



# DON'T FENCE ME IN

**GRADE:** 6-8

**SUBJECT:** Mathematics

**NATIONAL STANDARD(S):**

(6-8) MA: 1.4, 1.8, 1.11, 5.2, 9.1, 9.2

**THEME:** Ranching

**FOOD AND FIBER TOPIC:** II-C, II-E, IV-B

## LEARNER OBJECTIVE

The student will practice identifying geometric terms, using historical information about the development of barbed wire.

## VOCABULARY

**barbed wire**—Fencing made of twisted wires to form one strand and to which wire barbs are attached at short intervals.

**corral**—An enclosure for confining livestock.

**frontier**—The margin between the occupied land and the wilderness in the settlement of the US.

**homestead**—Land claimed by a settler or squatter, especially under the Homestead Act.

**range wars**—Fighting that took place in the 19th Century in the American West between farmers, who needed fences to keep the cattle out of their cornfields, and ranchers, who were accustomed to running their cattle across thousands of acres of public land. The farmers would put up barbed wire fences, and the ranchers would come along with wire cutters and take them down. Ranchers needed vast ranges on which to run their cattle. For awhile there were parts of the range that were in a state of open warfare. Bands of cutters were threatening bands of fencers. The most violent confrontations took place in Lincoln County, New Mexico and Johnson County, Wyoming.

**stampede**—A sudden frenzied rush of panic-stricken animals.

## BACKGROUND

Up until 1874 fences were a luxury, usually made of hard-to-find wood or rocks taken from the surrounding countryside. Most settlers on the western frontier couldn't afford them and had to tolerate cattle thieves who rounded up stray cattle and claimed them as their own.

One settler, Joseph Glidden, began to experiment with spiked fencing after he noticed a neighbor's attempt to hold his cattle in with wooden spikes. On November 24, 1874, Glidden received US Patent No. 157,124 for an invention that would change the face of the western frontier. He had developed a string of wire with sharp barbs placed at intervals. The wire was strung between wooden posts and affixed to the posts with U-shaped pieces of metal.

A salesman, John Gates, set up an amazing demonstration in San Antonio, Texas, to introduce Glidden's barbed wire to the common cowboy. Gates set up a barbed wire corral in the Town Square and had 25 excited longhorns driven in. The stampeding animals charged the fence. The fence held. They tried again. The fence continued to hold. Soon Gates was taking orders as fast as he could write them down from enthusiastic settlers ready to solve their cattle-control problems.

The discovery of barbed wire solved one problem for settlers but created another range war with ranchers and cowboys. As fast as settlers put up the new fencing, cowboys would come along and cut the wires. Cowboys were accustomed to driving large herds of cattle at will across the wide-open spaces of the western frontier. Fences around homesteads slowed them down. Many of the resulting disagreements turned to bloodshed, and many lives were lost before a compromise was reached. In the end, the fencing of the West meant an end to cattle drives and big, open ranches.

### STEP-BY-STEP INSTRUCTIONS

1. Review the following geometric terms: *point; line; line segment; and ray*. Demonstrate the mathematical concepts on the board so students may practice before attempting this activity.
2. Share background material.
3. Hand out the student worksheets for students to complete.

### RELATED ACTIVITIES

1. Let students use calculators to figure out how many feet of barbed wire they would need to fence a 10-acre square pasture with a four-strand fence. (1 acre = 43,560 square feet; perimeter = square root of area times four. Answer: 10,560 feet of barbed wire). Have students repeat the exercise, using metric measurements. (1 acre = 4,047 square meters. Answer: 3,219 meters) How many fence posts would they need if they placed them every four feet? (2,640)
2. Have students bring in small portions of barbed wire to look at, and try to determine the type or maker. Antique or farm stores can be a source for barbed wire if you are interested in purchasing small amounts.
3. Have students practice their business-writing skills by composing letters to companies that market or design barbed wire. Have students inquire about the cost, the design, the effectiveness, how long the style has been on the market, etc. A simple explanation about the topic you are studying would also be of interest to the company. See a list of companies in the additional resources.
4. The fencing of the west meant the end of cattle drives and big open ranches. Have students research and investigate the feelings and attitudes that came about as the result of fencing rangeland. Hold a class debate. Assign some students to be cowboys from a cattle company and some students to be the new farmers or settlers who are in favor of fences. Have some students be the moderators and interviewers. The remaining students can be supporters for the different views. Invite another class in to hear the debate and vote on the side they feel presented the best argument. If possible, invite several classes in for a series of debates. Have students create ballots asking for specific information, such as sex, age, teacher's name, etc. Have the class tally the information and put it in graph form.

