

# Adopt-A-Cow: Beef

## LESSON 1: BEEF'S IMPACT ON SOUTH DAKOTA

### EDUCATION STANDARDS

#### *Educational Technology*

- ET.EL.2, ET.EL.3

#### *English Language Arts*

- RI.3, RI.4

#### *Science*

- 3-LS4-3, 3-LS4-4

#### *Social Studies*

- 5.SS.9.I, 5.SS.9.J, 5.SS.9.L

#### **Optional History Review:**

##### *Social Studies*

- 5.SS.9.I, 5.SS.9.J, 5.SS.9.L

#### **Optional Fence Design:**

##### *Mathematics*

- 3.MD.C.8, 4.MD.A.3, 5.MD.A, 5.NBT.A.2, 5.NBT.B.5

##### *Mathematics Practices*

- SMP 1, SMP 2, SMP 3, SMP 5, SMP 6, SMP 8

##### *Science*

- 3-5-ETS1-1,

##### *Science Practices*

- SEP 1, SEP 2, SEP 5, SEP 6

### TIME NEEDED

**Part 1:** Lesson & Videos (15 min)

**Part 2:** Activity: Brand Design (30 min)

**Optional History Review:** (30 min)

**Optional Fence Design:** (45 min)

### MATERIAL LIST

#### *Materials for the whole class:*

- Computer
- Projector/TV/Promethean board
- Video

#### *Materials for the individuals or teams*

- Brand Guidelines Handout
- Pipe Cleaners
- Balloons
- Permanent Marker



### EXPECTED LEARNER OUTCOMES

**OBJECTIVE 1** – Youth will learn about Dakota Territory between 1870 and 1889.

Optional escape rooms will dive deeper into:

- The various interactions between the government and Native Americans, and
- The role of the gold rush and open range ranching had on the settlement of Dakota Territory

**OBJECTIVE 2** – Youth will design and create their own unique cattle brand.

Optional fence design will explore economics of fencing in the 1890's while youth utilize budget constraints to design a fence for their ranch.

### BACKGROUND

The average American consumes 59.1 pounds of beef per year (Widmar, 2023). Not only is beef an important part of the human diet, but it is also a major part of the South Dakota economy. South Dakota has nearly 3.55 million head of beef cattle; that is about four beef animals for every person in SD. SD ranks 5th for beef cow and calf inventory and 7th for total number of cattle total (USDA/NASS, 2025).

Beef cattle not only play a large role in South Dakota today, but they have served an important role in SD since the 1870's. Beef numbers grew in the Dakota Territory during that time to feed the military, the Native Americans living on reservations, and the many prospectors flocking to the area for gold.



## VOCABULARY

**\*Agreement of 1877** – An agreement between the U.S. Government and the Sioux Tribe that took the Black Hills away from the Sioux Tribes. The 1980 Supreme Court case *Sioux Nation v. United States* ruled that this agreement illegally took the Black Hills.

**Battle of Little Big Horn** – During this battle of the Black Hills War of 1876, the Lakota Sioux killed General Custer. The battle is also known as Custer's Last Stand.

**Brand** – An identifying mark placed upon an animal. It is often done with either a hot iron or an extremely cold iron (freeze branding). A hot iron brand leaves a neat, legible scar on the surface of the animal's hide while a freeze brand alters hair follicles destroying the hair pigment causing hair in that area to become white.

**Bonanza Ranch** – Very large and profitable ranches.

**Great Sioux Reservation** – The land of now Western South Dakota set aside for the Sioux Tribes in the Treaty of 1868.

**Open Range** – Miles and miles of public lands that were available for ranchers to graze their cattle.

**\*Treaty of 1868 of Fort Laramie** – An agreement between the U.S. Government and the Sioux and Arapaho people to establish the Great Sioux Reservation in what is now the western half of South Dakota, including the Black Hills. The treaty proposed to set aside the land West of the Missouri River for them to reside upon and permit them to continue to hunt in their original lands. The Government would additionally provide schools and allotments for clothing and food rations. The Government bought land from the Lakota to fulfill these requirements and established substantial cattle herds.

