Grade level: Late elementary
Estimated time: Five class periods

Topic: Construction of the Ferris wheel of the World’s Columbian Exhibition of 1893
Subtopic: Communicating via the telegraph

Teacher background information

George Washington Gale Ferris invented the first Ferris wheel for the World’s Columbian Exposition of 1893. Ferris’s invention was inspired by a waterwheel near his childhood home in Nevada and modeled after the structural principles of a bicycle wheel. The Ferris wheel was supported by an enormous axle and powered by a one-thousand-horsepower steam engine. Correspondents made repeated requests for drawings and information, but Ferris would not release the details. As a consequence, no copies of the original plans or calculations have survived.

Ferris hired Luther V. Rice to build and operate the attraction. Rice was thirty-two years old (the same age as Ferris) and only three years out of engineering school. Though young and relatively inexperienced, Rice proved himself worthy of the immense responsibility of constructing the world’s first Ferris wheel.

The construction of the wheel proceeded slowly in the face of the most severe winter Chicago had experienced in many years. The Columbian Exposition opened on May 1, 1893, and the steelworkers continued to work on the wheel. Finally on June 21, fifty-one days after the exposition opened, the Ferris wheel had its first riders: George Ferris, his wife, and invited guests, including the entire City Council and a forty-piece band. (Rice also held a trial trip for the local press, who were very enthusiastic in their praise.) From that day on, the Ferris wheel ran every day from 8:00 a.m. until 11:00 p.m.

The gigantic ride gave an impressive bird’s-eye view of the exposition, as each sightseer was elevated 250 feet above the ground in a gentle and quiet movement. It had thirty-six wooden cars that could each hold sixty people. The ride cost fifty cents and included two revolutions of the wheel, one of which was uninterrupted. The Ferris wheel proved to be financially successful and contributed significantly in balancing the books of the Fair.

At the end of the fair, Ferris entrusted Rice with taking down the Ferris wheel and then reassembling it for its second appearance in St. Louis in 1904. This lesson uses original letter and telegraph correspondence between Rice, on site in Chicago, and Ferris, at his engineering firm in Pittsburgh, Pennsylvania, to explore the process of building the world’s first Ferris wheel.

For more History Lab activities, visit the educators section of the Chicago Historical Society’s website at www.chicagohistory.org.
Key concepts
Engineering, inventions, communication, entertainment, and advertising

Key questions
How did people communicate in the 1890s? What needed to be communicated to build the Ferris wheel? Why was there a rush to receive answers?

Goals of this lesson
Students will learn about a unique event in Chicago’s history: the building of the world’s first Ferris wheel. By studying telegrams exchanged between Ferris and Rice, students will “meet” the two men responsible for the wheel and learn about the process of constructing it.

Objectives
1. Students will read and analyze original telegrams to learn about the people involved in and process of building the world’s first Ferris wheel.
2. Through examination of the correspondence between Rice, the superintendent, and Ferris, the inventor and engineer, students will begin to understand the planning necessary to build the Ferris wheel.
3. Students will learn the expense of sending a telegram in the 1890s and will create their own telegrams, writing in a manner that conveys the necessary information in the briefest way possible.
4. Students will compare and contrast communication technology of the 1890s to communication today.

Materials
Master copies of all student handouts are provided.
1. Poster of the Ferris wheel (Winters Art Lithograph, Co., c.1893, lithograph)
2. Letter from Ferris to Rice, December 12, 1892
3. Telegram from Rice to Ferris, June 9, 1893
4. Telegram from Ferris to Rice, June 10, 1893 (two pages)
5. “Talking with Telegrams” worksheet
6. “Write Your Own Telegram” worksheet
7. Pens and paper
8. Blackboard or flip chart

Procedures
Day 1
Use the provided Teacher Background Information to introduce students to the World’s Columbian Exposition of 1893, the invention of the Ferris wheel, and the men responsible for this new kind of ride: George Ferris, the engineer and inventor, and Luther Rice, the supervisor of the construction of the world’s first Ferris wheel.

Divide students into small groups. Instruct each group to make a list of answers to the following question: What would you do to get an urgent message to someone in another state? (Each group should list as many answers as they can.) Ask each group to share their list with the class. Tally up responses, and create one list on the chalkboard.

Ask students to imagine what it was like to communicate in the 1890s and discuss. Could Mr. Ferris e-mail Mr. Rice? Could Mr. Rice call Mr. Ferris on the telephone? Ask student groups to create a second list of communication in the 1890s. Again, have groups share their answers with the class and create a list on the chalkboard. Using the lists you have compiled, hold a class discussion that compares and contrasts communication in the 1890s with communication of today (or you can instruct students to complete Venn diagrams). If students do not include it themselves, make sure to add telegrams to the list for the 1890s. Share the following information about the telegraph with your students:

While on a ship coming home to America from Europe, Samuel Morse first heard about Joseph Henry’s work. Henry was a great American scientist, who experimented with many things, including a crude invention of a telegraph. Morse became very interested in the telegraph and wondered if electrical pulses could be sent through a wire in a configuration of dots and dashes. Morse realized that if he could make this idea a reality he could develop a system of dots and dashes that formed a code to carry messages.

