Los Angeles Examiner

KATHERINE CHEUNG

OBJECTIVES

- Describe how Katherine Cheung developed an interest in flying.
- Recall what she did in 1932 that made her the first Asian American female pilot in the U.S. to do.
- Describe her dreams to help China during World War II.
- Build the Stearman PT-17.

STANDARDS

(NGSS)

Science

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

ELA/Literacy

- RST.6-8.3
- RST.6-8.5
- RST.6-8.7
- RST.6-8.9
- SL.8.5
- WHST.6-8.8

Mathematics

- 7.EE.B.3

(NCSS)

- IV.f.
- V.d.

FIRST FEMALE ASIAN-AMERICAN PILOT IN THE U.S.

1904 — 2003

Katherine Sui Fun Cheung was the first licensed Asian-American female pilot in the United States. In the early 1930s women were not allowed to enroll in flying schools in China, and in the U.S. only 1 percent of licensed pilots were women.

In 1935, Cheung earned her international pilot's license, and flew as a commercial pilot. She also entered numerous competitive air races and flew at airshows. She offered the following comment as to why she wanted to fly "I don't see any reason why a Chinese woman can't be as good a pilot as anyone else," she told audiences. "We drive automobiles. Why not fly planes?"

Like many of the other female pilots of her day, Cheung didn't want to just fly a plane, she wanted to race, and she wanted to see what she could make the plane do. There was a stunt pilot inside her. She learned maneuvers, including spiral diving, inverted flying and slow and snap rolls. Once she had her pilot's license, she was performing for audiences and doing aerobatics at county fairs up and down the California coast. In 1935, Cheung joined the Ninety-Nines club for women pilots, an association founded by Amelia Earhart.

Photo courtesy: Dottie Leschenko

HER STORY

Katherine Cheung was born near Canton, China, in 1904, and with her family she immigrated to America in 1921. She enrolled at the Los Angeles Conservatory of Music, where she earned a degree in piano. She continued her musical training at Cal Poly Pomona and USC.

Then her plans changed. While taking driving lessons with her father, they drove to Dycer airfield in Los Angeles. They did not go there to look at airplanes; her father felt she would be best taught to drive where there was a large open area like an airport. Watching the planes take off and land began her lifelong love affair with flight.

While in her mid-twenties, she informed her husband she was going to fly. Her husband supported the idea, and she went on her first flight with her cousin. She was so excited at this first flight that she immediately enrolled in flying lessons with the Chinese Aeronautical Association in Los Angeles. In 1932, she was reported as the first Chinese woman to earn a pilot's license in the U.S.

She was a natural aviator, soloing after only 12.5 hours of instruction, and by 1935 was flying commercially.

Achievements include:

- Member of the Ninety-Nines (1935)
- China Medal for contributions as an aviation pioneer (2001)
- Inducted into International Women in Aviation Pioneer Hall of Fame (2001)
- Considered the "Amelia Earhart" of China

The Japanese invasion of China in 1937 sparked a nationalistic spirit for China for Cheung. She wanted to start a flight training school in China, and had set aside enough money to purchase one Ryan ST-A training airplane. However, her cousin was soon killed while flying her airplane, and Cheung's father, worrying for his daughter's safety, made her promise to give up flying.

With the loss of Amelia Earhart and her cousin's flying accident death, plus her promise to her father, she decided to quit flying, and she was true to her word. Years later, her name would be enshrined alongside other remarkable pioneers in the Smithsonian's National Air and Space Museum as the nation's first female Asian aviator.

The Beijing Air Force Aviation Museum calls her "China's Amelia Earhart" and displays items documenting her many aerial feats.

"I wanted to fly, so that's what I did," said Cheung, to audiences. She wanted, she said, "a life filled with adventure."

> *"I don't see any reason why a Chinese woman can't be as good a pilot as anyone else. We drive automobiles, why not fly planes."*
>
> **— Katherine Cheung**

Photo courtesy: Dottie Leschenko

BUILD A STEARMAN MODEL 75

The primary objective is for students and cadets to build a highly detailed paper model of an important aircraft used by civilian and military student pilots from the 1930s into the 1940s. The secondary objective is to excite the imagination of CAP cadets and students in aviation history and model building. The finished model measures a mere 2.75 inches by 3 inches and flies. Cheung flew Stearman Model 75 at air shows.