*\*Note the difference between an agreement and treaty: Agreements replaced treaties in 1871. The main difference is that only the Senate ratified treaties, while the House and Senate ratified agreements.*

## PROGRAM PREPARATION

If planning to complete lessons in chronological order, consider organizing youth into small. As the Adopt-A-Cow Beef lessons progress, these teams of youth will build their ranch/herd and care for their animals. In Lesson 1 they will begin this process by developing their ranch brand. Other lessons will have them exploring the genetics of their herds, managing their herds' health, participating in relay races, and other group activities. Groups as small as two or as large as five would work depending on class size.

## LESSON PREPARATION

*\*Lesson is designed using a PowerPoint format. This is done to provide structure and speaking points. It also provides visual aids to help youth understand what is being discussed. In a less formal setting, a PowerPoint may not be appropriate, and educators may select not to use the formal presentation. Individual slides can be printed to provide visual aids.*

- Review the different activities in this lesson to select the ones that are the best fit for your audience.
  - The base portion of this lesson discusses beef's history in South Dakota including the open range and branding. Youth will watch a video and create their own brand.
  - The first optional learning activity provides two potential choices to focus more on South Dakota history by providing review options for South Dakota history from 1870-1889 as it relates to the video from the base lesson *Dakota Pathways: Cowboys on the Open Range*.
    - Worksheet review (Pages 10-11) – A worksheet is provided to allow youth to recall what was shared in the video. This can be done while youth are watching the video and not require any additional time. If done after the video it will require additional time beyond what is noted.
    - Escape Room (Pages 6-9)– Virtual escape rooms have been created to dive deeper into SD history. These will require an additional 20-30 minutes.
  - The second optional learning activity asks youth to apply mathematical knowledge along with science and engineering practices to solve problems related to fencing (Pages 12-16) on the open range.
- Ensure the ability to play YouTube videos and/or utilize Breakout EDU.
- Become familiar with cattle branding by reading: '*Decoding the Range: The Secret Language of Cattle Branding*' ([smithsonianmag.com/arts-culture/decoding-the-range-the-secret-language-of-cattle-branding-45246620/](http://smithsonianmag.com/arts-culture/decoding-the-range-the-secret-language-of-cattle-branding-45246620/))



- To better assist youth in creating their brand, print the Brand Symbols, Relationships for Brands, Orientation for Brands, Brand Examples, and Brand Placement tables for each group.
- Youth can draw their brands on balloons; however, there are alternative options. Youth can draw their brands on a piece of paper and then crumple it up to throw. Small balls could also be utilized; youth would draw their brand on the ball and then toss it for the cattle roundup.

## LESSON INSTRUCTIONS

*\*Detailed notes are contained within the PowerPoint notes section for each slide.*

1. Beef cattle have been a large part of SD's history since the 1870's. (Slide 2)  
*Dakota Pathways: Cowboys on the Open Range: Video: [youtu.be/uFBidiH-IMI](https://youtu.be/uFBidiH-IMI) (14 min)*
2. South Dakota Habitat (Slide 3)
3. More about branding. (Slide 4)  
*2015 NCM Digital Discovery History of Branding Irons in the Fire: Video: [youtu.be/Jth6QrdagNE](https://youtu.be/Jth6QrdagNE) (2 min)*
4. Creating your own brand. (Slide 5)  
Youth will divide into groups to create their ranch's name and brand. This will represent their group for the remainder of the lessons. Each member of a ranch may also create his/her own brand as ranch hands working for larger companies often had their own brand.
5. Cattle Roundup. (Slide 6)



## BRANDING REQUIREMENTS

Registered livestock brands in South Dakota must consist of 2-3 letters, numbers, or symbols.

**Capital block letters** of the alphabet (excluding Q) can be used:

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

**Numbers two (2) through nine (9):**

2 3 4 5 6 7 8 9

### Brand Symbols



Cross



Rafter (Open A)



Diamond



Quarter Circle



Bar



Slash



Heart



Box



Half Box



Triangle



Arrow



Mill Iron

### Relationships for Brands



Connected



Side by Side



Sitting



Hanging



Stacked



Stacked  
Connected

### Orientations of Brands

Brands may rotate 90 degrees and have varying orientations.