Morse spent the next twelve years working on the telegraph. Finally, in 1844, the first message was sent by Morse code, from the Supreme Court in Washington, D.C., to Baltimore. At first people regarded the telegraph as an eccentric toy, but soon
the advantage of transmitting messages in seconds, convinced the public that the telegraph had wider applications. People, who needed information quickly, such as newspaper editors, saw the potential of the telegraph and, by 1861, the telegraph reached from coast to coast.

**Day 2**

Distribute copies of the Ferris wheel poster and George Ferris’s letter to L. V. Rice (dated December 12, 1892). In the letter, Ferris offers Rice the position of superintendent of building the first Ferris wheel for the World’s Fair of 1893.

Read the letter aloud or ask students to take turns reading portions of it. Discuss: What were the superintendent’s job duties and responsibilities? Using the poster and the letter, create a list of possibilities. Encourage students to make inferences, as not all aspects of the job are expressed in detail in the letter.

**Day 3**

Divide the students into small groups and distribute copies of the telegram correspondence and the “Talking with Telegrams” worksheet. These telegrams were sent near the end of construction (unlike the letter, which marked the beginning of Rice’s involvement in the project).

Give students time to read the telegrams and answer the questions on the “Talking with Telegrams” worksheet. Encourage students to first examine the facsimile of the telegrams and make note of as much detail and information as possible. Then students can read the transcriptions for further information. Use the worksheet as a guide for a classroom discussion about the relationship between Ferris and Rice and the process of constructing the Ferris wheel.

**Day 4**

Explain to students that George Ferris and Luther Rice began their business relationship in December 1892 and that the Ferris wheel opened to the public on June 21, 1893. During this time, the two men corresponded regularly about the progress and process of building the wheel.

Divide students into pairs and assign one student the role of Ferris and one the role of Rice. Students will now have the opportunity to compose their own telegrams to each other, writing as Ferris and Rice.

Inform students that the cost of sending a telegram is calculated per word and that each word in their telegram will cost 50 cents. As they can see, sending a telegram can be very expensive! Request that their telegram be as precise, and therefore as inexpensive as possible, while still conveying the necessary information.

Distribute the blank telegram forms. Each pair of students will need to agree on the topic to discuss via telegram and decide which person will send the first telegram and which person will reply with the second telegram. You can assign the topic and the sequence or allow students to choose themselves. Suggested topic ideas include:

1. Delay in construction due to poor weather, missing or late materials and supplies, or cost concerns, and the problems of such a delay
2. A request for an interview and tour of the construction site from a newspaper reporter who wants to write a story about the wheel
3. Changes to the design or construction of the wheel
4. Public reaction—either enthusiasm or concern—about riding the wheel
5. Performance of the wheel during various safety and construction tests

Require that the first telegram explain a situation and ask a question and the second telegram answer the question and address the consequences of the decision. Allow students time to meet and write their telegrams.

**Day 5**

Have each pair share their telegram correspondence aloud. Conclude with a class discussion about the experience of writing telegrams. Ask students to imagine tackling a big project, like building the Ferris wheel, with very few face-to-face meetings. Imagine instead communicating mostly via the telegraph, and discuss.
Suggestions for student assessment

1. During the small group discussions, circulate in the classroom and observe students’ critical thinking skills.
2. Assess the students’ written correspondence based on whether or not a question was asked and answered, appropriateness of topic (if they selected), cohesion of correspondence (does the back-and-forth communication make sense), expression of role (success and accurateness of using a historical voice), and the preciseness of the telegram message.

Extension activities

1. Read Robert Lawson’s *The Great Wheel* (which can be found at many branches of the Chicago Public Library) as a class. Then act out the building of the first Ferris wheel as a Reader’s Theater performance.
2. Take a field trip to the Chicago Historical Society to learn more about both the 1893 and the 1933 world’s fairs hosted by Chicago.
3. Take a field trip to Navy Pier to see and study a modern Ferris wheel and take a ride!

Additional resources


Barnes, Sisley. “George Ferris’ Wheel: The Great Attraction of the Midway Plaisance.” *Chicago History*, fall 1977, 177-182. (Available at the Chicago Historical Society.)


Web resources

Chicago Historical Society
www.chicagohistory.org

Coaster Globe
www.coasterglobe.com/features/lostlegends-greatwheel

Hyde Park Historical Society
www.hydeparkhistory.org

This lesson fulfills the following Illinois Learning Standards:

**English Language Arts**
State Goal 1: Read with understanding and fluency.
State Goal 3: Write to communicate for a variety of purposes.
State Goal 5: Use the language arts to acquire, assess, and communicate information.

**Social Science**
State Goal 16: Understand and analyze events, trends, individuals, and movements shaping the history of Illinois, the United States, and other nations.

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THE FIRST FERRIS WHEEL | TALKING WITH TELEGRAMS!

