



Women in Early Aviation



Session Time: Two, 50-minute sessions

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

Develop interest in one or more aviation/aerospace career pathways and learn what is required to pursue future employment in the industry. (EU3)

Understand the importance of professionalism, ethics, and dedication as they relate to all aviation/aerospace operations. (EU4)

Appreciate the global nature of the modern aviation/aerospace industry and embrace the discovery and inclusion of cultures outside the learner's typical experience. (EU7)

ESSENTIAL QUESTIONS

1. Were women treated as equals to men in early aviation history?
2. Were women's accomplishments in aviation surprising?

LEARNING GOALS

Students Will Know

- The hurdles placed in front of women in order to achieve their dreams of flight.
- Women's achievements in early aviation.

Students Will Be Able To

- *Describe* and *interpret* the significance of women's early achievements in aviation compared with other rights and freedoms that women had at that time. (DOK-L2)
- *Distinguish* between the obstacles the women faced in the late 1800's and early 1900's and the obstacles women face today. (DOK-L2)

ASSESSMENT EVIDENCE

Warm-up

Students will discuss women's rights and freedoms in the late 1800's and early 1900's and put into context how significant the achievements of early female aviators were.

Formative Assessment

Students will gather in their jigsaw groups and give a presentation on their assigned aviators, focusing special attention on the obstacles the women faced during those times and whether or not women face the same kind of obstacles today.

Summative Assessment

Students analyze the factors affecting women aviators in the late 1800s and early 1900s and consider whether those barriers still exist for women today.

LESSON PREPARATION

MATERIALS/RESOURCES

- [Women in Early Aviation Presentation](#)
- [Women in Early Aviation Student Activity](#)
- [Women in Early Aviation Teaching Aid](#)

LESSON SUMMARY

Lesson 1: Women in Early Aviation

Women made historically significant contributions to aviation in its early years. The next two sessions will explore the challenges they faced and the significance of their achievements.

To begin the lesson, teachers will lead the class through a discussion on what rights and freedoms women had in the late 1800s and early 1900s. Slides will help guide the teacher through this warm-up activity. Students will be introduced to some early female pilots and then engage in an activity where they move around the classroom during a card-matching exercise. After the students are matched, they will give short presentations about their female aviators as a way to provide brief introductions to the women that students will learn more about later in the lesson.

A jigsaw exercise has been incorporated as a way to interactively and cooperatively help students learn more about early women in aviation and the challenges they had to overcome. This activity will spill over into the second day of this section. To conclude the exercise, students will gather in their jigsaw groups and give a presentation on their assigned aviators, focusing special attention on the obstacles the women faced during those times and whether or not women face the same kind of obstacles today.

Following the presentations, a summative assessment will have students work in pairs or groups of three to analyze the factors affecting women aviators in the late 1800s and early 1900s and consider whether those barriers still exist for women today.

BACKGROUND

During the early years of aviation, contributions by women to aviation are often omitted from discussion. Students need background knowledge of women in this time period in order to understand the true progression of aviation. The women highlighted in this lesson are only a few who overcame immense obstacles during this time period in order to achieve their dreams of flight.

DIFFERENTIATION

To support verbal reasoning in the **EXPLORE** section, organize the class into groups for Think-Pair-Share instead of working individually on the activity. This allows learners to think about the question, discuss their thoughts with a partner before sharing with the larger group. It encourages all students to participate and practice skills, including metacognition.

To support student motivation in the **EXTEND** section of the lesson plan, allow students the option to use multiple modalities to present the same information on their female aviator.

LEARNING PLAN

ENGAGE

Teacher Material: [Women in Early Aviation Presentation](#)

Slides 1-3: Introduce the topic and learning objectives for this lesson.

Slides 4-14: Conduct the **Warm-Up**.

At this time, women were expected to remain in the home and support their families. They weren't urged to get higher education or have their own professions. They weren't allowed many legal rights. This warm-up activity will help students start to put into context how significant the achievements of early female aviators were. It will help them understand just how hard it was for women to break through the social norms of the day to pursue their passion for flying.

Ask students to state whether they think women were or were not permitted to do each of the actions or tasks in the grid on slide 5. [DOK-L2; *predict, classify*]

Slide 6: Women were permitted to drive cars at this time, although it was uncommon.