Straight



Inverted Reverse



Reverse



Inverted



Lazy Inverted



Lazy



Lazy Inverted  
Reverse



Lazy Reverse

### Brand Examples



Lazy A Sitting R



Inverted A Hanging  
Lazy R



Lazy Inverted R  
Hanging A



Lazy J Lazy K Stacked  
Connected

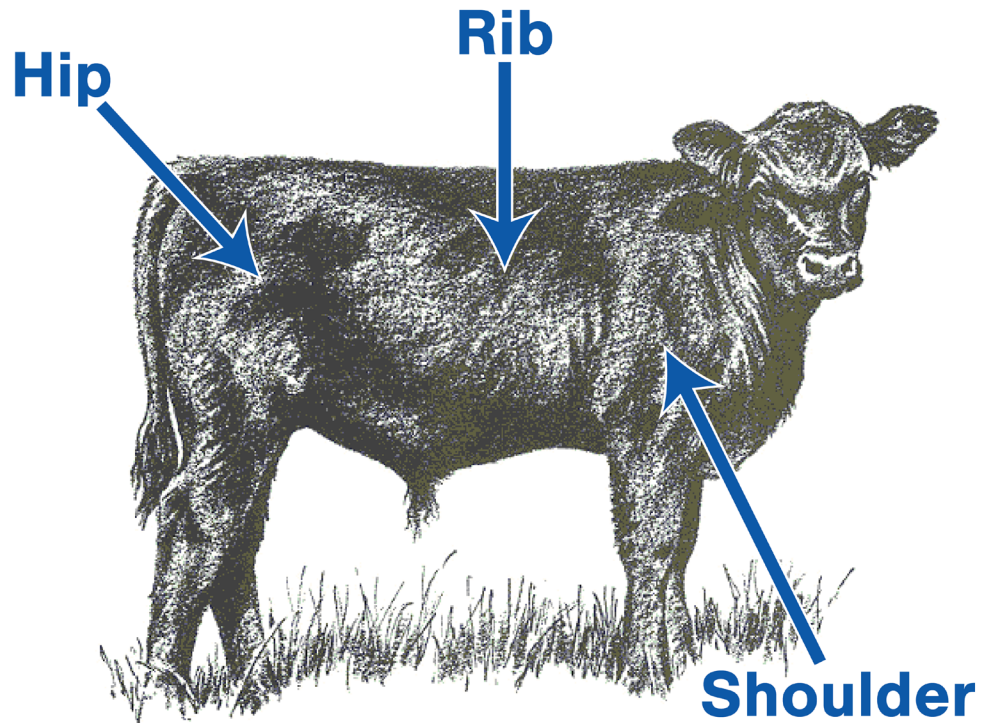


Reverse F D Stacked

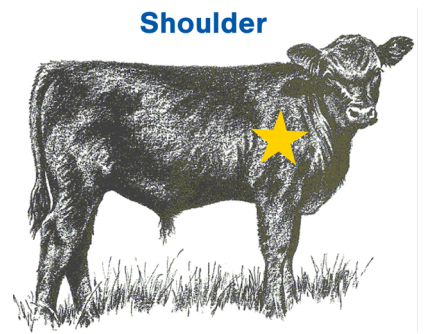
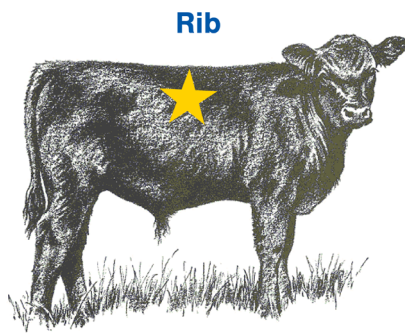
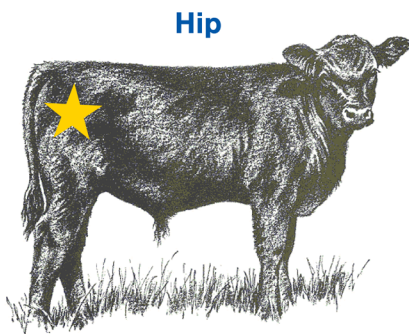


## Brand Placement

Brands can be placed on the right or left shoulder, rib or hip.



*Original image courtesy of American Angus Association.*



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# **Optional Learning Appendix**



## COWBOYS ON THE OPEN RANGE REVIEW: VIRTUAL ESCAPE ROOMS

There are two different escape room options. These can be done by individual youth, as small groups, or as a large class led by the instructor. One way to lead this as a classroom is to break your youth into teams and display the story and lock, teams can work to solve the lock in a quiz bowl type activity.

