development of something over time.
- _____ 8. A place where cattle are fed to grow before being sold for meat.
- _____ 9. Corn that is heated and flattened for animals to eat.
- _____ 10. Being famous for something bad or shameful.
- _____ 11. A group of people who evaluate (or judge) the quality of animals at competitions.
- _____ 12. A person who purchases farm animals to sell them later or sent them to a different farm or market.
- _____ 13. The process of eating food and using it for growth and health.
- _____ 14. An animal that uses a series of stomach compartments and chews its cud to digest plant cellulose.
- _____ 15. A grass or other green plant that was chopped up and stored in airtight conditions to be fed to animals.

ruminant
beef cattle
flaked corn
commission man
infamy

livestock buyer
feedyard
agriculture
burp
nutrition

corn
courage
silage
judging team
evolution

Name: _____



The Journey of a Beef Animal

Instructions: Carefully read the descriptions of the five stages in the beef lifecycle. In the blank spaces provided below each image, write the name of the beef lifecycle stage that matches the descriptions on the page. Then write what the animal eats during the three stages where indicated. Use what you learned from the text to help you decide.

Beef Lifecycle Stage:

Animal Eats:



Beef Lifecycle Stage:

Stage 1: Cow-Calf

- **What Happens:** Cows give birth to calves, typically once a year, in a natural environment like a pasture or calving barn. The calves stay with their mothers and drink milk for nourishment while learning to graze on grass.
- **How People Care:** Ranchers monitor the health of cows and calves closely, especially during calving season. They ensure the cows have plenty of food, water, and shelter, and provide veterinary care if needed. They also check pastures to make sure there's enough grass and no hazards.

Stage 2: Backgrounding

- **What Happens:** Calves are weaned from their mothers, usually at 6-8 months old. They are moved to backgrounding facilities or pastures where they continue to grow by eating grass, hay, and sometimes other forages.
- **How People Care:** Farmers carefully manage the calves' transition to weaning by providing clean water, balanced nutrition, and vaccinations to keep them healthy. They work to reduce stress during this time by handling the animals calmly and ensuring they are comfortable in their new environment.

Stage 3: Feedlot

- **What Happens:** Cattle are moved to feedlots, where they are fed a carefully balanced diet that may include grains, such as corn, along with hay, silage, and other nutrients. This helps them grow to market weight efficiently.
- **How People Care:** Feedlot operators provide a clean and safe environment, with constant access to food and water. Nutritionists develop special diets tailored to the cattle's needs, and veterinarians check the animals regularly to ensure they stay healthy. The cattle are housed in pens with space to move around, and their welfare is a top priority.

Stage 4: Packing Plant

- **What Happens:** When cattle reach market weight (around 18-24 months old), they are transported to USDA-regulated packing plants. Here, the beef is processed into the cuts of meat people purchase at stores or restaurants.
- **How People Care:** Transportation is managed to minimize stress, with cattle handlers trained in humane animal handling practices. At the packing plant, federal inspectors ensure that animals are handled ethically and that the meat is safe for consumption.

Stage 5: Consumers

- **What Happens:** People purchase beef from grocery stores, farmers' markets, or restaurants. Beef is enjoyed in meals as part of a healthy, balanced diet.
- **How People Care:** Consumers contribute by storing, preparing, and cooking beef safely. They also support sustainable practices by learning where their food comes from.

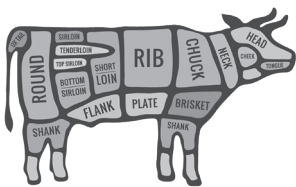
Reflect and Think: Answer the following reflection questions on the back or in your notebook:

1. Why is it important to care for cattle during each stage of their lifecycle?
2. How does each stage connect to the food you eat?

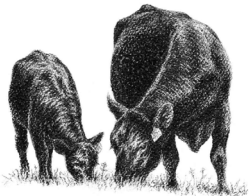


Beef Lifecycle Stage:

Animal Eats:



Beef Lifecycle Stage:



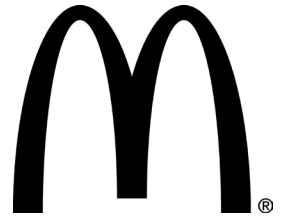
Beef Lifecycle Stage:

Animal Eats:

Name: _____ Date: _____

From Ranch to Restaurant: The Journey of a McDonald's Burger

Objective: Learn how beef goes from the farm to your favorite McDonald's meal through reading, problem-solving, and writing!



