One For All, All For One

Session Time: Two, 50-minute sessions

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

Appreciate the rich, global history of aviation/aerospace and the historical factors that necessitated rapid industry development and expansion. (EU1)

Understand the operational differences between general, commercial, and military aviation as well as how these differences influence the modern aviation/aerospace industry. (EU2)

ESSENTIAL QUESTIONS

1. What was the role of the citizenry in World War II?
2. How did the war help women overcome stereotypes, prejudice and societal customs and enable them opportunities that had been denied them previously?
3. How did the war help the Tuskegee Airmen overcome stereotypes, prejudice and societal customs and enable them opportunities that had been denied them previously?

LEARNING GOALS

Students Will Know

- The important role the American workforce played in the World War II effort
- The scope of the effort used to manufacture hundreds of thousands of airplanes over several short years
- Contributions the WASPs made during World War II
- The extenuating circumstances that drove the creation of the WASPs
- Ways Tuskegee Airmen paved the way for racial integration into the U.S. armed forces

Students Will Be Able To

- *Identify* and *summarize* the challenges WASPs and Tuskegee Airmen overcame to earn the right to serve in the U.S. armed forces. (DOK-L2)
- *Relate* the contributions of important groups of people during World War II to career opportunities that were enhanced for women and minorities because of their efforts. (DOK-L2)

ASSESSMENT EVIDENCE

Warm-up
Working individually, students analyze the "Rosie the Riveter" image and write notes about what it represented at the time and what it represents now.

Formative Assessment
Students listen to an audio recording about WASPs and answer pertinent questions.

Summative Assessment
Students write several paragraphs in response to questions related to the challenges women and minorities faced during World War II and the doors that opened for others as a result of their sacrifices.

LESSON PREPARATION

MATERIALS/RESOURCES

- One For All, All For One Presentation
- One For All, All For One Student Activity

Riveting Activity (Going Further)

All materials can be purchased at a major hardware store

- Pop rivet gun (minimum one gun per class)
- 1/8" x 1/8" aluminum rivets (one per student)
- No. 6 metal washers (two per student)
- Safety goggles

LESSON SUMMARY

Lesson 1: Aviation Innovation and World War II
Lesson 2: One For All, All For One

As a warm-up, students will view the "Rosie the Riveter" image and write notes about what they think the poster represented at the time and what it represents now. Volunteers will share their answers with the class. This will give teachers the opportunity to introduce women's role in the industrial war effort and the WASP program.

Lead a class discussion about the role of the American workforce during World War II, which will lead into how the Women Airforce Service Pilots (WASP) organization was formed and the service they performed. At the end of the first session, students will listen to a National Public Radio audio recording and answer pertinent questions.

During the second session, students will learn about the heroic service of a group of African-American pilots and servicemen known as the Tuskegee Airmen. Students will discuss the importance of the servicemen on the front lines.

In pairs, students will choose a service member (WASP, Tuskegee Airman, or Rosie the Riveter) from this lesson and conduct a mock interview. Together, the students will research the character and create a line of questions and answers. One student will deliver the questions and the other will respond as the character in front of the class.

Finally, students write several paragraphs in response to questions related to the challenges women and minorities faced during World War II and the doors that opened for others as a result of their sacrifices.

BACKGROUND

During World War II, hundreds of thousands of airplanes were built to answer the need for U.S. air power. In the late 1930s, the U.S. military had about 3000 airplanes. By the end of war, more than 300,000 aircraft had been built for the

U.S. military and its allies. Production was extended to 24 hours a day, and automotive companies were enlisted to make airplanes and airplane parts. With the use of more efficient manufacturing processes, the work hours needed to produce one airplane were cut in half (in some cases, more).

With many of the men away at war, women were recruited to fill the workforce needs at home. As a result of women's contributions to the wartime effort, a cultural icon was born: "Rosie the Riveter." Some believe that women entering the workforce at this time inspired a social movement and changed the complexion of the woman's role in America's workforce forever.

Women faced challenges in overcoming cultural stereotypes. Regardless, around 350,000 women served in the armed forces during World War II. Those women served as nurses, repaired airplanes, and flew airplanes.

In total, nearly 1,100 women graduated from pilot training and became Women Airforce Service Pilots (WASPs). The WASP program ended in 1944, but it opened a whole new world of opportunities for women in aviation.

The Tuskegee Airmen were the first African-American aviators in the U.S. armed forces. Prior to World War II, African-Americans were only allowed to serve in segregated maintenance and labor groups in the U.S. military. Many military leaders felt that integrating African-Americans into units of white servicemen would impact morale and combat readiness.

Political activist organizations, including the NAACP, began to pressure elected officials. In 1940, Congress passed the "Selective Service and Training Act," which not only enabled the draft but also allowed African-American men into all service units, including combat. However, the War Department instituted a policy that segregated African-Americans into their own units.