Instructions and an example lock can be found in the PowerPoint document Lesson 1 Beef's Impact on SD Escape Room Example. There is also a PowerPoint for each escape room that can be printed and utilized to provide clues for youth that get stuck.

Descriptions of escape rooms as well as answers are below.

- **Beef's Impact on South Dakota**

Story: In preparation for the winter months ahead, you and your ranch hands saddled up your horses to round up your cattle from the far pastures. When you arrive at the pasture, you notice the fence is broken and all your cattle are missing. To find your lost cattle, you must venture through time to understand how beef cattle came to populate the SD prairies and how they have impacted the state of South Dakota.

Part I: 1868-1878 (5 locks) ([platform.breakoutedu.com/game/play/beef-s-impact-on-south-dakota-1868-1878-1034223-P2CEXJUQXY](https://platform.breakoutedu.com/game/play/beef-s-impact-on-south-dakota-1868-1878-1034223-P2CEXJUQXY)) – In this Escape Room, youth will begin looking for their herd by traveling back to 1868 when the Fort Laramie Treaty was signed. They will explore history through 1878, the Great Dakota Boom where they will gather clues as to where their herd is hiding.

Part II: 1879-present (5 locks) ([platform.breakoutedu.com/game/play/beef-s-impact-on-south-dakota-part-ii-1879-present-1034223-VEFUMH3QHM](https://platform.breakoutedu.com/game/play/beef-s-impact-on-south-dakota-part-ii-1879-present-1034223-VEFUMH3QHM)) – In this Escape room, youth will continue their search for their herd beginning in 1879. They will learn about the relationship between cattle and the SD rail system and how cold winters, and barbed wire changed the way the range looks. They will wrap up their journey with a glimpse of what modern ranching looks like.

- **Beef's Impact on South Dakota (Condensed) (6 locks)**

Story: In preparation for the winter months ahead, you and your ranch hands saddled up your horses to round up your cattle from the far pastures. When you arrive at the pasture, you notice the fence is broken and all your cattle are missing. To find your lost cattle, you must venture through time to understand how beef cattle came to populate the SD prairies and how they have impacted the state of South Dakota.

([platform.breakoutedu.com/game/play/part-i-beef-s-impact-on-south-dakota-1868-1878-1034223-8HO34V1P8E](https://platform.breakoutedu.com/game/play/part-i-beef-s-impact-on-south-dakota-1868-1878-1034223-8HO34V1P8E)) – In this condensed Escape Room, students will explore Dakota Territory beginning in 1874 with General Custer's Discovery of Gold and abundant grasslands in southwestern Dakota Territory. They will travel through history to modern day South Dakota to see how Beef has impacted our state.



## ESCAPE ROOM BEEF'S IMPACT ON SOUTH DAKOTA PART I: 1868-1878 (ANSWER SHEET)

- **Lock 1**
  - Type: Number
  - Story Clue: The text ***'In this year'*** is bolded and italicized.
  - Picture Clue: The picture contains the date of a Treaty.
  - Answer: **1868**
- **Lock 2**
  - Type: Alpha
  - Story Clue: The text ***'precious metal'*** and ***'this metal'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of panning for Gold.
  - Answer: **Gold**
- **Lock 3**
  - Type: Alpha
  - Story Clue: The text ***'a well-known general'*** is bolded and italicized.
  - Picture Clue: The picture contains a headstone with General Custer's name.
  - Answer: **Custer**
- **Lock 4**
  - Type: Color
  - Story Clue: The text ***'six major rivers'*** and ***'North to South'*** is bolded and italicized.
  - Picture Clue: The picture contains a map of South Dakota marking the six major rivers flowing into the Missouri with large colored circles.
  - Answer: **Grey, Purple, Orange, Yellow, White, Blue** (If students need an additional clue about the order, it is based on their location, North to South and West to East - the direction that this portion of the Missouri Watershed flows.
- **Lock 5**
  - Type: Directional
  - Story Clue: The text 'from' and 'to' is italicized and the text ***'Texas'***, ***'Eastern U.S.'***, ***'Minnesota'***, and ***'Canada'*** is bolded and italicized.
  - Picture Clue: The picture contains a map of where these places are located. This should allow youth to identify what direction cattlemen came ***from*** when they were traveling to SD.
  - Answer: ↑ ← ← ↓ ←