Part 1: Read & Learn

Did you know that McDonald's buys more beef than any other restaurant in the world? In the U.S. alone, McDonald's sells around **63 million burgers every week!** That's a lot of beef! McDonald's works with ranchers and farmers across the country to make sure their beef comes from responsible sources. In Colorado, McDonald's purchased 26 million pounds of beef last year, helping support local ranchers and the beef industry.

Once cattle are raised, the beef is processed, formed into patties, and sent to McDonald's restaurants. The company ensures high-quality standards for food safety, sustainability, and animal welfare. In fact, **98.8% of McDonald's beef in 2023** came from deforestation-free supply chains, meaning that the beef is sourced in a way that helps protect the environment.

Part 2: Activity - Order the Steps!

Below are the steps that beef takes to become a McDonald's burger. Number them in the correct order (1-6)!

- _____ The beef patties are grilled and served at McDonald's restaurants.
- _____ Ranchers raise cattle, providing them with food, water, and care.
- _____ McDonald's buys the beef and ensures it meets high-quality standards.
- _____ The beef is processed, shaped into patties, and packaged.
- _____ The patties are transported to McDonald's locations across the country.
- _____ The cattle are taken to processing plants where the beef is prepared.

Part 3: Math in the Beef Industry

Solve these real-world beef math problems!

1. McDonald's sells about 63 million burgers per week. How many burgers is that per day? (Assume 7 days in a week.)

2. One beef animal provides about 450 pounds of beef. If McDonald's purchased **26 million pounds of beef in Colorado** last year, about how many cattle did that beef come from? (Round to the nearest whole number.)

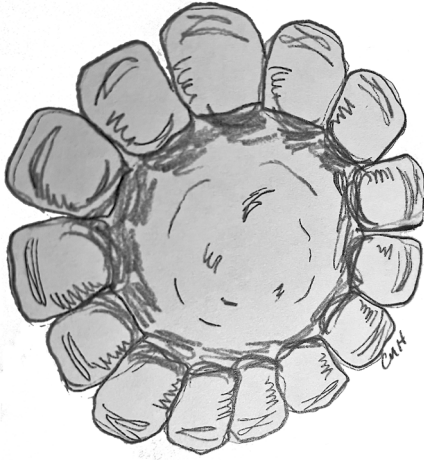
3. If a Quarter Pounder uses $\frac{1}{4}$ pound of beef, how many Quarter Pounders can be made from **1,000 pounds of beef?**

Part 4: Writing Challenge - A Burger's Journey

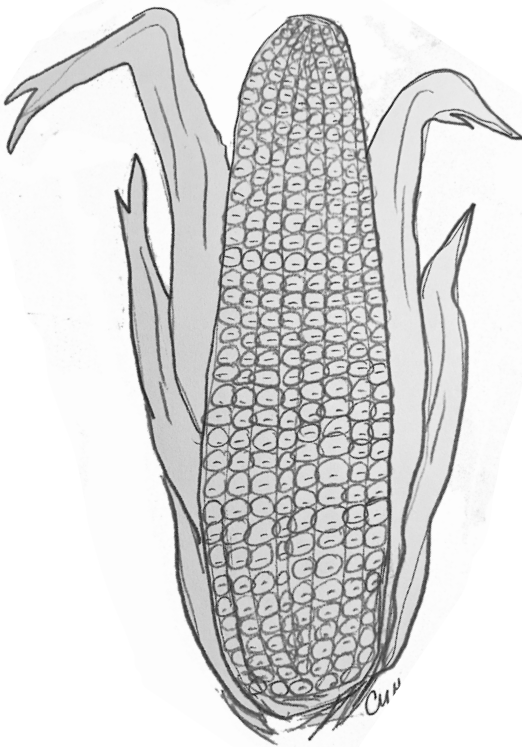
Imagine you are a hamburger patty traveling from a ranch to a McDonald's restaurant. On a separate sheet of paper write short story about your journey!

Corn: Inside and Out!

Cross-Section of a Corn Ear



Whole Corn Ear



Corn is one of the most important crops in Colorado and across the United States. It is used for food, animal feed, fuel, and many other products. Let's explore what corn looks like inside and out!

Look at the two pictures carefully. The first image shows a cross-section of a corn ear. The second image shows a whole corn ear with some husks pulled back.