The Army Air Forces eventually implemented an aviation unit in Tuskegee, Ala., where pilots, navigators, mechanics and others were trained. It was called the "Tuskegee Experiment" because many white military leaders expected the program to fail.

In 1942, the 99th Pursuit Squadron (later renamed the 99th Fighter Squadron) was ready for combat. After nearly a year of debate, the War Department sent the squadron to join the war effort in North Africa and the Mediterranean. Benjamin Davis Jr. was appointed as its leader.

The squadron exceeded expectations. Davis returned to the United States and started three additional squadrons. The 99th eventually became known as the "Red Tails" because of the bright red flashes painted on their airplanes' tails and for the reputation they earned in successfully escorting bombers.

The Tuskegee Airmen received 700 air medals and 95 Distinguished Flying Cross awards. They downed 111 enemy aircraft, destroyed 150 other aircraft on the ground and flew more than 15,000 combat missions. Sixty-six Tuskegee Airmen lost their lives during the war.

The Tuskegee Airmen's most profound legacy was paving the way for racial integration in the U.S. armed forces.

DIFFERENTIATION

To support verbal reasoning in the **ENGAGE** section, organize the class into groups for Think-Pair-Share instead of individual response. This allows learners to think about the question and to 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 writing in the **EVALUATE** section, allow students to work in pairs to plan, draft, edit, and revise the short essays. This approach improves the quality of writing, social engagement and promotes peer discussion and feedback.

LEARNING PLAN

ENGAGE

Teacher Material: All for One, One for All Presentation

Slides 1-3: Introduce the topic and learning objectives for today's lesson.

Slide 4-6: Conduct the **Warm-Up.**

Allow up to 5 minutes for the warm-up. Ask volunteers to share their responses with the class. Collect student work and grade up to 5 points based on completion and participation. [DOK-L1; recall, DOK-L2; use context clues]

Warm-Up

Ask students who replaced men in the factories when thousands of them went off to war. Then project the "Rosie the Riveter" image on the screen (slide 6 of the presentation). Ask students to analyze the poster and write their answers to the following questions:

- *What do you think the poster represented during World War II?*
- *What does this poster represent now?*

Slides 7-8: Explain to the students that during World War II, posters were used to persuade both women and men they had a patriotic duty to help with the industrial war effort. Many people believe that women's role in the workplace changed forever after World War II. Today, some see "Rosie the Riveter" as a symbol of women's important role in the workplace.

EXPLORE

Teacher Material: All For One, One For All Presentation
Student Material: All For One, One For All Student Activity

Slides 9-10: Engage students in a class discussion about the industrial war effort that took place to build World War II aircraft and other war supplies. Tying back to the first lesson of this section, review with students that thousands of airplanes were built to answer the need for U.S. air power. New aviation innovations were being discovered quickly. More reliable and more capable airplanes had to be sent to the servicemen fighting on the warfronts.

Slides 11-13: Lead a class discussion about the WASPs. Begin with the quote from a female pilot that was printed in *The New York Herald* (slide 12).

With many men away at war, women were recruited to fill the workforce needs at home. Many believe that women entering the workforce at this time inspired a social movement and changed the complexion of the woman's role in America's workforce forever. The WASPs were part of that social movement.

Slides 14-21: Present content on WASP Beginnings.

Slide 15: Women's Auxiliary Ferrying Squadron (WAFS)
In 1940, Nancy Love, a 26 year-old commercially rated pilot, proposed her plan to use women pilots to ferry military airplanes. The idea was dismissed until 1942 when General Robert Olds of the Air Transport Command created the Women's Auxiliary Flying Squadron (WAFS). Nancy Love was named the director. Many in the Air Transport Command did not feel that women were capable of flying military aircraft, including Major William Tunner, commander of the ferrying division.

Love reached out to 83 women pilots. The women had to be between the ages of 21 and 35, had to have flown over 500 hours, had to have a commercial rating, and be proficient with cross-country flying procedures. Twenty-eight of the pilots were selected for the initial cadre of WAFS pilots. This group of women would become known as "The Originals."

The women were based at New Castle Army Air Base in Wilmington, Delaware. Initially, the group ferried training airplanes such as the Stearman or PT-19. Quickly, the crew went on to ferry larger and more complex airplanes such as the P-38 Lightning and the P-51 Mustang.

Slide 16: Women Flying Training Detachment (WFTD)

In 1939, Jackie Cochran wrote to First Lady Eleanor Roosevelt. In her letter, Cochran proposed a corps of women who would perform essentially any flying mission except combat, thus freeing the male pilots for combat flying roles. The First Lady told the nation of Cochran's idea in her weekly news column.