## ESCAPE ROOM BEEF'S IMPACT ON SOUTH DAKOTA PART II: 1879-PRESENT (ANSWER SHEET)

- **Lock 1**
  - Type: Numerical
  - Story Clue: The text ***'the \_\_ train that serves as a popular tourist attraction'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of the 1880 train in Keystone and Hill City.
  - Answer: **1880**
- **Lock 2**
  - Type: Alpha
  - Story Clue: The text ***'steel fencing with sharp points'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of barbed wire.
  - Answer: **Barbed Wire**
- **Lock 3**
  - Type: Color
  - Story Clue: The text ***'six smaller land areas'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of the six smaller pieces of Reservation land.
  - Answer: **Green, Yellow, Blue, Purple, Orange, White**
- **Lock 4**
  - Type: Shape
  - Story Clue: The names of four men are bolded and italicized.
  - Picture Clue: The picture contains a map of SD with the towns named after these men noted by various shapes.
  - Answer: **Triangle, Star, Circle, Square**
- **Lock 5**
  - Type: Number
  - Story Clue: 'Farms and ranches are family owned' and 'percentage have been in the same family for at least 3 generations' are bolded.
  - Video Clue: The video has text that states what is bolded in the story: 97% and 54%.
  - Answer: **9754**



## ESCAPE ROOM BEEF'S IMPACT ON SOUTH DAKOTA CONDENSED (ANSWER SHEET)

- **Lock 1**
  - Type: Alpha
  - Story Clue: The text ***'precious metal'*** and ***'this metal'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of panning for Gold.
  - Answer: **Gold**
- **Lock 2**
  - Type: Color
  - Story Clue: The text ***'six major rivers'*** and ***'North to South'*** is bolded and italicized.
  - Picture Clue: The picture contains a map of South Dakota marking the six major rivers flowing into the Missouri with large colored circles.
  - Answer: **Grey, Purple, Orange, Yellow, White, Blue** (If students need an additional clue about the order, it is based on their location, North to South and West to East - the direction that this portion of the Missouri Watershed flows.
- **Lock 3**
  - Type: Numerical
  - Story Clue: The text ***'the \_\_ train that serves as a popular tourist attraction'*** is bolded and italicized.
  - Picture Clue: The picture contains a picture of the 1880 train in Keystone and Hill City.
  - Answer: **1880**
- **Lock 4**
  - Type: Color
  - Story Clue: The text ***'six smaller land areas'***.
  - Picture Clue: The picture contains a picture of the six smaller pieces of Reservation land.
  - Answer: **Green, Yellow, Blue, Purple, Orange, White**
- **Lock 5**
  - Type: Shape
  - Story Clue: The names of four men are bolded and italicized.
  - Picture Clue: The picture contains a map of SD with the towns named after these men noted by various shapes.
  - Answer: **Triangle, Star, Circle, Square**
- **Lock 6**
  - Type: Number
  - Story Clue: 'Farms and ranches are family owned' and 'percentage have been in the same family for at least 3 generations' are bolded.
  - Video Clue: The video has text that states what is bolded in the story: 97% and 54%
  - Answer: **9754**





# Cowboys on the Open Range Review: Worksheet

1. Cattle entered the Western portion of the Dakota Territory in the 1870's primarily from which state?
2. Why was South Dakota a good place to raise cattle?
3. Why did ranchers lose so many cattle in the Dakotas compared to where the cows were living previously?
4. What phrase is used to describe land that is not fenced, and cattle are free to graze?
5. What three locations did the Northern Trail lead cowboys to?
6. Why did they bring cattle to Dakota Territory?
7. What six rivers flow through Western SD to the Missouri and supported the cattle?
8. What SD town was once the world's busiest cattle-shipping railyard?
9. Hungry for more land, cattlemen pressured the government to break up what reservation to create the nine smaller reservations found in South Dakota today?
10. During the 1880's large cattle companies made their profit in SD, what was this time period called?
11. What happened in 1886, 1887, and 1888 that prompted the end of open range and the beginning of ranching?
12. What was invented in 1874 that helped ranchers?
13. In 1902 they had a large cattle roundup, what was used to identify the owner of each cow?

