

Teaching with Primary Sources – MHU**Lesson Plan: The Wright Brothers – Inventors**Recommended Grades: 4th grade

Subjects: History and Geography, ELA

Time Required: 3, 45 minute class sessions

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**Overview**

This lesson will allow students to peek into the Wright brothers' journey to inventing the airplane. Students will learn how to view and analyze primary source materials, such as letters and photographs, to gain a greater understanding of the effort required in bringing this invention to life. The documents and photographs will help students understand that it takes a lot of work, research, trial and error, failures and redesigns to bring an invention from idea to reality.

Curriculum Standards

Social Studies

ES 4.H.1.3 - Explain how people, events and developments brought about changes to communities in various regions of North Carolina.

ES 4.H.2.2 - Explain the historical significance of North Carolina's state symbols.

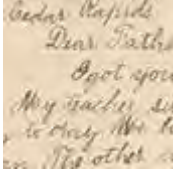



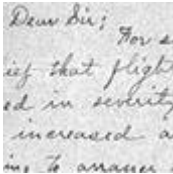
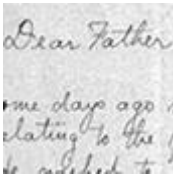
ES 4.G.1 - Understand how human, environmental and technological factors affect the growth and development of North Carolina.






ES 4.G.1.4 - Explain the impact of technology (communication, transportation and inventions) on North Carolina's citizens, past and present



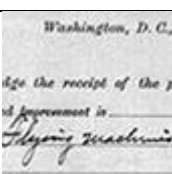
ELA


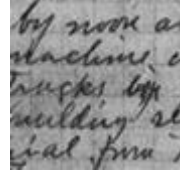
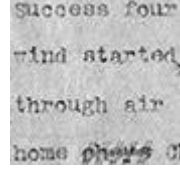
RL 4.7 Make connections between the text of a story and a visual presentation of the text.


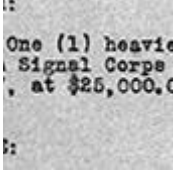
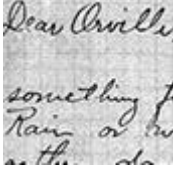
Primary Sources	
Primary Source set from the Library of Congress	http://www.loc.gov/teachers/classroommaterials/primarysourcesets/flight/pdf/teacher_guide.pdf




 <p>Dear Father Got your My father's is my The other</p>	<ul style="list-style-type: none"> • Title: Family Papers: Correspondence--Wright, Orville, 1881, 1888-1898 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.02037
	<ul style="list-style-type: none"> • Title: Penaud-Style Ornithopter • Location: http://www.loc.gov/exhibits/treasures/images/wb0051s.jpg
	<ul style="list-style-type: none"> • Title: Subject File: Printing & Publishing Business--West Side News, 1889 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04143
	<p><i>Wilbur Wright working in the bicycle shop</i></p> <p>Digital ID: (digital file from original) ppprs 00540 http://hdl.loc.gov/loc.pnp/ppprs.00540 Reproduction Number: LC-DIG-ppprs-00540 (digital file from original) LC-W851-81 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <p>Location: http://www.loc.gov/pictures/item/2001696435/resource/ppprs.00540/</p>
 <p>Dear Sir; For if that flight ed in security increased a me to answer</p>	<ul style="list-style-type: none"> • Title: Octave Chanute Papers: Special Correspondence--Wright Brothers, 1900 • Source Collection: Octave Chanute papers, 1807-1955 • Location: https://www.loc.gov/resource/mwright.06001#seq-1
 <p>Dear Father one day ago clating to the be related to</p>	<ul style="list-style-type: none"> • Title: Family Papers: Correspondence--Wright, Wilbur, 1900-1900 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.02055


	<p><i>[Crumpled glider wrecked by the wind on Hill of the Wreck (named after a shipwreck)]</i></p> <p>Digital ID: (digital file from original) ppprs 00544 http://hdl.loc.gov/loc.pnp/ppprs.00544 Reproduction Number: LC-DIG-ppprs-00544 (digital file from original) LC-W851-85 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <ul style="list-style-type: none"> • Location: http://www.loc.gov/pictures/item/2001696439/resource/ppprs.00544/
	<ul style="list-style-type: none"> • Title: Image 3 of Subject File: Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Originals, 1901 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04003
	<ul style="list-style-type: none"> • Title: Image 20 of Subject File: Chanute, Octave – Photographs, Kitty Hawk, North Carolina, Originals 1901 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04003
	<ul style="list-style-type: none"> • Title: Image 4 of Subject File: Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Originals, 1901 • Source Collection: Wilbur and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04003
	<ul style="list-style-type: none"> • Title: Image 1 of Subject File: Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Originals, 1901 • Source Collection: Wilbur and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04003

