



USAF

WILLA BEATRICE BROWN

OBJECTIVES

- Describe Willa Brown's early years.
- Name her other professions and interests besides flying.
- List the country in which Brown was the first African American woman to earn a private pilot's license.
- Name the aviation school that she and her husband founded.
- Build the Curtiss Robin.

STANDARDS

(NGSS)

Science

- MS-ETS1-1
- MS-ETS1-3
- MS-ETS1-4
- MS-PS3-1

ELA/Literacy

- RST.6-8.3
- RST.6-8.7
- RST.6-8.9
- WHST.6-8.7
- WHST.6-8.8

(NCSS)

- IV.f.
- V.d.
- X.e.

PIONEER WHO BROKE RACE/GENDER BARRIERS

1906 -1992

Willa Beatrice Brown, the first African American woman to earn a private pilot's license in the United States, was a lifelong advocate for gender and racial equality in flight and in the military. She ran for Congress and lobbied the U.S. government to integrate the U.S. Army Air Corps and include African Americans in the Civilian Pilot Training Program (CPTP).

Through her efforts and the Coffey School of Aeronautics, established by Brown and her husband, Cornelius Coffey, hundreds of pilots, several of whom would go on to become Tuskegee Airmen, were trained. Her efforts were directly responsible for the creation of the Tuskegee Airmen's squadron. This, in turn, led to the integration of the military in July 1948 under President Harry Truman's executive order number 9981.



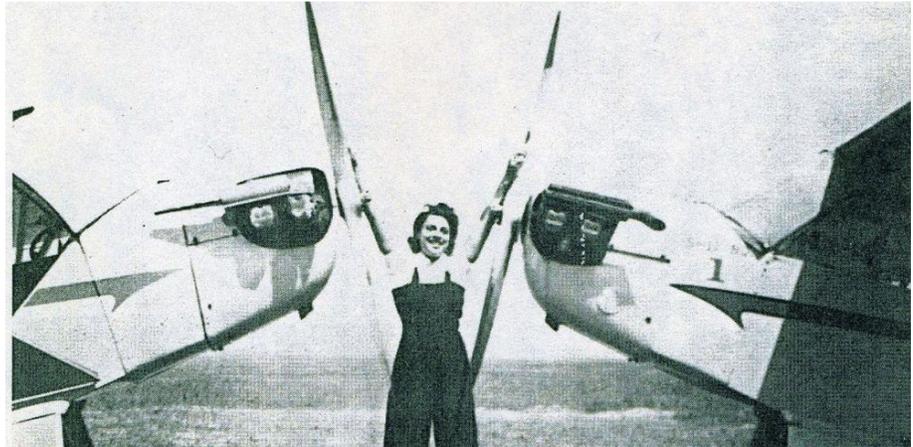
aviationheritagepark.com

HER STORY

Willa Brown Chappell was born in Glasgow, Kentucky. She graduated from Indiana State Teachers College in 1927 with a degree in business. She received an M.B.A. from Northwestern University in 1937. As a young high school teacher in Gary, Indiana, and later as a social worker in Chicago, Brown felt that her talents were not being used to their greatest potential. She sought greater challenges and adventures in life, especially if they could be found outside the limited career fields normally open to African Americans.

She decided to learn to fly, studying with Cornelius Coffey, a certified flight instructor and expert aviation mechanic at one of Chicago's racially segregated airports. In 1938, she became the first African American woman in the U.S. to earn a private pilot's license.

Later, Brown and Coffey married and established the Coffey School of Aeronautics at the Harlem Airport in Chicago, where they trained black pilots and aviation mechanics. She



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helped form the National Airmen's Association of America (NAAA) in 1939 with Coffey. The main goal of the NAAA was to get black aviation cadets into the United States military.

She became a lobbyist for integration of black pilots into a segregated Army Air Corps, as well as the federal Civilian Pilot Training Program (CPTP). The CPTP system was established by the Civil Aeronautics Authority (CAA) to provide a backup pool of civilian pilots to use during national emergencies. The government, and especially the military branches, knew war was on the horizon. She became the coordina-

tor for the CPTP in Chicago. The Coffey School of Aeronautics was selected by the U.S. Army to be a feeder school for black trainees coming into the Air Corps pilot training program at Tuskegee Institute.

Brown became the coordinator of war-training service for the CAA and later was a member of the Federal Aviation Administration's (FAA) Women's Advisory Board.

In 1941, Brown joined the Chicago Squadron of the Civil Air Patrol and became the first African-American officer in CAP, as well as the federal coordinator of the CAP Chicago unit.