Slide 7: In general, women were not allowed to preach or lead church services at this time.

Slide 8: Only men (generally only white men) could serve on juries during this era, although a few states allowed female jury members before World War 1.

Slide 9: In general, women were unable to obtain loans, bank accounts, or other financial instruments.

Slide 10: Although some states and territories allowed women to vote under limited circumstances (for example, in local elections), women were not granted the right to vote nationwide until the passage of the 19th Amendment in 1920.

Slide 11: Although women could generally not vote until the 1920s, they did run for (and, in some cases, win) political office before then.

Slide 12: Women were not permitted to serve in the military at this time, although many served as nurses, drivers, and other support staff positions. Limitations on women's service in the military still exist today (e.g., prohibitions on service in active combat).

Slide 13: Women were able to fly airplanes during this era.

Slide 14: Most colleges and universities at this time were segregated by sex, and there were many more institutions for men than for women. However, women could and did attend colleges, universities, medical schools, and law schools during this time.

Warm-Up

Using the **Women in Early Aviation Presentation**, lead the class in an informal discussion about the rights and freedoms women had in the late 1800s and early 1900s.

Ask students to state whether they think women were or were not permitted to do each of the actions or tasks in the grid on slide 5. Ask students to justify their answers (for example, by citing things they have learned in history classes or media depictions). Reveal the answer for each item before discussing the next one. Encourage students to consider how the omission of women from some of these experiences may have affected social and cultural perspectives (for example, the ability for women accused of crimes to have a fair jury trial).

EXPLORE

Teacher Material: [Women in Early Aviation Presentation](#), [Women in Early Aviation Teaching Aid](#)

Slide 15: The next part of the lesson will introduce students to early female aviators. Slide 15 shows a picture of Maude Rose Lores Bonney who began flight training in secret, not telling her husband. When he found out, he was supportive and bought her an airplane. She became the first woman to circumnavigate Australia by air and also the first woman to fly solo from Australia to England.

Slides 16-17: Use slide 17 to briefly introduce students to some of the pioneering pilots who paved the way for thousands of female aviators after them. Before class, print cards from **Women in Early Aviation Teaching Aid**. There are five pairs of women aviator cards (10 cards is a complete set). Each pair includes a card with a female aviator's picture and clue about her. The other card in the pair includes the aviator's name and additional facts about her. Each student will be given a card and they will try to find a classmate with the matching card by reading the clues on both cards together. The goal is for each student to find a student with a matching card. After all the students are matched, have the students with matching cards make short presentations about their female aviators to their classmates using the quick facts and information provided.

If there are more than 10 students in the class, then print the card set as many times as necessary to have enough pairs for the students. As an example, for a class of 24, you will need to print all cards twice (20 cards) and then any two additional pairs of cards (four cards). If your class has an odd number of students, you as the teacher can participate, or provide one student with more than one card. It is not necessary to have the same number of pairs for each female aviator depending on your class size.

This activity will take the remainder of the first session.



Questions

BESSIE COLEMAN *Clue: I'm an American, but I couldn't learn to fly in the U.S.*

RAYMONDE DE LAROCHE *Clue: I saw the most famous aviators of all time fly.*

HARRIET QUIMBY *Clue: Before flying, I had another career that was rare for women in that era.*

AMELIA EARHART *Clue: I wasn't flying solo on my record-breaking attempt.*

KATHERINE STINSON *Clue: The airplanes my family built more than 80 years ago are still flying today.*

EXPLAIN

Teacher Material: [Women in Early Aviation Presentation](#)

Student Material: [Women in Early Aviation Student Activity](#)

During the second session of this lesson, students will complete a jigsaw exercise as a way to interactively and cooperatively learn more about early women in aviation and the challenges they had to overcome.

Provide students with **Women in Early Aviation Student Activity**. Split the students into five groups. Next, assign each student within the jigsaw groups one of the five early female aviators shown on slide 17 (five students in one jigsaw group, with each student assigned a different aviator). On an individual basis, have the students do research and complete the provided activity sheet for the assigned aviator.