In 1942, General Hap Arnold commissioned the Women's Flying Training Detachment (WATD) with the goal of recruiting and training 500 licensed pilots to ferry aircraft for the military. Thirty women were selected for the first class. The women were notified via telegraph and had to cover all their own travel expenses to Houston to begin their training.

Slide 17: WAFS and WFTD Merged to Form WASPS

The two organizations operated independently without interaction until 1943 when they were merged and become the Women Airforce Service Pilots (WASPs).

Slide 18: Women Airforce Service Pilots (WASPS)

Cochran was appointed director of the newly formed WASP group and Love was appointed WASP executive with the Air Transport Command Ferrying Division.

The women went through an extensive training program to learn military flying procedures. Because they already knew how to fly before they arrived at training, the WASPs would often have more flying hours than their male counterparts. The women also lived like their male military counterparts—six to a barracks room, marching, parades, inspections and drills.

In total, nearly 1100 women would graduate from pilot training and become WASPs.

Slide 19: WASPS in Service

Graduates of the training program performed the following missions: Ferrying, target towing, tracking and searchlight missions, simulated strafing, smoke laying, and other chemical missions, radio control flying, basic and instrument instruction, and engineering test flying.

By 1944, women had flown every type of aircraft in the Army Air Force fleet. From September 1942 to December 1944, women would deliver more than 12,000 aircraft. Women also conducted test flights after aircraft went through maintenance or for new airplanes coming off the manufacturing line. The WASPs also assisted in developing infantry troops by towing target aircraft for anti-aircraft weapon training or conducting simulated strafing missions.

Thirty-eight women would be killed performing their duties as WASPs. As the WASPs were not technically militarized, the Army didn't pay for funeral expenses or expenses related to returning the remains home. Often times, the aviator's fellow pilots all chipped in to cover such expenses.

Teaching Tips

WASPs experienced significant risks and dangers while flying. Mechanical issues were common in ferrying new and repaired aircraft. If time and interest allows, use the links below to listen to WASPs talk about their flying experiences.

Interview of a ferry flight with hydraulic issues: https://memory.loc.gov/diglib/vhp-stories/loc.natlib.afc2001001.34158/afc2001001_034158_mv0001001_640x480_800.stream?start=2196&clipid=d58757e203

Ferry flight in AT-6 with an engine failure: https://memory.loc.gov/diglib/vhp-stories/loc.natlib.afc2001001.34158/afc2001001_034158_mv0001001_640x480_800.stream?start=1445&clipid=d58757e187

Slide 20: WASPS After the War

The WASP program ended in 1944, but it opened up a whole new world of opportunities for women in aviation.

After the WASP organization was disbanded, women returned home. Often times, the bases did not celebrate or recognize the service of the WASP pilots, but just told them they would be leaving the base.

The WASPs returned home to find difficulty in continuing in the flying profession. Several women continued careers as pilots, but not at the major airlines who had yet to recognize women's ability to perform exceptionally in demanding flying situations. Some women gained employment as stewardesses (now flight attendants) with the airlines.

In the 1970s, the Air Force announced their intent to allow women to serve in pilot positions by stating "it's the first time the Air Force has allowed women to fly their aircraft." This comment united the WASPs and sparked a petition to Congress for militarization of the WASP organization. With the help of Senator Barry Goldwater, who served alongside the WASP aviators ferrying aircraft himself, the WASPs were granted full military status in 1977.

In 2009, the Women Air Service Pilots organization would be recognized with the Congressional Gold Medal, the highest civilian honor of the United States. Over 250 WASP aviators were present at the awards celebration.

Slide 21: Conduct the **Formative Assessment.**

Ask volunteers to share how they responded to each question. Collect student work. Grade up to 10 points for completeness and participation. [DOK-L1; state, DOK-L2; interpret, summarize]

Formative Assessment

Play the National Public Radio (NPR) audio recording (slide 21). Stop the audio at the following times to allow students to answer the questions found on All For One, One For All Student Activity: 3:20, 5:25, 6:52.

- "Female World War II Pilots: The Original Fly Girls" (Length 8:59) https://www.npr.org/2010/03/09/123773525/female-wwii-pilots-the-original-fly-girls

Each question should have at least a two-sentence response. Students may use their notes to complete this assessment.

EXPLAIN

Teacher Material: All For One, One For All Presentation

Slides 22-32: Present information on how prejudice was fought in the U.S. Army. The students will learn about the prejudice that existed toward African-Americans leading up to World War II, how the Tuskegee Airmen came to be, the role the "Red Tail Squadron" played in the war, and the squadron's success.

Slide 23: Fighting Prejudice

General Hap Arnold, the same general who supported the WASP program, voiced his opinion against training African-American servicemen for the U.S. Army Air Force.