## WORKSHEET: COWBOYS ON THE OPEN RANGE (ANSWER SHEET)

1. Cattle entered the Western portion of the Dakota Territory in the 1870's primarily from which state? **(Texas)**
2. Why was South Dakota a good place to raise cattle? **(It had nutritious grasses that withstood droughts and winters as well as rivers)**
3. Why did ranchers lose so many cattle in the Dakotas compared to where the cows were living previously? **(Harsh winters)**
4. What phrase is used to describe land that is not fenced, and cattle are free to graze? **(Open Range)**
5. What three locations did the Northern Trail lead cowboys to? **(Wyoming, Montana, and Dakota Territory)**
6. Why did they bring cattle to Dakota Territory? **(grass, water, markets)**
7. What six rivers flow through Western SD to the Missouri and supported the cattle? **(Grand River, Moreau River, Belle Fourche River, Cheyenne River, Bad River, and White River)**
8. What SD town was once the world's busiest cattle-shipping railyard? **(Belle Fourche)**
9. Hungry for more land, cattlemen pressured the government to break up what reservation to create the nine smaller reservations found in South Dakota today? **(Great Sioux Reservation)**
10. During the 1880's large cattle companies made their profit in SD, what was this time period called? **(Bonanza)**
11. What happened in 1886, 1887, and 1888 that prompted the end of open range and the beginning of ranching? **(terrible winters that killed cattle)**
12. What was invented in 1874 that helped ranchers? **(a machine to build barbed wire)**
13. In 1902 they had a large cattle roundup, what was used to identify the owner of each cow? **(brands)**