INSPECTORS OF IRON AND STEEL FOR STRUCTURAL PURPOSES.


Pittsburg, Pa., 12/12/92

L. V. Rice, Esq.,
Asst. Eng'g'r, Union Depot & Tunnel Co.,
6/6 N. F. Tamassig, St. Louis, Mo.

My Dear Rice,—

I have on hand a great project for the World's Fair in Chicago. I am going to build a vertically revolving wheel 250' in dia. There will be considerable masonry work to be done, and it will have to be done with the greatest care. After the plant is erected, which will be the 1st. of May, it will require a superintendent to operate it for the next 6 months, and afterwards, a man in charge of the tearing down of the plant and building foundations and re-erection at another place.

I can certainly offer you employment for at least a year in this capacity and possibly much longer, if you desire it. Please write me upon receipt of this at my Chicago office,—care of the Ferris Wheel Co., 87 Rookery Building, Chicago, whether or not I can have your services in this matter. I want you at once if you can come. Please state what salary you would desire in this connection.

I urgently commend you to take this position, because it will be a stepping stone for you in another direction.
(2)

L.V.R.

that will always be good.

Do not fail to telegraph me and also write me upon receipt of this letter.

Very sincerely yours,

[Signature]

Chicago Historical Society, George Washington Gale Ferris papers
Chicago ILL
June 9, 1893
To: George W. G. Ferris
The last coupling and final adjustment was made and steam turned on at six o’clock this evening—one complete revolution of the big wheel was made—everything working satisfactorily—twenty minutes time was taken for the revolution—I congratulate you upon it—complete success—Midway [Plaisance] is wildly enthusiastic.
L.V. [Rice]
Pittsburgh, PA
June 10, 1893
To: L.V. Rice
[sic] Ferris wheel
Your telegram stating that first revolution of wheel had been made last night at six o’clock and that same was successful in every way has caused great joy in this entire camp. I wish to congratulate you in all respects in this matter and ask that you rush the putting in of cars,
[June 10, 1893, side 2]
working day and night-if you can’t put the cars in at night hobble [i.e. hobble] the car bearings at night so as to keep ahead. Please take [sic] the Changes in the posts at once and rush same through with all possible speed-will be in Chicago the first of the week.
Geo W. G. Ferris
TALKING WITH TELEGRAMS

Read the two telegrams and answer the questions below:

1. Find the dates on the telegrams. How far apart were they sent?
   _____________________________________________________________
   _____________________________________________________________

2. What cities were they sent between?
   _____________________________________________________________
   _____________________________________________________________

3. What news was Rice reporting to Ferris?
   _____________________________________________________________
   _____________________________________________________________

4. How was the Ferris wheel powered?
   _____________________________________________________________
   _____________________________________________________________

5. What did Ferris ask Rice to rush?
   _____________________________________________________________
   _____________________________________________________________

6. How hard did Ferris ask Rice to work?
   _____________________________________________________________
   _____________________________________________________________

7. Where was Ferris traveling?
   _____________________________________________________________
   _____________________________________________________________

8. At what stage of construction of the Ferris wheel do you believe these telegrams were sent? Circle one:
   very beginning                                               halfway through                               near the end

9. Why did you choose this stage?
   _____________________________________________________________
   _____________________________________________________________

10. Use three adjectives to describe the mood of Rice and Ferris when they wrote these telegrams:
    _____________________________________________________________
    _____________________________________________________________
    _____________________________________________________________
WRITE YOUR OWN TELEGRAM

Telegram Company Policy: The fee to send a telegram is 50 cents per word.

Telegram number: ____________________________________________

Sent by: ____________________________________________

Sent from (name of city): ____________________________________________

Date: ____________________________________________

Paid: $___________________________________________

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Please give us your feedback! After reviewing and using this History Lab lesson, please send us your feedback. Your ideas and honest assessment will ensure that these lessons keep improving and will provide us with useful insight for future teacher fellows. To fill out this form online or discover additional History Lab activities, visit the educators section of the Chicago Historical Society’s website at www.chicagohistory.org.

Name:______________________________________________  E-mail:_________________________________
School:_____________________________________________  Grade you teach:__________________________
Are you a CHS member? (circle one):               yes                      no
Name of unit you are evaluating ________________________________________________________________
Name of lesson you are evaluating:_______________________________________________________________

1. On a scale of one to five (with five being the best) rate this lesson in terms of the quality of the student learning experience it provides (circle one):

   5   4    3    2    1

2. What were the strengths of this lesson? _________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________

3. What aspects of this lesson needed additional fine-tuning?________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________

4. What advice, tips, or suggestions would you give to future users of this lesson? _________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________

5. Where does this lesson fit in your course of study (scope, sequence, unit)?_____________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________

6. If applicable, how did the use of primary sources impact student learning?_____________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________
   ___________________________________________________________________________________________

Thank you for your time. Please send the completed form to:
Chicago Historical Society, Clark Street at North Avenue, Chicago, Illinois, 60614-6071, Attn: History Programs Fax: 312-266-2077