

Lesson Strategy for the Louisiana Purchase Bicentennial
Instructor Copy

Survey of the Louisiana Purchase in 1815

Grades: 4-12

Suggested Time Frame: Two, 50-minute class periods

Objectives:

- To understand the 1815 survey of the Louisiana Purchase and the role Arkansas played in this important event.
- To trace the history of the rectangular survey system and its importance in American history.

Ties to the Arkansas History Guidelines of 1997:

1.1.5., 1.1.7., 1.1.10., 1.1.11., 1.1.12., 1.1.15., 2.1.4., 2.1.7., 2.1.8., 3.1.6., 3.1.12., 5.1.7., 5.1.17.

Materials To Be Supplied by Teacher:

Pens, pencils, colored markers or pencils
Paper
Rope
Pocket compass

Materials Included In This Lesson:

“The Instruments of Lewis and Clark,” *We Proceeded On* (February, 1991), pp. 7-9.
(Insert #1)



Vocabulary:

Base Line: permanent east-west survey line.

Bottomland Hardwood Swamp: wetland occurring near rivers, featuring cypress trees, tupelo and in the drier areas, oak and hickory.

Bouquet, Colonel: British soldier who introduced the rectangular survey system to the United States after learning about the system while stationed in Greece.

Brown, Joseph C.: surveyor who set out from the mouth of the St. Francis River to Clarendon on the White River in 1815. He surveyed land as far west as Baseline Road in present-day southwest Little Rock.

Initial Point: the point in eastern Arkansas by which all other land surveys of the Louisiana Purchase originate. It is located 91 degrees, 03 minutes, 42 seconds west of Greenwich at a latitude of 34 degrees, 44 minutes north.

Louisiana Purchase: land mass purchased by the United States from France in 1803. This land doubled the size of the United States.

Meridian: permanent north-south survey line.

Metes and Bounds: pre-Revolutionary War land survey system by which property was identified by physical features, such as streams and lakes.

Missouri Territory: territory to the United States in which land destined to become Arkansas was located in the early 19th century.

Monroe, James: President of the United States who ordered the 1815 survey of the Louisiana Purchase lands in order to prepare for westward settlement.

Quarter-Quarters (forties): section of land in the rectangular survey system equal to 40 acres.

Quarter Sections: sections of land in the rectangular survey system equal to 160 acres.

Rectangular Survey System: survey method introduced by British soldier, Colonel Bouquet, used to arrange the sale and grants of land. It was used over the square miles of the Louisiana Purchase.

Robbins, Prospect: surveyor who set out 30 miles inland from the Mississippi River and emerged near the edge of a prairie near present-day Marvell to establish the Fifth Meridian or Base Line of the Louisiana Purchase in 1815.

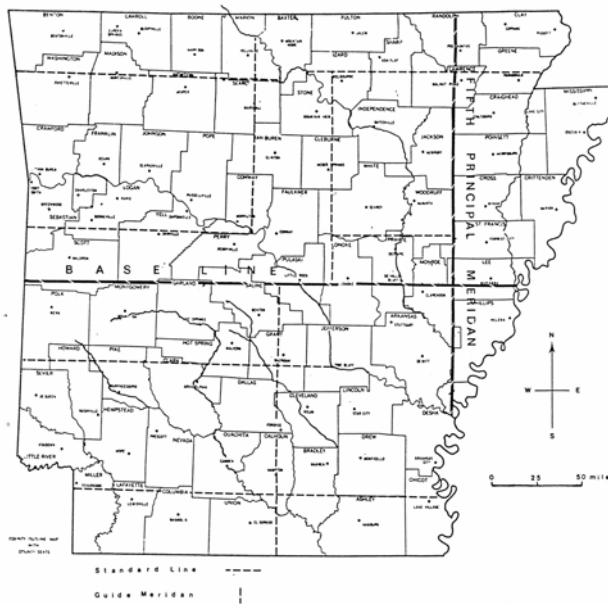
Sections: area of land in the rectangular survey system that equals 640 acres.

War of 1812: conflict between the United States and English for which veterans of the armies received military bounty land grants in the Louisiana purchase for their service.

Witness Trees: two sets of gum trees measuring 18 inches in diameter. They were marked by Joseph Brown and Prospect Robbins as the Base Line and initial point of the Louisiana Purchase.

“X” Axis: the base line of the rectangular survey system (east-west line).

