

Creating a Comparative Timeline: The Race to the Sky

Warming Up

Review the following timeline:

c. 1500	The Renaissance thinker and artist Leonardo da Vinci drafts a design for a flying machine.
1709	The Portuguese priest Bartolomeu Laurenço de Gusmao designs a model glider.
1785	French inventor Jean-Pierre Blanchard flies a balloon across the English Channel.
1843	George Cayley, who had written a book on aviation decades earlier, publishes a design for a biplane.
1891	German aviation pioneer Otto Lilienthal starts testing his own glider.
1896	French-born American engineer Octave Chanute begins experimenting with a biplane glider in Michigan. Otto Lilienthal dies while testing his glider.
1903	Orville and Wilbur Wright make the first powered heavier-than-air flight.

With a partner, discuss the following questions:

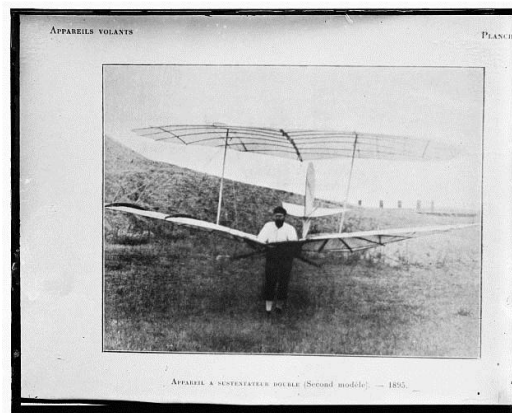
1. What do these dates suggest about the birth of flight?
2. What do these dates and events indicate about the Wright brothers' accomplishments in 1903?
3. Can you think of other technological innovations that required the same type of long-term effort? Explain.

Getting Started

When the Wright brothers started making trips to Kitty Hawk in North Carolina to test their glider and later, their airplane, they entered into a project that many other pioneers had been working on for years and even centuries. For as long as man has looked to the skies, he has envied the freedom of the birds to soar above the ground effortlessly. In the late 19th century, it seemed to many that Western civilization had attained the technological know-how to finally make this fantasy a reality.

The 19th century was a period of great technological change. It was during this century that the development and expansion of steam technology and railways shrank the world in important ways. Suddenly, people could travel across the Atlantic Ocean by steamship or from Paris to Berlin by railway in a fraction of the time it took just a couple decades earlier. Modern aeronautics emerged in this environment.

In 1852, the French inventor Henri Giffard flew his steam-powered airship from Paris to Élancourt, a distance of nearly 17 miles. A generation later, the English aviation pioneer Horatio Phillips tested and patented his curved airfoil shaped wing design. He would ultimately go on to create a flying machine with some 21 wings of this design, though it was mostly a failure as a flying machine. In



Otto Lilienthal glider, 1895. LOC Prints and Photographs;
<http://www.loc.gov/pictures/item/2001696482/>

1896, Samuel Langley flew his steam-powered airplane across the Potomac River. Four years later, the Wright Brothers launched their first glider, paving the way for their first successful powered flight in 1903.

As you can see from this quick and selective summary, there were a number of people involved in the race to master flight. In this activity, you will investigate the contributions of the Wright brothers and those of another important aviation pioneer from the same period. Using the information you collect from primary and secondary sources, you will construct a digital timeline showing the relationship between these different pioneers.

Real-World Topics

- Technological inventions rarely emerge from thin air; they frequently are the product of years and sometimes generations of focused and determined effort.

Readings

The following list of readings and sources should be used to complete the activity.

Books:

- Russell Freedman, *The Wright Brothers: How They Invented the Airplane* (New York: Holiday House, 1991).