BACKGROUND

The Stearman (Boeing) Model 75 is a biplane used as a military trainer aircraft, of which at least 10,626 were built in the United States during the 1930s and 1940s. Stearman Aircraft became a subsidiary of Boeing in 1934. Widely known as the Boeing Stearman, or Kaydet, it served as a primary trainer for the United States Army Air Forces, the United States Navy (as the NS & N2S), and with the Royal Canadian Air Force as the Kaydet throughout World War II. After the conflict was over, thousands of surplus aircraft were sold on the civilian market. In the immediate postwar years they became popular as crop dusters and sports planes, as well as for aerobatic and wing walking use in air shows.

After World War II, the thousands of primary trainer PT-17 Stearman planes were auctioned off to civilians and former pilots. Many were modified for crop dusting use, with a hopper for pesticide or fertilizer fitted in place at the front of the cockpit. Additional equipment included pumps, spray bars, and nozzles mounted below the lower wings. A popular approved modification to increase the maximum takeoff weight and climb performance involved fitting a larger Pratt & Whitney R-985 Wasp Junior engine and a constant-speed propeller. An iconic movie image is a Stearman crop duster chasing Cary Grant across a field in "North by Northwest." Christopher Reeve and Scott Wilson are shown flying 1936 variants in the 1985 movie "The Aviator."

aircraft-in-focus.com

A Meeting of the Ninety-Nines

The Ninety-Nines is a women's pilot association so named because 99 of the 117 women with pilots licenses responded to the initial call to assemble. Amelia Earhart is pictured at the center of the photo, and above and to the left is Katherine Sui Fun Cheung.

Photo courtesy: Dottie Leschenko

ABOUT THE PLANE

GENERAL CHARACTERISTICS

- **Crew:** 2
- **Length:** 24 ft. 9 in (7.54 m)
- **Wingspan:** 32 ft. 2 in (9.81 m)
- **Height:** 9 f. 8 in (3.0 m)
- **Wing area:** 298 ft.² (27.7 m²)
- **Empty weight:** 1,931 lb. (878 kg)
- **Max takeoff weight:** 2,365 lb. (1,200 kg)
- **Powerplant:** 1 × Continental R-670-5 seven-cylinder air-cooled radial engine, 220 hp (164 kw)

PERFORMANCE

- **Maximum speed:** 135 mph (217 km/h)
- **Cruise Speed:** 96 mph (155 km/h)
- **Range:** 250 miles (or 2-3 hours)
- **Service ceiling:** 13,200 ft. (4,024 m)

MATERIALS:

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

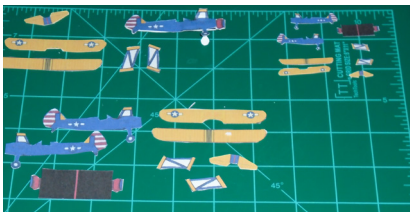
fyi: Things to keep in mind

1. Any card model consists of a number of flat parts which have to be folded in certain directions to form a three-dimensional shape.
2. There must be a clear indication where to fold and in what direction.
3. Most of the established publishers (in Europe) have a traditional format for indicating folds and scoring, to maintain continuity in their model designs.
4. The contracted designer is forced to follow this "tradition."
5. First score and then cut!
6. Most things to score and fold are TABS.
7. Curved folding edges are not possible.

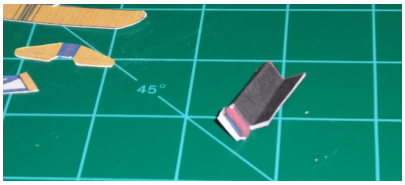
Photo courtesy: Dottie Leschenko

PROCEDURE:

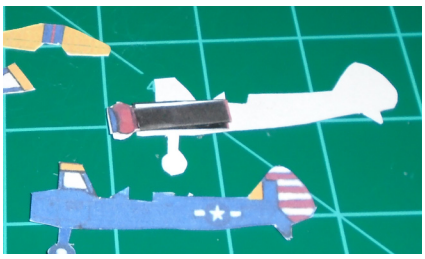
1. Print the Boeing-Stearman Model 75 plans on next page.
2. Set up your work area with materials and tools.
3. Read all the instructions on the plans on where to glue, cut and fold/bend.



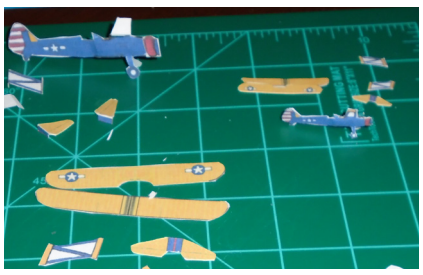
4. Cut out the parts, slowly and carefully. Fold the engine and weight (black rectangle) along the red line, in half. Score with an X-acto knife this rectangle into thirds, folding one side in and one side out, as in an accordion pleat. See below.