Slide 24: Change Begins

> **Teaching Tips**
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> Optional Approach: Conduct a brief class discussion using the following question:
>
> Why would the President decide to implement segregated units over full integration?http://www.socialstudies.org/sites/default/files/publications/se/6301/630103.html

Slide 25: Tuskegee Experiment

The men were called "Tuskegee Airmen" because they were at Tuskegee AIr Base in Tuskegee, Alabama. The airmen were also educated at Tuskegee University. Many early African-American airmen believe it was called an "Experiment" because the white leaders in the Army expected the program to fail.

Slides 26-29: Present information about the Tuskegee Airmen in combat. Explain to students that the squadron exceeded expectations. Benjamin Davis Jr. returned to the United States and started three additional squadrons. The 99th eventually became known as the "Red Tails" because of the bright red flashes painted on their airplanes' tails and for the reputation they earned in successfully escorting bombers.

Slides 30-32: Present information about the Tuskegee Airmen's success in combat and their impressive record. The Tuskegee Airmen received 700 air medals and 95 Distinguished Flying Cross awards. They downed 111 enemy aircraft, destroyed 150 other aircraft on the ground and flew more than 15,000 combat missions. Sixty-six Tuskegee Airmen lost their lives during the war. The Tuskegee Airmen's most profound legacy was paving the way for racial integration in the U.S. armed forces.

EXTEND

Teacher Material: All For One, One For All Presentation

Slide 33: Character Interview

Pairs of students will select one type of service member from this lesson (WASP, Tuskegee Airman, or Rosie the Riveter). The students will complete research to learn about their character and together develop a line of questions and answers for an interview. One member of the team will be the character and one member will conduct the mock interview. The questions should lead to responses which introduce the character, determine where the person served in the war (in another country or U.S.), explain their contributions to the war effort, describe the stereotypes and challenges they overcame, and finally, communicate how their service impacted their future career and life.

EVALUATE

Teacher Material: All For One, One For All Presentation

Slide 34: Conduct the **Summative Assessment.**

Allow students to use their notes. Collect student work at the end of class. Use the Summative Assessment Rubric for scoring student work. [DOK-L1; state, DOK-L2; interpret, summarize]

Summative Assessment Scoring Rubric

Follows assignment instructions

Writing shows evidence of one or more of the following:

- Identifies women and African Americans
- Describes opportunities that became available to women against whom were previously discriminated.
- Describes opportunities that became available to African Americans against whom were previously discriminated.

Writing shows understanding of the concepts covered in the lesson

Writing shows in-depth thinking including analysis or synthesis of lesson objectives

[DOK-L2; relate, DOK-L3; compare]

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

During the last 10 minutes of class, show slide 34 to the class. Have students individually write two or three paragraphs in response to these questions.

1. Could the United States have won World War II without the contributions of the American workforce? Why or why not?
2. List and explain two challenges the WASPs and Tuskegee Airmen had to overcome.
3. What doors have been opened for women and minorities today as a result of sacrifices made by WASPs and Tuskegee Airmen during World War II?

Allow students to use their notes.

GOING FURTHER

Give the students an opportunity to “pop” a rivet. All the materials for this activity can be purchased economically at a major hardware store. The activity as described uses small, inexpensive metal washers to rivet together. If desired, teachers may use thin sheets of perforated metal to demonstrate this activity. Show students the following video on how to install a rivet, and then give each of them an opportunity to try it. https://www.youtube.com/watch?v=apE5-abKL3g&feature=youtu.be

All materials can be purchased at a major hardware store

- Pop rivet gun (minimum one gun per class)
- 1/8” x 1/8” aluminum rivets (one per student)
- No. 6 metal washers (two per student)
- Safety goggles

Have students conduct more research on the magnitude of the industrial war effort during World War II (include topics such as the role of automobile makers on aircraft production and government’s role in recruiting a workforce).

Compare and contrast the images of “Rosie the Riveter” from artists J. Howard Miller and Norman Rockwell.

Ask students to research the types of airplanes the WASPs flew and why they flew them (ferry, target practice, flight test, etc.).

STANDARDS ALIGNMENT

NGSS STANDARDS

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
- **HS-ETS1-2** - Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
    - Science and Engineering Practices
        - Constructing Explanations and Designing Solutions
    - Disciplinary Core Ideas
        - ETS1.C: Optimizing the Design Solution
    - Crosscutting Concepts
        - none
- **HS-ETS1-3** - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.
    - Science and Engineering Practices
        - Constructing Explanations and Designing Solutions
    - Disciplinary Core Ideas
        - ETS1.B: Developing Possible Solutions
    - Crosscutting Concepts

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

COMMON CORE STATE STANDARDS

- **RH.9-10.6** - Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts. (Essay Option)
- **RL.9-10.2** - Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- **RL.9-10.4** - Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
- **RL.9-10.7** - Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment.
- **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.
- **RST.9-10.7** - Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart), and translate information expressed visually or mathematically (e.g., in an equation) into words.
- **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.9-10.8** - 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

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