## Fence Design: Worksheet

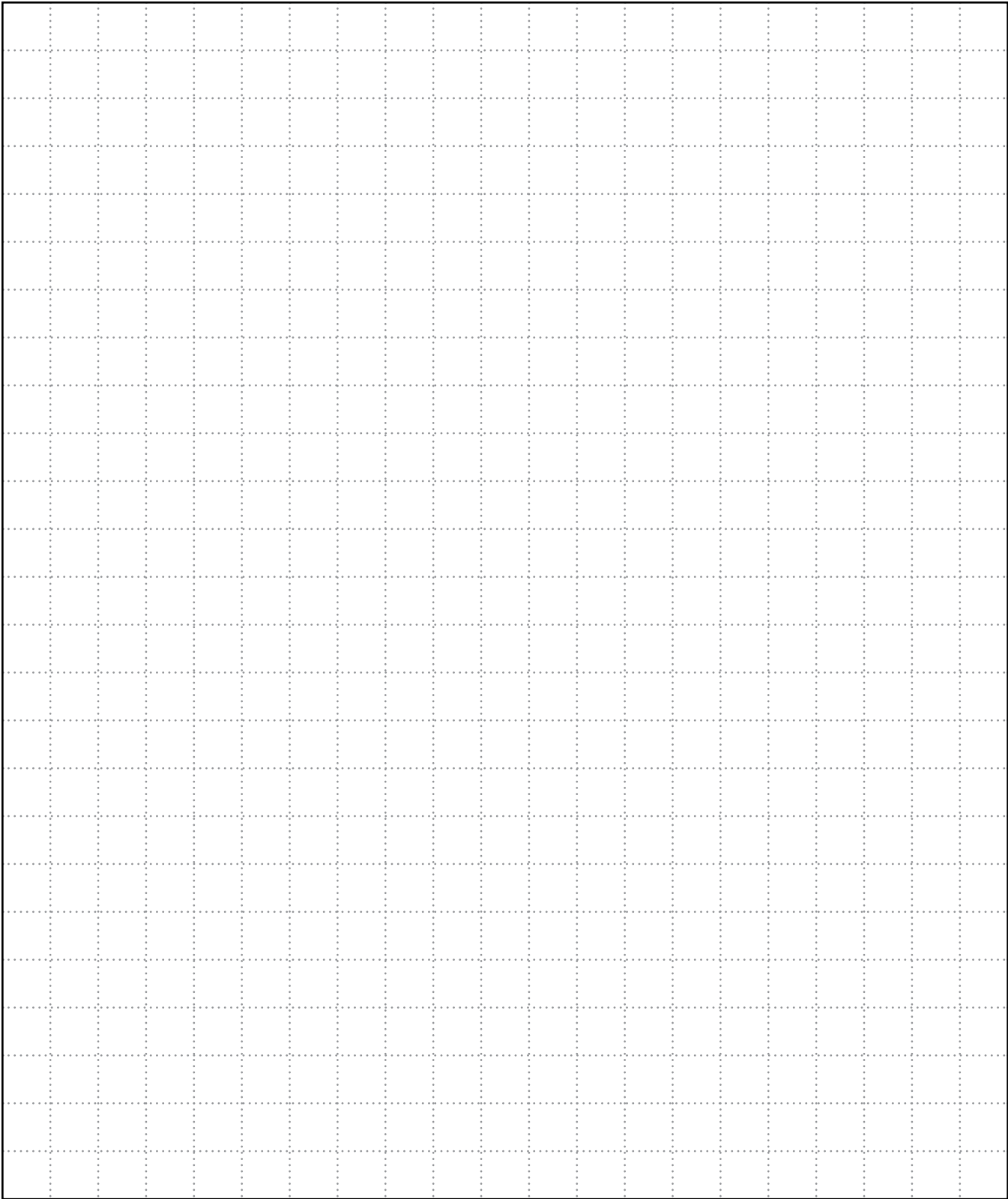


**Fences are barriers utilized to enclose an area. Fences have existed since ancient times and originated to provide security, establish ownership, and define spaces. Fences are constructed with a variety of materials like wood, metal, and stone.**

1. In the early plains, what materials could have been used to create fencing? Would there have been the quantities needed to effectively contain livestock?
2. Prior to the 1880's ranchers in South Dakota free ranged their cattle herds. This became problematic during the harsh winters of 1886, 1887, and 1888. What technologies came to the Dakota plains during this time that allowed ranchers to change the way managed their herds? Railroad, and barbed wire.

**At the end of the open range, ranching operations, like the Diamond A Ranch, had to find ways to effectively fence their land to contain their livestock. The Diamond A Ranch was comprised of a half-million acres and needed over 60 miles of fence to separate their livestock from another ranch.**

1. The Stacked SD Ranch wants to fence a portion of their land to contain their livestock using barbed wire. They need your help to figure out how much money they need to buy the supplies! The portion of land forms a rectangle that has a width of 210 ft and a length of 250 ft. Utilized the grid paper to draw a picture of the land.
2. Barbed wire fences are made up of wire, posts, and staples. What information does the builder need to know before they can buy materials?



Come up with a strategy to determine the cost of building the fence. Consider the following:

1. To create the fence, the builder needs 3 wires to wrap around the land. How much wire do they need total to build the fence?
2. The builder will put one post every 10 ft. How many posts will they need? Go back to your picture and show where the posts will be.
3. To connect the wire to the post, the builder will use one staple for each wire. How many staples will the builder need for each post? How many staples will the builder need for the whole fence?
4. Supplies were less expensive in 1890 than they are today. Use the information below to calculate how much the builder will need to spend to build the fence.

Item	Cost to purchase a box	Number per box	Total number of items needed	Total needed to be purchased	Total cost
Wire	4¢	380 ft	_____ ft	_____ boxes	_____ ¢
Posts	11¢	1 post	_____ posts	_____ posts	_____ ¢
Staples	4¢	69 staples	_____ staples	_____ boxes	_____ ¢
Cost for the whole fence					_____ ¢
*Note that you cannot purchase a partial box of materials					

5. Convert cost to dollars (\$).
6. Calculate the area of the fence you just created.
7. This area is only large enough to feed a little more than one cow and a calf for 12 months. Does this surprise you?
8. What would you need to do if you needed to provide enough fencing for a ranch of 100 cows?

**Think about the cost of the fence. By today’s standards it is an inexpensive fence. However, to put it into perspective, during 1890, a ranch hand only made around \$25 per month.**



## FENCE DESIGN (ANSWER SHEET)

**Fences are barriers utilized to enclose an area. Fences have existed since ancient times and originated to provide security, establish ownership, and define spaces. Fences are constructed with a variety of materials like wood, metal, and stone.**

1. In the early plains, what materials could have been used to create fencing? Would there have been the quantities needed to effectively contain livestock?