1. Why do you think the kernels are arranged in neat rows on the whole ear of corn? How does this help the plant?

2. Farmers grow different kinds of corn. Field corn or dent corn makes up 99% of all the corn grown in the U.S. It has many uses including animal feed, fuel, plastics, cornstarch, and much more. Other types of corn are sweet corn, popcorn, and white and specialty corn. What are some of the ways you have eaten corn?

3. Imagine you are a scientist studying corn. What would you like to learn about corn? Write one question.

4. Count the number of kernels growing around the center of the ear of corn, called the cob, in the cross-section illustration.

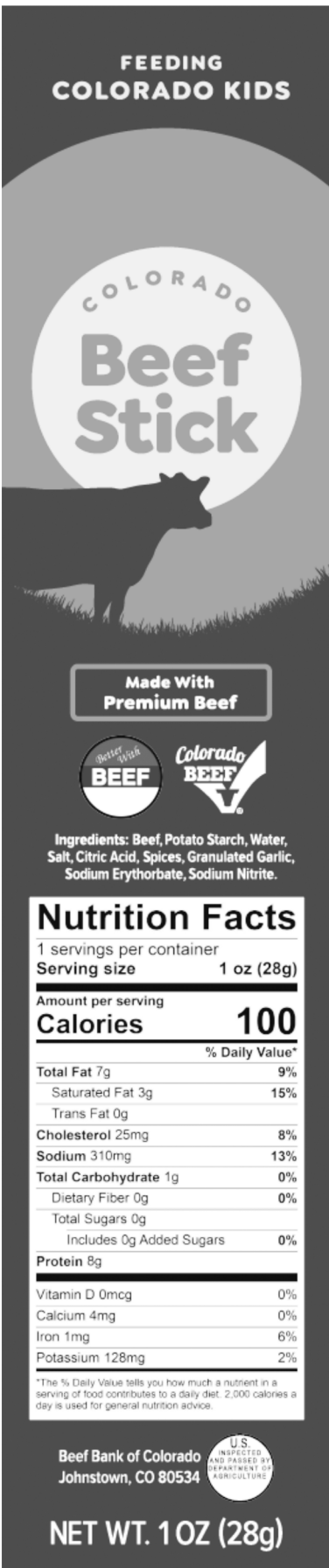
5. Each whole corn ear has about 50 rows of corn growing up and down. Multiple 50 rows by the number of kernels per row you counted in question 4 to get the total number of kernels per ear of corn.

6. Most corn plants produce 2 ears of corn. Use your answer in question 5 to figure out how many kernels of corn one corn plant could produce?

7. It takes about 90 to 120 days for corn to grow from a seed to a fully mature plant. If a farmer plants corn on May 1st, what is the earliest and latest possible harvest date?

a. Earliest Harvest Date: _____

b. Latest Harvest Date: _____



Name: _____

Beef Sticks and Nutrition!

Beef sticks are a great snack that provides protein and energy. Let's take a closer look at the label to learn about what's inside!

1. Look at the Beef Stick Label. Find the answers to these questions by reading the label:

- A. How many calories are in one beef stick? _____
- B. How many grams of protein does one beef stick have? _____
- C. What is the total fat content in one beef stick? _____
- D. How much sodium is in one beef stick? _____
- E. Which minerals can you find on the label?

Circle all that apply: Calcium Iron Potassium Magnesium

2. Math Time! Solve these beef stick math problems:

- A. If you eat 3 beef sticks, how many grams of protein will you get?

- B. If a student eats 2 beef sticks, how many total calories is that?

- C. If a classroom of 20 students each gets 1 beef stick, how many total grams of protein will they eat?

3. Science and Health

- A. Why is protein important for our bodies?

- B. What other foods can you eat to get protein? List 3 examples.

- C. The label says this beef stick is "Made with Premium Beef." Where does beef come from?

4. Writing Challenge. Imagine you are a rancher in Colorado. Write 2-3 sentences explaining why beef is important to farmers and ranchers in our state.

Beef Sticks for Backpacks is a non-profit organization helping feed Colorado kids on the weekends. All beef sticks produced for Beef Sticks for Backpacks are made at Colorado State University by Ram Country Meats. Over 2.5 million sticks have been distributed since 2019.

Video Contest

Cattle, Corn, and Courage - The Story of Dr. John Matsushima

Thank you for participating in Colorado Agriculture in the Classroom's 2025 Literacy Project! We have created a Video Contest as an opportunity to showcase your class's or school's involvement in the Literacy Project, "Cattle, Corn, and Courage - The Story of Dr. John Matsushima," and to share the learning and creativity of your students. Below are the official rules and guidelines for participation.