“Y” Axis: the principal meridian of the rectangular survey system (north-south line)



Township and Range System In Arkansas G. T. Hanson

Background Information:

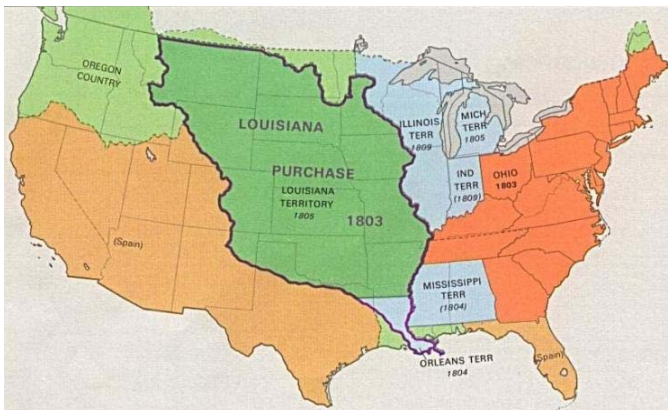
By Lea Flowers Baker, Education Coordinator
Department of Arkansas Heritage

“Everything...must have a beginning and the public land survey of Arkansas is no exception. Over in eastern Arkansas where Monroe, Lee and Phillips Counties all join at a common point, is located the point where all the surveys have their beginnings.”

-Claude A. Rankin
Arkansas State Land Commissioner, 1943-1954

In 1815, **President James Madison** ordered the United States government to survey the lands of the Louisiana Purchase. This survey was needed because settlers wanted to move westward and take advantage of settlements on the millions of acres that were added to the United States in 1803. Many of these new settlers were veterans of the War of 1812, who received military bounty land grants after their service in the conflict. Two million of the acres that were given away were located between the St. Francis and Arkansas rivers.

At the time of the survey, the land destined to become Arkansas was part of the **Missouri Territory**. Anticipating settlement by veterans, William Rector, the Surveyor General of the Missouri Territory, ordered 60 townships surveyed in Arkansas. The United States Land Office hired **Prospect K. Robbins** and **Joseph C. Brown** to conduct this survey by establishing an **“initial point”** in eastern Arkansas by which all other land surveys of the Louisiana Purchase would originate. In the fall of 1815, Robbins and Brown arrived in Arkansas with several other men and at the St. Francis River, Brown and Robbins divided their surveying group into two parts. Brown and his men landed at the mouth of the St. Francis River in present-day Phillips County while Robbins continued to the confluence of the Arkansas and Mississippi rivers in present-day Desha County.



Map depicting the Louisiana Purchase and established territory to the United States in the 19th century.

The two men set up a permanent north and south line, known as the **meridian**. It crossed with an east and west line called the **baseline**. The junction of the **meridian** and **base line** was called the **initial point** of survey. The area of the initial point was very inaccessible due to the bottom-land hardwood swamps. After surveying at least 30 miles of the interior of Arkansas, Robbins emerged near the edge of a prairie (near present-day Marvell in Phillips County), where he noted that the land was “level and well-suited for faming.”

Brown found the land of Arkansas good for farming, although it was covered with “swamps and briers aplenty.” The land Brown was referring to is estimated to be only 20 miles west of the Mississippi River. Brown continued his survey to the present-day town of Clarendon on the White River before turning east to meet Robbins on November 10, 1815. On that day, the initial point was established after the men had worked for 14 days and traveled 55 miles. They marked the initial point by marking two sets of gum tree, known today as the **witness trees** that were 18 inch in diameter, for the base line and the meridian.



The initial point of survey is located at 91 degrees, 03 minutes, 42 seconds west of Greenwich and at latitude of 34 degrees, 44 minutes north. On the same journey, another surveyor named Charles Lockhart, arrived at Robbins and Brown’s camp and began surveying eastward. He and two marksmen, Jacob Fryzer and Booker Davis, established township section lines throughout the region that Brown and Robbins had covered. In December of 1815, Robbins set out to the Missouri River along the Fifth Meridian. Brown and his men surveyed as far west as Baseline Road in present-day Little Rock. Three years later, the base line was continued westward and extended to the western border of Arkansas in 1841. Robbins survey of the Fifth Meridian was continued north to provide an orientation for the survey of most of Arkansas, Missouri, Iowa, the Dakotas and Minnesota.

Initial Point of Survey,
Louisiana Purchase State Park,
Monroe County, Arkansas.
Courtesy of Arkansas State
Parks.



The survey method used during the Louisiana Purchase survey was the **rectangular survey system**. It was an orderly method for arranging the sale and grant of Louisiana Purchase lands to settlers. The rectangular land surveys of the Louisiana Purchase are continuous over thousands of square miles of land and its initial point of survey is found in Arkansas. This survey system replaced the pre-Revolutionary War system of “**metes and bounds**,” by which property was identified by physical features (i.e., streams and trees). The rectangular survey system was introduced by a British soldier, **Colonel Bouquet**, who learned about the survey while stationed in Sardinia, Greece. Thomas Jefferson, a man interested in science and survey, developed a system based on Bouquet’s observations in the 1780s. It was adopted by the United States Congress and used for the Northwest Ordinance of 1785. The rectangular survey system is based on the “**Y**” axis (principal meridian) and the “**X**” axis (base line) system. The two points intersect at a point based on identifiable physical geographic features, such as Robbins and Brown’s witness trees. After this initial point of survey was established, the property could be divided into six-mile square townships with sections and quarter sections for sale or grant to potential property owners.