### RESOURCES

#### *Student Books*

- Artman, J. (1987). Pioneers. Good Apple.  
Bender, L. (1991). Invention Eyewitness Books, Knopf.  
Granfield, L. (1994). Cowboy. Ticknor and Fields.

Food & Fiber Systems Literacy  
Agricultural Education, Communications, and 4-H Youth Development  
Oklahoma State University, Stillwater, Oklahoma

Lawlor, L. (1986). Addie Across the Prairie. Whitman.  
Miller, B. M. (1995). Buffalo Gals, Women of the Old West. Lerner.  
Schlissel, L. (1995). Black Frontiers: A History of African American Heroes in the Old West.  
Simon and Schuster for Young Readers.

***Teacher Resources***

Farm and Industrial Equipment Institute, 410 N. Michigan Ave., Chicago, IL 60611.  
Farm Equipment Manufacturers Association, 243 Lindbergh Blvd., St. Louis, MO  
63114, 314-991-0702.

“Grange—Order of the Patrons of Husbandry,” National Grange, Information  
Department, 1616 H St. NW, Washington, DC 20006 (14-page booklet on the  
history, structure, and accomplishments of the country’s oldest farm organization,  
free, limit two).

***Related Internet Websites***

(see Food & Fiber Systems Website – links)

**EVALUATION**

A teacher answer page is provided.

**ACKNOWLEDGMENT**

This lesson was adapted from Oklahoma Ag in the Classroom, Department of Agricultural  
Education, Communications and 4-H Youth Development, Oklahoma State University,  
Stillwater, OK 74078.

# Don't Fence Me In

In 1874, Joseph Glidden took out the first patent on a fence with prickly hedges which came to be known as "barbed wire." Rock and wooden fences were too expensive for the Plains. Wire fences could not hold up when cattle or horses stampeded. Within a decade, 120 million pounds of barbed wire were sold and stretched across the prairies to change the face of the Plains forever.

Nearly 1,000 designs for barbed wire have been patented since Glidden patented his. Five popular barbed wire designs are pictured below, along with the names of their creators and the years in which they were patented.

**Geometric Terms**

- A point shows an exact location in space. It is named by a capital letter.

**A**

• A line is made up of points. It goes on in opposite directions. A line is named by two points.

**BC**

• A line segment is part of a line. It has two endpoints.

**DE**

• A ray is part of a line. It has one endpoint and goes on and on in one direction.

**FG**

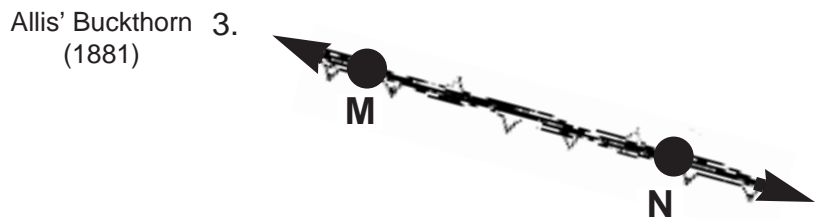
Look at the figures and name them, using the geometric terms at left. Then write them in words.



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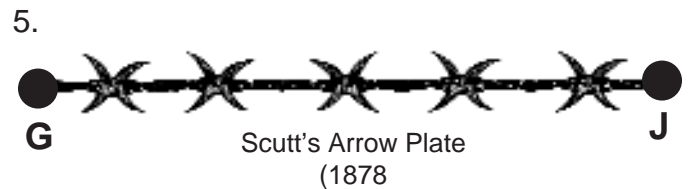


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Brinkerhoff's Riveted Splicer (1881)



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# Don't Fence Me In (answers)

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