	<p><i>[Side view of glider flying as a kite near the ground, Wilbur at left and Orville at right, glider turned forward to right and tipped downward]</i></p> <p>Digital ID: (digital file from original) ppprs 00580 http://hdl.loc.gov/loc.pnp/ppprs.00580 Reproduction Number: LC-DIG-ppprs-00580 (digital file from original) LC-W851-121 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <ul style="list-style-type: none"> • Location: http://www.loc.gov/pictures/item/2001696475/resource/ppprs.00580/
	<p><i>[Visitors and fellow campers in the Wrights' work shed at Kitty Hawk, North Carolina. Left to right: Octave Chanute, Orville Wright, and Edward C. Huffaker seated at left and Wilbur Wright standing]</i></p> <p>Digital ID: (digital file from original) ppprs 00581 http://hdl.loc.gov/loc.pnp/ppprs.00581 Reproduction Number: LC-DIG-ppprs-00581 (digital file from original) LC-W851-122 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <ul style="list-style-type: none"> • Location: http://www.loc.gov/pictures/item/2001696476/resource/ppprs.00581/
	<ul style="list-style-type: none"> • Title: Image 1 of Subject File: Patents--By Wright Brothers--USA--filed 23 March 1903, patented 22 May 1906 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04135

	<p><i>[First flight, 120 feet in 12 seconds, 10:35 a.m.; Kitty Hawk, North Carolina]</i></p> <p>Digital ID: (digital file from original) pprs 00626 http://hdl.loc.gov/loc.pnp/pprs.00626 Reproduction Number: LC-DIG-pprs-00626 (digital file from original) LC-W861-35 (b&w film copy neg.) LC-USZ62-6166A (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA http://hdl.loc.gov/loc.pnp/pp.print</p> <ul style="list-style-type: none"> Location: http://www.loc.gov/pictures/item/00652085/resource/pprs.00626/
	<ul style="list-style-type: none"> Title: Diaries and Notebooks: 1903, Orville Wright Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 Location: https://www.loc.gov/resource/mwright.01007
	<p>Telegram, Orville Wright to Bishop Milton Wright announcing the first successful powered flight, 17 December [1903]. (Wright Brothers Papers)</p> <p>Location: http://memory.loc.gov/cgi-bin/ampage?collId=mcc&fileName=061/page.db&recNum=0</p>

	<p><i>[Wilbur and Orville Wright with their second powered machine; Huffman Prairie, Dayton, Ohio]</i></p> <p>Digital ID: (digital file from original) pprs 00621 http://hdl.loc.gov/loc.pnp/pprs.00621 Reproduction Number: LC-DIG-pprs-00621 (digital file from original) LC-W861-30 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <ul style="list-style-type: none"> • Location: http://www.loc.gov/pictures/item/2001696552/resource/pprs.00621/
	<ul style="list-style-type: none"> • Title: Subject File: United States--War Department--Army Signal Corps--Correspondence, 1908 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.04164
	<ul style="list-style-type: none"> • Title: Family Papers: Correspondence--Wright, Wilbur, September 1908 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.02067

	<ul style="list-style-type: none"> • Wilbur Wright Postcard to Orville • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.02067
	<p><i>Wilbur Wright and Orville Wright seated on steps of rear porch, 7 Hawthorne St., Dayton, Ohio</i></p> <p>Digital ID: (b&w film copy neg.) cph 3b13001 http://hdl.loc.gov/loc.pnp/cph.3b13001 Reproduction Number: LC-USZ62-65478 (b&w film copy neg.) Repository: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA</p> <ul style="list-style-type: none"> • Location: http://www.loc.gov/pictures/resource/cph.3b13001/
	<ul style="list-style-type: none"> • Title: [Katharine Wright, wearing a leather jacket, cap, and goggles, aboard the Wright Model HS airplane with Orville, 1915] • Source Collection: Wright Brothers Negatives • Location: http://www.loc.gov/pictures/item/2001696483/

	<ul style="list-style-type: none"> • Title: Dayton Homecoming, 1909: Scrapbooks, January-December 1909 • Source Collection: Wilbur Wright and Orville Wright papers, 1809-1979 • Location: https://www.loc.gov/resource/mwright.05002/#seq-125
	<ul style="list-style-type: none"> •

Day 1: The introduction to this lesson will activate background knowledge for students.	
Step 1	Teacher will provide necessary background knowledge for students using the teacher guide provided with the primary source set for Wright Brothers.
Step 2	After teacher's presentation, students will complete side one of the 3-2-1 Bridge Visible Thinking strategy.
Step 3	Students will then view the Wright Brothers video from History.com and see if any of their questions from the 3-2-1 are answered. If they find an answer to their questions during the video, they should jot the answer on a sticky note and place it on their desk. Share student discoveries at the end of the video.
Formative Assessment	Were students able to find answers to their questions while viewing the video? What questions remain unanswered?