Achievements include:

- A founding female aviator of the Ninety-Nines (1929)
- First African American woman to earn her pilot's license in the United States (1938)
- Co-founder of the Cornelius Coffey School of Aeronautics (CCSA), the first flight training academy in America that was owned and operated by African Americans (1938)
- Joined the Chicago Squadron of Civil Air Patrol and became the first African-American officer in CAP (1941)
- Coordinator of war-training service for the Civil Aeronautics Authority (CAA) (1941)
- First African-American officer in Civil Air Patrol (1941)
- First woman in America to have both a pilot's license and mechanics license (1943)
- Over 200 Tuskegee Airmen were trained at her flight school (CCSA) (1948)
- Named one of Women in Aviation's 100 Most Influential Women in Aviation and Aerospace (2002)
- Awarded a Congressional gold medal for World War II service in CAP (2014)



USAF/CAP

BUILD THE RYAN ST-A

The primary objective is for students and cadets to build a highly detailed paper model of an important aircraft used by student pilots from the 1930s through the 1940s. The secondary objective is to excite the imagination of CAP cadets and students in aviation history and model building. Willa Brown flew and managed a flying school to train Tuskegee Airmen in the Ryan ST-A (PT-16).

BACKGROUND

The Ryan ST-A was one of a series of ST two-seat, low-wing monoplane aircraft built by the Ryan Aeronautical Company. They were used as sport aircraft, as well as trainers by flying schools and the military of several countries.

The Ryan Aeronautical Company was also the manufacturer of the Ryan NYP, more famously known as the Spirit of St. Louis. The company began the development of the ST (for "Sport Trainer," and also known as S-T), the first design of the company, in 1933. Five STs were built before the follow-on ST-A (A for Aerobatic) was developed with a more powerful engine.

In 1937, the ST-A Special was developed into a military version, the STM (also ST-M) series. Changes included wider cockpits to enable military pilots to enter and exit while wearing parachutes, and provision for a machine gun on some examples. Variants in the series included the STM-2P single-seat version armed with a machine gun delivered to Nationalist China; and the STM-S2, which could be fitted with landing gear or with EDO Model 1965 floats.



USAF/USAAF

The ST-3 gave rise to another model developed in 1941 and early 1942, the ST-3KR (for Kinner Radial). The ST-3KR had a more powerful Kinner R-5 engine fitted and became the definitive model; more than 1,000 military versions were built during World War II as PT-22 Recruits.

Total production of civil and military aircraft prior to the entry of the United States into World War II amounted to 315. Another 1,253 military versions were produced in 1942 and 1943, for a total of 1,568 aircraft of all models.



warbirdobsession.com

ABOUT THE PLANE

GENERAL CHARACTERISTICS

- **Crew:** 1
- **Length:** 21 ft 5 in (6.53 m)
- **Wingspan:** 29 ft 11 in (9.12 m)
- **Height:** 6 ft 11 in (2.11 m)
- **Wing area:** 124 sq ft (11.5 m²)
- **Empty weight:** 1,023 lb (464 kg)
- **Gross weight:** 1,575 lb (714 kg)
- **Powerplant:** 1 × Menasco C4 inverted four-cylinder air-cooled inline-engine, 125 hp (93 kW)

PERFORMANCE

- **Maximum speed:** 150 mph (241 km/h; 130 kn)
- **Cruise Speed:** 127 mph (204 km/h; 110 kn)
- **Range:** 42 mph (68 km/h; 36 kn) (with flaps)
- **Service ceiling:** 17,500 ft (5,300 m)
- **Rate of climb:** 1,200 ft/min (6.1 m/s)

MATERIALS:

1. Flat, level, stable, and easily cleaned surface to work on
2. Sharp-pointed (“X-acto”-type) hobby knife
4. Sharp, precision sewing-type scissors
5. A ruler or any other (truly) straight edge
6. Toothpicks, round (and flat, if available)
7. Rolling tools/surfaces, such as round pens, wooden doweling, nails, toothpicks, etc.
8. “Elmer’s” glue or Tacky Glue
9. Eyebrow-type tweezers, having a straight edge of comfortable angle or hemostats
10. Stylus of some kind, to make indented lines for folds
11. A trash can nearby to keep work area neat
12. 67 lb. paper for plane plans

NOTES

PROCEDURE:

1. Print the Ryan ST-A plans found on the following pages.
2. Set up your work area with materials and tools.
3. Read all the instructions on the plan. FiddlersGreen.net tells you where to glue, cut and fold/bend.
4. Cut out the parts. See below.



5. Glue the sub-assemblies together and let the glue dry thoroughly before going on. Hemostats are used here to make the process go faster.
6. The fuselage is made up of a series of small sub-assembly tubes that are glued in to one another. Glue the small tabs around each end and join the two fuselage sub-assemblies together. Set this aside and let the glue thoroughly dry before joining the next sub-assembly.