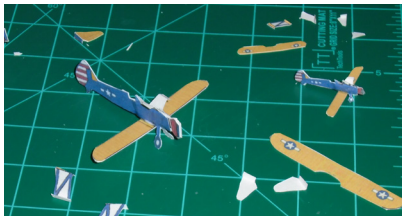
5. Glue the accordion pleats together to form an engine block on one end and a mass weight on the other. Glue this in to one side of the aircraft, as seen below.



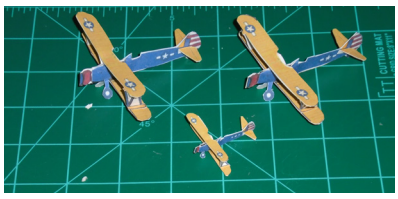
6. Glue the other half of the fuselage to the above. Take care NOT to glue the landing gear halves or the wing struts together.
7. With the engine block installed and the fuselage halves glued together, you will have a plane that will stand on its landing gear. See below.



8. Add the bottom wing and fit it so it is lined up and 90 degrees to the fuselage. This a good time to ensure all of the struts' fold-down glue tabs are actually scored and bent down.
9. The horizontal stabilizer needs to be cut in half on the red-line, and the black portion is the tab that will glue to the fuselage.



10. As in all biplane models, glue the wing struts on the bottom wing first, then the top wing. Add in the horizontal stabilizers and the Stearman Model 75 complete. With a model this small the propeller is optional.



ACTIVITY CREDIT:

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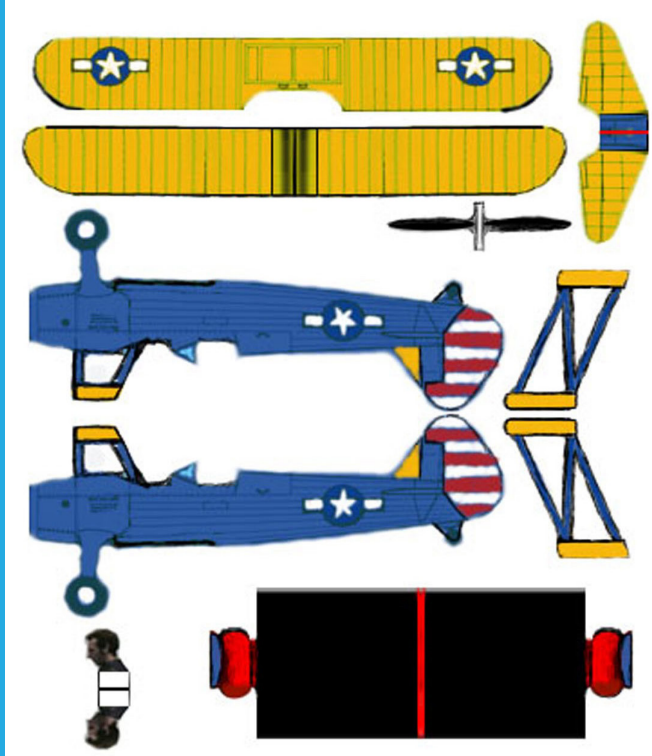