Day 2: Students will begin their analysis of primary sources to dig deeper into the Wright Brothers' story.	
Step 1	Teacher will model the Primary Source Analysis process through whole class analysis of " First Flight Photo ". This analysis process should be guided by the Primary Source Analysis tool for photographs and prints . List all student Questions on a poster

	board that can remain visible through the unit, so that you can add answers as they are discovered, or spur further research by individuals after the unit.
Step 2	Now allow students to practice a primary source analysis with a partner. Use the Telegram document for the partner practice, and provide guiding questions for partners with the Primary Source Analysis tool for printed texts . Once again share out student questions at the end of the process and add to your visual, also taking time to see if any original questions have been answered. *Modifications – provide printed PDF version of telegram for students who struggle to read small or cursive text
Step 3	Group Primary Source Selection – Divide class into 3-4 groups and provide each group with a folder of all the primary sources. Allow 15 minutes for each group to choose 4 primary sources that they feel will best help them answer their individual questions and better understand the Wright Brothers Invention process. Have students place these 4 primary sources in their fold and return all the others. Then on the outside of the folder, have each group explain why they chose their four primary sources. What about their initial review of the source made them feel it would be helpful in their inquiry process?
Formative Assessment	The guided primary source analysis as a whole class and in partners will help teachers determine if students are ready for group work with primary sources in next class period. Group explanation of primary sources for analysis will help teacher see what students are most interested in regarding the Wright Brothers story, what gaps in information might need to be supplemented, and students understanding of using a source to answer specific questions.

Day 3: Groups will analyze their collection of primary sources and reflect on what they have learned in regard to the process of invention through the Wright Brothers.

Step 1:	Begin class by having each group reflect on a learning expectation that they hold for today's class period. Provide 5-7 minutes for each group to discuss their answer to the following question: What do you expect to learn through your analysis of the primary sources selected by your group? Have them gather their thoughts at the end of seven minutes and write their learning goal on a large piece of paper and then post this on the front board. After each group has posted their learning goal, spend about five minutes guiding the students in a whole-class discussion about similarities and differences between the class' learning expectations.
Step 2	Primary Source Analysis – Groups will then proceed to complete a Primary Source Analysis Guide for each of the four primary sources in their folder.
Step 3	After groups have finished their analysis, end today's class by having groups return to their learning expectation, and have a group discussion about what they thought they would learn and what they actually did learn.

	Allow a brief share out time from each group.
Step 4	Exit Slip – Individually ask students to complete the following question stem: At the beginning of class, I thought I would learn _____. After analyzing the primary sources with my group, I did learn _____.
Formative Assessment	Teacher observations during group analysis time will provide key information about how students are working together, and where they are in the process of understanding primary source analysis. Exit slips will confirm which students remained involved in the learning process throughout the lesson, and what questions still need to be answered by the teacher.

Day 4: Students will look at the Wright Brothers story of primary sources in a chronological format and complete final reflections.	
Step 1:	Provide each student with one primary source as they enter the room, or have on their desk before class begins. Have the student individually complete the O-R-Q process that they have practiced in groups, and ultimately try to determine What is happening? And when it happened with regard to the timeline of the Wright Brothers invention of the airplane. (Beginning, Middle or End of their journey?)
Step 2:	Read aloud <i>The Wright Brothers: Inventors Whose Ideas Really Took Flight (Getting to Know the World's Greatest Inventors & Scientists)</i> by Mike Venezia. While reading, ask students to see if they can find a connection to their primary source. If so, ask them to write the connection on the back of the primary source. Share out any connections at the end of the story.
Step 3:	Work collaboratively to build a class timeline of the events. Bring each student up one at a time and have them share their primary source information. Then as a class place the primary source where it belongs on the timeline. This type of collaboration provides a safe space for students to individually share what they have learned through public speaking, and for the teacher to guide thinking and add additional information to the lesson if necessary.
Summative Assessment	Have students return to their 3-2-1 Bridge Tool, and complete the right side providing an opportunity for students to reflect on how their thinking has changed. They will turn in their 3-2-1 Bridge for the teacher to also evaluate what learning has taken place.

Evaluation

Were students reflective in their 3-2-1 Bridge? Did a shift in learning occur?

Extension Activities

- 1) Students can research other inventors and create a primary source collection on their assigned inventor, setting up a museum display for other classes to visit.
- 2) Students can write an informational book about the Wright Brothers to share with a lower grade level.
- 3) Student can read some of the other picture books written about the Wright Brothers, and then write a reflection on how the picture book compares to the primary source timeline that the class created. (Recommended picture books include: *Who Were the Wright Brothers?* By Johnny Heller, *Wee and the Wright Brothers* by Timothy R. Gaffney, *To Fly: The Story of the Wright Brothers* by Wendie C. Old, *The Wright Brothers First Flight: A Fly on the Wall History* by Thomas Kingsley Troupe)
- 4) After close examination of the images of the original glider, students can try to replicate model and then have a competition, seeing which group's glider travels the greatest distance. (STEM connection)