*Depending on the location there would be rocks and trees. However, there would not be enough to effectively create the amount of fence needed. Materials would need to be brought from other locations.*

2. Prior to the 1880's ranchers in South Dakota free ranged their cattle herds. This became problematic during the harsh winters of 1886, 1887, and 1888. What technologies came to the Dakota plains during this time that allowed ranchers to change the way managed their herds? *Railroad, and barbed wire.*

*The development of a machine to produce barbed wire increased the availability of that as a resource for fencing. Additionally, the introduction of the railroad to the geographic region made it possible to more easily acquire fencing materials.*

**At the end of the open range, ranching operations, like the Diamond A Ranch, had to find ways to effectively fence their land to contain their livestock. The Diamond A Ranch was comprised of a half-million acres and needed over 60 miles of fence to separate their livestock from another ranch.**

1. The Stacked SD Ranch wants to fence a portion of their land to contain their livestock using barbed wire. They need your help to figure out how much money they need to buy the supplies! The portion of land forms a rectangle that has a width of 210 ft and a length of 250 ft. Utilized the grid paper to draw a picture of the land.

*Aid youth in drawing their fence by asking them questions like:*

- *Why can't you draw a picture using the actual dimensions?*
- *How could you draw the picture so that it's still helpful? (let each box represent 10 ft ... count by 10's 12 times etc.)*

2. Barbed wire fences are made up of wire, posts, and staples. What information does the builder need to know before they can buy materials?

*The amount of wire, number of post, and number of staples needed*

Come up with a strategy to determine the cost of building the fence. Consider the following:

1. To create the fence, the builder needs 3 wires to wrap around the land. How much wire do they need total to build the fence?

*Feet of Barbed Wire =  $2 \times (210 + 250) \times 3 \text{ wires} = 2,760 \text{ feet}$*

2. The builder will put one post every 10 ft. How many posts will they need? Go back to your picture and show where the posts will be.

*Number of posts = 92 posts*

3. To connect the wire to the post, the builder will use one staple for each wire. How many staples will the builder need for each post? How many staples will the builder need for the whole fence?

*Number of staples =  $92 \text{ posts} \times 3 = 276 \text{ staples}$*



4. Supplies were less expensive in 1890 than they are today. Use the information below to calculate how much the builder will need to spend to build the fence.

Item	Cost to purchase a box	Number per box	Total number of items needed	Total needed to be purchased	Total cost
Wire	4¢	<u>380 ft</u>	<u>2,760 ft</u>	<u>8 boxes</u>	<u>32¢</u>
Posts	11¢	<u>1 post</u>	<u>92 posts</u>	<u>92 posts</u>	<u>10.12¢</u>
Staples	4¢	<u>69 staples</u>	<u>276 staples</u>	<u>4 boxes</u>	<u>16¢</u>
<b>Cost for the whole fence</b>					<u>1,060¢</u>
*Note that you cannot purchase a partial box of materials					

5. Convert cost to dollars (\$).

$$\text{Cost (\$)} = 1,060 / 100 = 10.60$$

6. Calculate the area of the fence you just created.

$$\text{Fenced Area} = 210 \times 250 = 52,500 \text{ square feet}$$

7. This area is only large enough to feed a little more than one cow and a calf for 12 months. Does this surprise you?

8. What would you need to do if you needed to provide enough fencing for a ranch of 100 cows?

*Multiply the area by 100.*



## EXTENDED LEARNING

Much of this lesson focused on cattle production in western South Dakota; however, cattle production occurs across the entire state.

- Visualize where cattle are located in SD, check out this resource from the United States Department of Agriculture, National Ag Statistics Service: [nass.usda.gov/Statistics\\_by\\_State/South\\_Dakota/Publications/County\\_Estimates/23SDcattle.pdf](https://nass.usda.gov/Statistics_by_State/South_Dakota/Publications/County_Estimates/23SDcattle.pdf)
- Explore the differences between east and west river South Dakota and how those differences have influenced the expansion of cattle ranches and crop production through the South Dakota Public Broadcasting video Dakota Pathways: East River, West River ([sdpb.org/learn/dakota-pathways/eastriverwestriver/](https://sdpb.org/learn/dakota-pathways/eastriverwestriver/))

## LITERATURE TO EXPLORE

Looking for literature to further explore topics from this lesson? Check out these books:

*Levi's Lost Calf*. By Amanda Radke

It's time to round up the cattle from the pasture, but Levi finds his favorite heifer calf is missing. Follow along as Levi searches the ranch to find his calf.

*Cattle Kids*. By Cat Urbigkit

This illustrated book follows youth through a year of ranching on the western range.

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