7. If you line up the sub-assemblies properly, it is not too hard to do the previous step. If you hurry it, it will frustrate you.
8. With the engine fuselage sub-assemblies glued together, you can add the vertical and horizontal stabilizers. Make them 90 degrees (squared) to one another, and let them sit for a while.

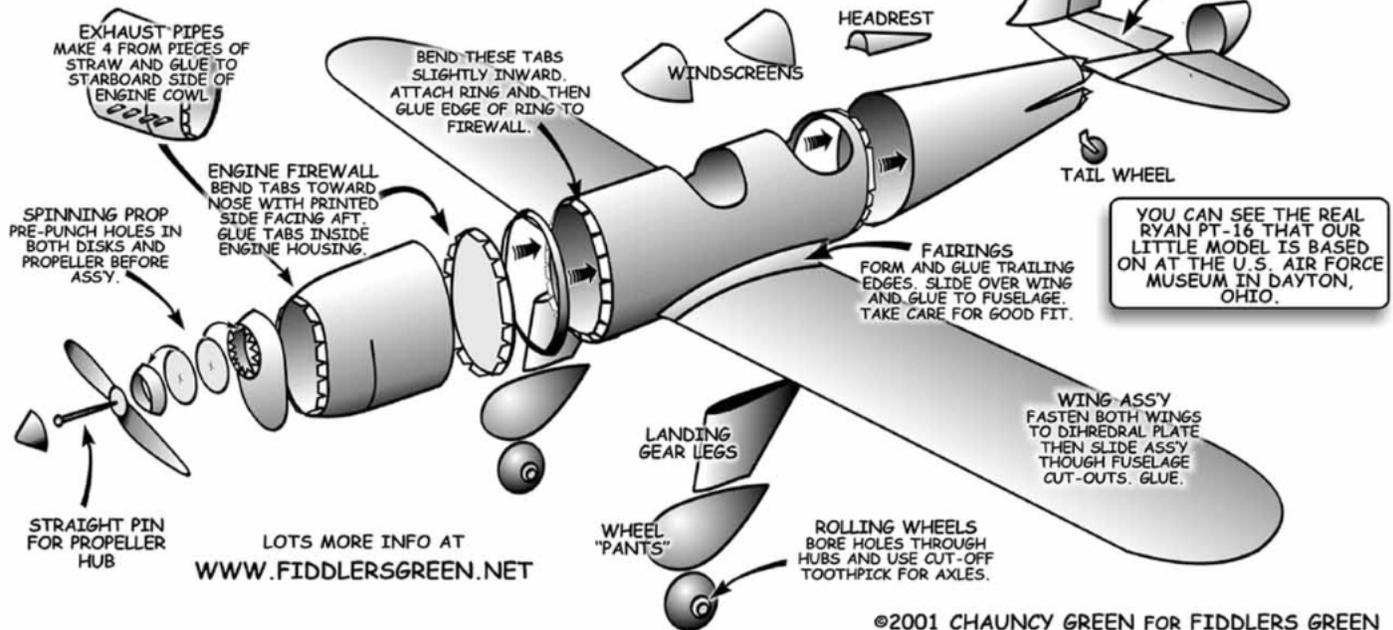


9. Add the bottom wings to the fuselage and fit this so it is lined up and 90 degrees to the fuselage and tail surfaces. (See above.)

10. Use round toothpicks for the airplane struts and landing gear. Make small holes in the wings where the struts go. Apply white glue or Tacky Glue to the struts and glue them in place on the bottom wing only. Wait 30 minutes.
11. In the example below is a generic landing gear with the cut toothpick glued in place. Following this example, all landing gears are easy to attach on any paper airplane.
12. Attach landing gear and wing struts and complete the airplane. The wheel spats (wheel covers) are just time consuming to make, but they go together very straight forwardly.



SPECIFICATIONS		Crew: Two	
Span:	30 ft	Cost:	\$8,500
Length:	21 ft 6 in	PERFORMANCE	
Height:	10 ft 1 in	Maximum speed:	128 mph
Weight:	1,600 lbs. loaded	Cruising speed:	118 mph
Armament:	None	Range:	350 miles
Engine: One Menasco L-365-125 hp		Service Ceiling:	10,000 ft



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EXTENSION

DISCUSSION QUESTIONS

- Willa Brown instructed almost 200 pilots who went on to become Tuskegee Airmen cadets and instructors at Tuskegee Institute in Alabama. Imagine that you were a female flight instructor in the 1930s teaching a group of male pilots how to fly. What obstacles would you encounter? Would there be gender discrimination?



greatplanes.com

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RYAN

ST-A / PT-16

PIONEERING SPORT-TRAINER MONOPLANE

MORE INFO ON THE RYAN PT-16
(AND OTHER NEAT MODELS) AT
WWW.FIDDLERSGREEN.NET

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