Eligibility:

- Open to all classes or schools participating in the 2025 Literacy Project.
- Videos must be submitted by a teacher, school representative, or designated project leader.
- **Two Contest Divisions:**
 - 1) Elementary Entries (PreK-5 grades)
 - 2) Middle/High School Entries (6-12 grades)

Contest Theme:

- Videos should showcase your class or school's engagement with the Literacy Project. This could include footage of students participating in project activities, creative presentations of what they learned, or storytelling around the theme "Cattle, Corn, and Courage."

Video Requirements:

- **Length:** Videos should be 1 to 3 minutes long.
- **Format:** Accepted file formats include MP4 or MOV.
- **Content:** Videos must contain original content or content with proper licensing. Do not include copyrighted music, images, or materials unless you have permission to use them.
- **Permissions:** Ensure all students appearing in the video have signed media release forms from parents or guardians.

Submission Process:

- **Submit your video through Jotform at the following link:** <https://bit.ly/3WqBWhu> or scan the code.
- **Deadline:** All submissions must be received by 11:59 PM MST on May 15, 2025.
- **Contact Information:** Please include an email address and phone number that can be used to contact you during the summer.
- **Media Waiver:** Submissions must include acceptance of the media release terms (see below).



Scan to Submit
Video Contest
Entries

Prizes:

- **Participation Incentive:** Each teacher or school submitting a valid entry will receive a \$25 gift certificate to the Ag Classroom Store.
- **Winning Prizes:** Larger gift certificates will be awarded for each division:
 - > Best Overall Video: \$250
 - > Most Creative Video: \$150
 - > Best Student Learning Showcase: \$150
- Winners will be notified via email by June 15, 2025. Be sure to include a summer email address on the entry form.

Judging Criteria:

- Creativity and originality.
- Relevance to the Literacy Project theme.
- Student engagement and learning outcomes demonstrated.
- Production quality (e.g., clear audio and visuals).

Media Release and Disclaimer:

By submitting a video, you grant Colorado Agriculture in the Classroom (CoAITC) the right to use the video for promotional purposes. Videos may be shared on CoAITC's website, social media channels, newsletters, and with project donors. You affirm that all necessary permissions, including parental consent for student appearances, have been obtained.

Video Tips and Tricks:

Here are some tips and tricks to help you produce high-quality, engaging footage!

Stabilize Your Camera

- **Use Both Hands:** Hold your phone or camera with both hands to prevent shaky footage.
- **Use a Tripod or Gimbal:** For ultra-smooth video, invest in a tripod or a gimbal (a handheld stabilizer).
- **Lean Against Something:** If you don't have a tripod, lean your body or arms against a stable surface to minimize shaking.

Set the Right Resolution and Frame Rate

- **Resolution:** For most uses, filming in 1080p (Full HD) will suffice, but for higher quality, shoot in 4K (found in settings). Keep in mind that 4K files take up more storage space.
- **Frame Rate:**
 - > Smooth motion (e.g., fast-moving subjects): 60 fps
 - > Cinematic or film-like footage: 24 fps
 - > Aspect Ratio: Videos can be recorded horizontally-holding the phone sideways (16:9 aspect ratio) or vertically-holding the phone upright (9:16)

Lighting

- **Lighting is everything!** Ensure that the light is behind your videographer so that it shines on the subject.
- **Natural Light:** Film near windows or outside for bright, even lighting.
- **Artificial Light:** Use lamps or ring lights to brighten your subject. Ensure the light source is in front of your subject.

Audio Quality

- **Quiet Environment:** Choose a location with minimal background noise.
- **External Microphone:** If available, use an external microphone for clearer sound.
- **Test Audio Levels:** Record a short clip and playback to ensure voices are audible.

Composition

- **Clean Your Camera Lens.** We take out phones everywhere and you'd be surprised how dirty your camera is.
- **Rule of Thirds:** Place subjects off-center for a balanced, visually appealing shot. Enable the grid option on your phone to help align shots.
- **Eye Level:** Position the camera at eye level for a natural perspective.
- **Clean Background:** Choose a clutter-free background to keep the focus on the subject.

Preparation

- **Storyboard:** Plan the shots and key points you want to capture before filming.
- **Rehearse:** Run through the activity or interview to ensure everyone knows what to do or say.
- **Multiple Takes:** Film extra footage to ensure you have options during editing.