Once the students finish their worksheets, have students assigned the same female aviator get together (students assigned to Bessie Coleman in one group, students assigned to Amelia Earhart in another group, etc.) to compare notes, resolve differences in their answers, and practice the presentations they will give when they reassemble into the original jigsaw groups.

EXTEND

Teacher Material: [Women in Early Aviation Presentation](#)

Slide 18: To complete the jigsaw activity, students will gather in their original groups and give a presentation on their aviators. Each student should take notes during their classmates' presentations, focusing special attention on the obstacles the women faced during those times and whether or not women face the same kind of obstacles today. [DOK-L4; *create, synthesize*]

Formative Assessment

Once the student's individual research on their assigned aviator is complete and they have practiced their presentations, they will gather in their original jigsaw groups and make a 3- to 5-minute presentation on their assigned aviator.

EVALUATE

Teacher Material: [Women in Early Aviation Presentation](#)

Slide 19: After the jigsaw presentations are complete, use the remainder of class to conduct the **Summative Assessment**. Use the 10-Point Scoring Rubric for grading. [DOK-L3; Cite Evidence, Draw Conclusions]

Summative Assessment Scoring Rubric

- Each question is answered (1 point per question)
- At least one supporting example is provided for each question (1 point per question)
- Slide presentation is well constructed and visually appealing OR written response is well organized and clearly written (1 point)
- All members of the group contributed equally (1 point)

Points	Performance Levels
9-10	Consistently demonstrates criteria
7-8	Usually demonstrates criteria
5-6	Sometimes demonstrates criteria
0-4	Rarely to never demonstrates criteria

Summative Assessment

Have students work in pairs or groups of three to analyze the factors affecting women aviators in the late 1800s and early 1900s and consider whether those barriers still exist for women today. Use the questions provided to the left for this assessment.

1. What did the aviators you studied in this lesson have in common, besides all being women?
2. What factors contributed to their success in becoming aviators?
3. How did they overcome the barriers to their success?
4. Based on other rights and freedoms allowed women at that time, did being allowed to fly an airplane seem like a freedom “ahead of its time” for women?
5. The vast majority of pilots today are male. Do you think that some of the barriers these women faced in the early 1900s still exist for female pilots today? Why or why not?

Each group should create either a five- to seven-slide presentation or a three- to five-paragraph written summary answering these questions, and they should support their arguments with examples from the jigsaw activity.



Teaching Tips

If there is sufficient class time remaining, have students do short group presentations to offer their justifications.

GOING FURTHER

Show video “Harriet Quimby and Other Early Women Aviators” (Length: 1:38) <http://video.link/w/gLJd>

Provide students with the opportunity to learn about other women who have had significant achievements in aviation or aerospace. Some women to include might be Anne Morrow Lindbergh, Jeana Yeager, Valentina Tereshkova, Dr. Sally Ride, Dr. Kathy Sullivan, Jacqueline Cochran, Jerrie Cobb, Pancho Barnes, Nancy Harkness Love, Mae Jemison, Eileen Collins, Peggy Whitson, Sheila Widnall, etc.

STANDARDS ALIGNMENT

NGSS STANDARDS

Three-dimensional Learning

- **HS-ETS1-1** - Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
 - Science and Engineering Practices
 - Asking Questions and Defining Problems
 - Constructing Explanations and Designing Solutions
 - Disciplinary Core Ideas
 - ETS1.A: Defining and Delimiting Engineering Problems

- Crosscutting Concepts

- Systems and System Models
- Influence of Science, Engineering, and Technology on Society and the Natural World

COMMON CORE STATE STANDARDS

- **RST.9-10.1** - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- **RST.9-10.2** - Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- **RST.9-10.4** - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **WHST.9-10.2** - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
- **WHST.9-10.4** - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **WHST.9-10.6** - Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- **WHST.9-10.7** - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- **WHST.9-10.8** - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- **WHST.9-10.9** - Draw evidence from informational texts to support analysis, reflection, and research.

REFERENCES

<https://airandspace.si.edu/explore-and-learn/topics/women-in-aviation/>

<https://www.ninety-nines.org/women-in-aviation-history.htm>

<https://airandspace.si.edu/explore-and-learn/topics/women-in-aviation/>

<https://www.wai.org/pioneers/100womenscript>