Archival Sources:

- [Family Papers: Correspondence—Wright, Wilbur, 1900–1901](#)
- [Family Papers: Correspondence—Wright, Orville, 1903](#)
- [Diaries and Notebooks: 1903, Orville Wright](#)
- [Diaries and Notebooks: 1902, Orville Wright](#)

Online Resources for Initial Research:

Samuel P. Langley:

- [Samuel P. Langley: Aviation Pioneer \(Smithsonian Libraries\)](#)
- [Samuel Pierpont Langley, 1834–1906 \(Smithsonian Institution Archives\)](#)
- [Samuel Pierpont Langley, 1834–1906 \(flyingmachines.org\)](#)

Gustave Whitehead:

- [The Case for Gustave Whitehead \(wright-brothers.org\)](#)
- [Daniel C. Schlenoff, “Scientific American Debunks Claim Gustave Whitehead was ‘First in Flight’” \(scientificamerican.com\)](#)
- [The Flight Claims of Gustave Whitehead \(Smithsonian National Air and Space Museum\)](#)

Glenn Hammond Curtiss:

- [About the Man – Glenn H. Curtiss \(Glen H. Curtiss Museum\)](#)
- [David Langley, “The Life and Times of Glenn Hammond Curtiss \(aviation-history.com\)](#)
- [Curtiss, Glenn Hammond \(The National Aviation Hall of Fame\)](#)

Building Background

Review the slideshow of aviation pioneers to learn more about the race to take flight:

[The Crowded Race to the Sky](#)

Activity: Create an Interactive Timeline

Read through the following archived documents:

- [Family Papers: Correspondence—Wright, Wilbur, 1900–1901](#)
- [Family Papers: Correspondence—Wright, Orville, 1903](#)
- [Diaries and Notebooks: 1903, Orville Wright](#)
- [Diaries and Notebooks: 1902, Orville Wright](#)

As you read, identify 10 to 12 important milestone events, achievements, or failures on the road to completing the first successful powered flight. Aim to find a series of milestones across the entire 3-year range of 1900–1903. Document each important event culled from these digitized archival materials in the [Wright Brothers Graphic Organizer](#). You will note the date of the event, a description of the event, the source where you read about this event, and any technical or scientific significance.

To facilitate this primary research, consult Freedman’s *The Wright Brothers: How They Invented the Airplane*. This book will help you place the events you cull from the primary archival materials in the appropriate historical context. Additionally, consulting this work will help you select useful and important milestones from the primary materials.

After selecting at least 10 significant milestones and recording these in your graphic organizer, select one of the following contemporary competitors of the Wright brothers.

- Samuel Pierpont Langley
- Gustave Whitehead
- Glenn Hammond Curtiss

Conduct extensive research on the selected contemporary. You should consider beginning your research with the online resources identified above. You will necessarily have to expand your research beyond these resources, but these links will provide you with a solid and reliable starting point for further research.

Through this research, identify between 8 and 12 events from the life and work of the selected aviation pioneer. Search for events that overlap with the years 1900–1903, although some dates may fall outside this range. Record these events in the [Aviation Pioneer Graphic Organizer](#).

Finally, use the dates and information recorded in both graphic organizers to complete a timeline using TimeGraphics or another online timeline creator:

- [TimeGraphics](#)

Aim to make your timelines visually appealing by adding graphics and images found in archives online.

Using Online Timeline Makers:

If you are new to using online timeline makers, watch this tutorial.

- [TimeGraphics Timeline Maker Short Tutorial](#)

You might want to also consider the following timeline examples to see how you might structure your timeline.

- [History of Human Civilization](#)
- [Video Game History](#)

Finding Images:

To make your timelines visually pleasing and more informative, find historical images that relate to the events you have found and recorded. In addition to using general Internet image searches, you should also consider consulting online historical image databases such as:

- [The Library of Congress Prints & Photographs Online Catalog](#)
- [Wikimedia Commons](#)
- [Internet Archive](#)

Reflect

Consider the following questions, and submit your answers in the form of a short essay or through class discussion:

How was conducting primary research into the diaries and correspondence of the Wright brothers different from conducting secondary research into the pioneer aviators? What does this suggest about the use of primary and secondary research in producing historical knowledge?