Filming Techniques

- **Zooming:** Avoid digital zooming, which reduces quality. Instead, move closer to your subject.
- **Panning and Movement:** Move the camera slowly and steadily to avoid jerky footage.
- **Switch to Video Mode:** Open the camera app, swipe to "Video," and start filming.

Editing Basics

- **Simple Tools:** Use free editing apps like iMovie (iPhone), Adobe Premiere Rush, or CapCut to trim clips and add transitions.
- **Titles and Captions:** Add titles to introduce the video and captions for accessibility.
- **Music:** Include royalty-free music, ensuring it doesn't overpower the dialogue.

File Management

- **Storage Space:** Check your phone's storage before filming to ensure enough space.
- **Backup Footage:** Save your video files to cloud storage or an external drive after filming.

These tips will help you create a polished, engaging video that showcases your class's work and creativity. Have fun filming!

Additional Lessons from the Agriculture Literacy Curriculum Matrix

The Agricultural Literacy Curriculum Matrix is an online, searchable, and standards-based database for K-12 teachers. The Matrix contextualizes national education standards in science, social studies, and nutritional education with relevant instructional resources linked to Common Core Standards. Below are a few lesson plans that could be used in conjunction with the Literacy Project. Find these lessons and more by searching the **lesson name** on the Curriculum Matrix at CoAgClassroom.org.

Grades K-2

Animals on the Farm: Students discover that farm animals produce different types of products.

Milk or Meat? Beef or Dairy?: Students identify the differences between beef and dairy cattle and determine the commodities produced by each type of cattle.

Agriculture Pays: Students discover that agricultural careers are interconnected and that agriculture influences many parts of their daily lives.

Grades 3-5

Beef Basics: Students explain the value of the beef cattle industry, including the products cattle produce, the production process from farm to plate, and how cattle can utilize and obtain energy from grass and other forage.

Corn an A-maizing Plant: Food, Fuel, and Plastic: Students examine the growth, composition, history, and uses of corn through a close reading activity, discussion of renewable and non-renewable resources, and hands-on exploration of bioplastics made from corn.

Find Your Future Career: Students discover the variety of agricultural careers available and consider their career paths in terms of economics, interests, and suitability to their personal talents and characteristics.

Grades 6-8

The Remarkable Ruminant: In this lesson, students will follow the farm to fork process of producing beef, learn how cattle and other ruminants convert grass into nutrient-rich foods such as milk and meat, discover ways cattle recycle food waste, and identify careers in the beef cattle industry.

Energy and Biofuels: Students explore the process of fermentation in the creation of ethanol and observe the role enzymes play in the fermentation of starch.

Growing America: Students determine corn anatomy and function of plant parts, identify stages of plant development in corn, and research how temperature plays a role in corn growth as they calculate growing degree units (GDUs) for a region.

Career Trek: From Farm-to-Fork: Explore the farm-to-fork process of food through the lens of careers. Students will make a career web to see the variety of careers and skill sets necessary to our food system. They will check their understanding by playing Career Trek—a board game that requires students to identify careers in agriculture and natural resources.

Grades 9-12

A Tale of Two Burgers: Beef and Plant-based Protein: Students compare the components of beef and plant-based burgers by determining the production and processing methods of each product; evaluate the ingredients and nutritional differences between beef and plant-based products; and discuss different points of view in the agricultural industry concerning plant-based proteins and traditional beef. This lesson covers a socioscientific issue and aims to provide students with tools to evaluate science within the context of social and economic points of view.

Carbon Hoofprints: Cows and Climate Change: Students explore the carbon cycle and evaluate the carbon footprint of cattle. Using critical thinking skills, students will use the Claim, Evidence, and Reasoning model to determine the effect of cows' methane production on the environment and investigate the extent cattle contribute to climate change.

Energy and Biofuels: Through a series of activities, students explore fermentation and ethanol production, observe the role of enzymes in fermentation, analyze nutrient values of dent corn, and discover how biofuels are made from plant oils.

Grades 6-12 Kit

Discover Agriculture Careers Bundle: Explore the wide world of agricultural careers with this comprehensive kit designed for grades 6-12. From farming and ranching to cutting-edge research in biotechnology and sustainability, this kit highlights a range of exciting career paths in agronomy, animal science, agricultural engineering, food science, agribusiness management, environmental conservation, and more. The kit includes a folded poster, 48 career cards, and 100 Discover Agriculture stickers. Bulk pricing is available, and individual resources can also be purchased. These materials complement the Discover Agriculture Careers website and are perfect for enhancing classroom lessons, which can be found on the Agricultural Literacy Curriculum Matrix.