Many of the survey lines follow state and county boundaries in the United States. The rectangular survey system is also a basis for the use of “**sections**” of lands that are equal to 640 acres, “quarter” sections of 160 acres and “**quarter-quarters**” or “**forties**” of 40 acres. Throughout the 1800s and early 20th century, villages and towns were laid out in a rectangular grid pattern based on the rectangular system of survey. Today, the United States is a very “rectangular” country, with political and civilian property divisions in the west and Midwest following a checkerboard pattern of squares or oblongs with lines running directly north-south and east-west. This major development of the United States is a direct result of the survey of Arkansas that occurred in 1815!

Activities:

1. Read the “Instruments of Lewis and Clark” and discuss the surveying and cartographic methods used in the early 19th century.
2. Teach the class how to determine north without a compass:
 - a. In a place with sun for several hours, plant a long stick in the ground
 - b. Place a rock on the end of the stick’s shadow.
 - c. Wait several hours, then place another rock on the end of the new shadow made by the stick.
 - d. Stand square with your left foot touching the first rock and your right foot touching the second rock. You are now facing north.

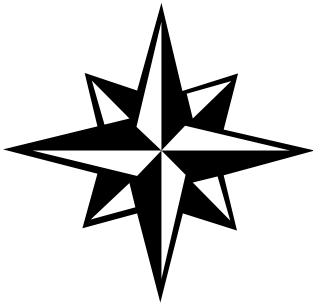
5. Divide the class into teams. Each group will use a specific mapping technique (listed below). Each team will not know what the other teams are doing. When their map *exercise is complete, then each group will share their project with the class. The class will then have a chance to see if they can find the location, recognize the place or successfully complete the task.

Team “Sticks and Stones”:

- a. On the school grounds, make a map of the school neighborhood.
- b. Use only what is found on the ground, including sticks, rocks, leaves, mounds of dirt, etc. Indicate north in some manner.
- c. Have the class try to interpret your “natural” map.

Team “Pace the Park”:

- a. Map a community park or sports field.
- b. Learn, measure and use the length of your stride to count the paces between land marks. Do not forget to note any changes in directions between stations. Directions can be given in right and left, or by the numbers on the face of a clock with “12 o’clock” being North.
- c. Draw your pace maps and sketch in prominent features.
- d. Show the rest of the class your pace map. Can they recognize where this is? Can they retrace your steps? Is everyone’s stride the same length? Why or why not?



Team “Orienting”:

- a. Research what orienting is and how it is done. Books are available on this subject in your library.
- b. Outside on the school ground, create an orienting course.
- c. Use a compass and a long length of rope.
- d. Write the instructions for each station in a log book or a journal. Draw an “answer” map.
- e. Teach the rest of your class about orienting, then have them work the course. They will draw a map as they read the log book which tells them how to get from one station to the next. Be sure to have the north arrow on the map. Did they finish the course correctly?
- f. Have a guest speaker come and talk to the class about orienting.

(Question #5 adapted from the Lewis and Clark Trail Heritage Foundation)

Evaluation:

1. Create a subjective or objective test about the Louisiana Purchase survey of 1815. Include the following questions as essays, vocabulary, short answers or matching:
 - a. Describe the 1815 survey of the Louisiana Purchase that originated in Arkansas., persons involved and lasting legacy from the survey.
 - b. List the major elements of surveying in the 19th century.

Extension:

1. Visit the Louisiana Purchase initial point of survey, go to the Louisiana Purchase State Park in Monroe County. A boardwalk will direct the visitor to the site marked by Robbins and Brown in the middle of a bottomland hardwood swamp. Contact Arkansas State Parks for more information on the Louisiana Purchase State Park at (501) 682-7177 or arkansasstateparks.com.

Field Resources:

Department of Arkansas Heritage
Louisiana Purchase Bicentennial
Attn: Education Coordinator
1500 Tower Building, 323 Center Street
Little Rock, AR 72201
(501) 324-9150
info@arkansasheritage.org
www.arkansasheritage.com
www.lapurchase.org



Louisiana Purchase State Park
Highway 49 South to Arkansas 362
South of Brinkley, Arkansas
(870) 238-2188
www.arkansasstateparks.com



Written by Lea Flowers Baker, Education Coordinator, Department of Arkansas Heritage and edited by Melissa Whitfield, Communications Director, Department of Arkansas Heritage. Thanks to Cora Grimes, Administrative Assistant, Department of Arkansas Heritage for her assistance.

This lesson is prepared by the Department of Arkansas Heritage and the Arkansas Natural and Cultural Resources Council, for the Louisiana Purchase Bicentennial.

For more information on the Louisiana Purchase Bicentennial, contact Education Coordinator, Department of Arkansas Heritage, 1500 Tower Building, 323 Center Street, Little Rock, AR 72201; (501) 324-9150 (phone), (501) 324-9154 (fax), or e-mail info@arkansasheritage.org.