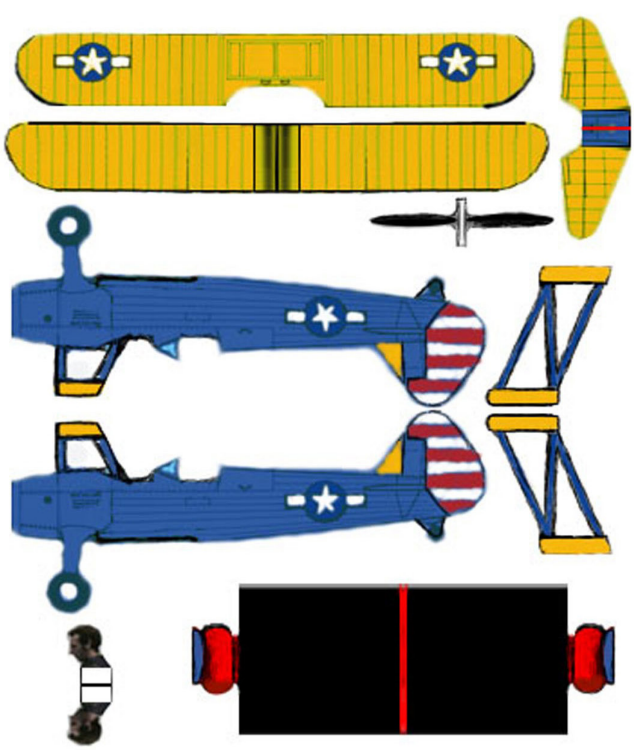

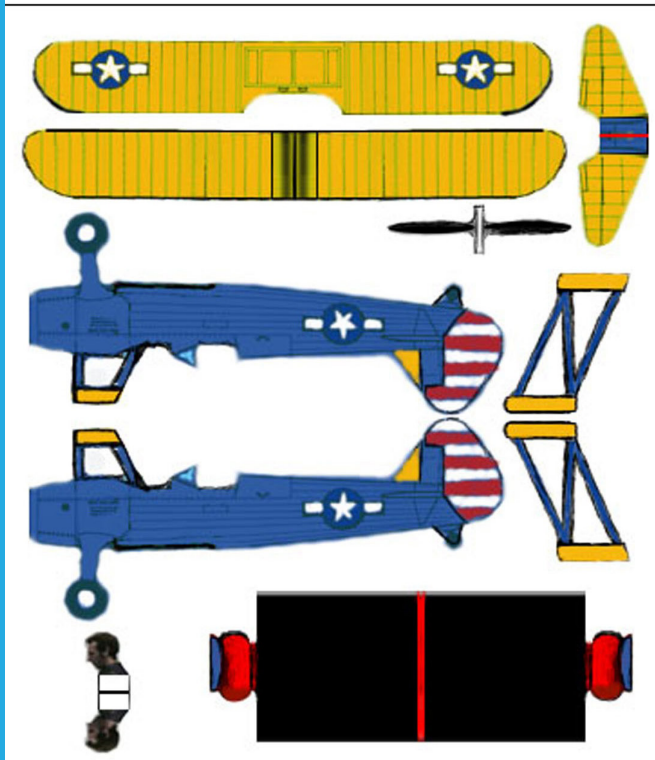

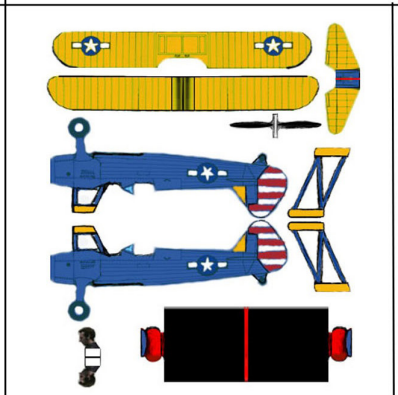

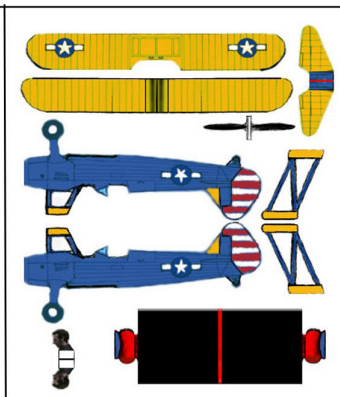

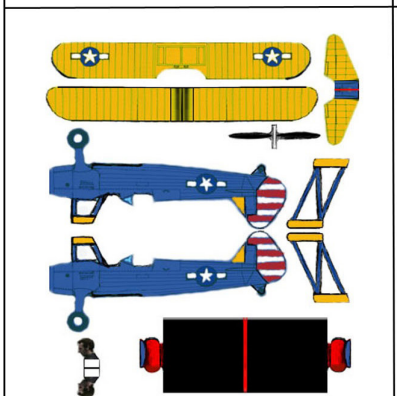

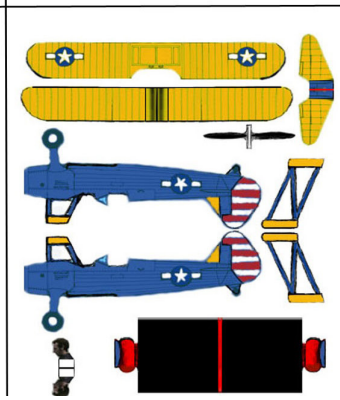

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EXTENSION
Katherine Cheung in Comics

Kate Beaton is a Canadian illustrator who creates comic strips about historical figures, including Katherine Cheung. From your reading, draw your own comic strips about Cheung's journey. Choose the aspects of her biography that you'd like to depict.

STEP ONE:
Select the event that you want to illustrate. _____

STEP TWO:
Divide the story into three to six parts that will become the comic strip panels. On the lines below, write out the dialogue and action for the panels of your strip.

PANEL 1 _____

_____

_____

PANEL 2 _____

_____

_____

PANEL 3 _____

_____

_____

PANEL 4 _____

_____

_____

PANEL 5 _____

_____

_____

PANEL 6 _____

_____

_____

STEP THREE:
Create your finished Katherine Cheung strip below. If necessary, do a rough draft first on the back of this exercise.