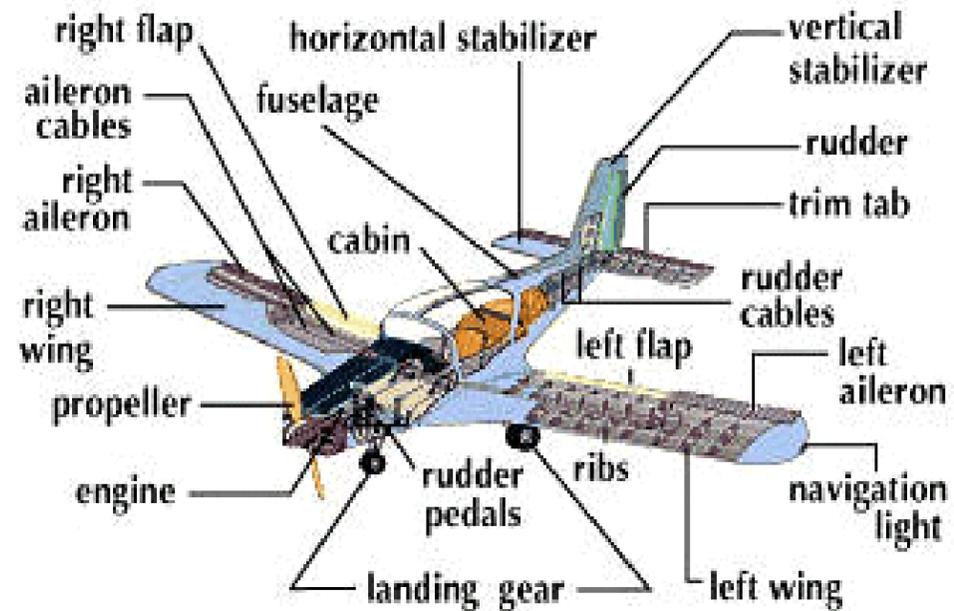


Parts of a Light Airplane



Service in aviation:

There are many organizations that provide free air transportation for medical needs. Some organizations specialize in helping cancer or transplant patients, newborns or children, veterans or populations in remote areas while others provide air transportation nationwide to needy patients traveling for medical treatment. What organizations are in your area?



Senior Aviation Badge

“I had to shield my eyes against the sun that shone above the steeples in the square, I knew that soon this flight would be done and nothing in the future would compare.” *

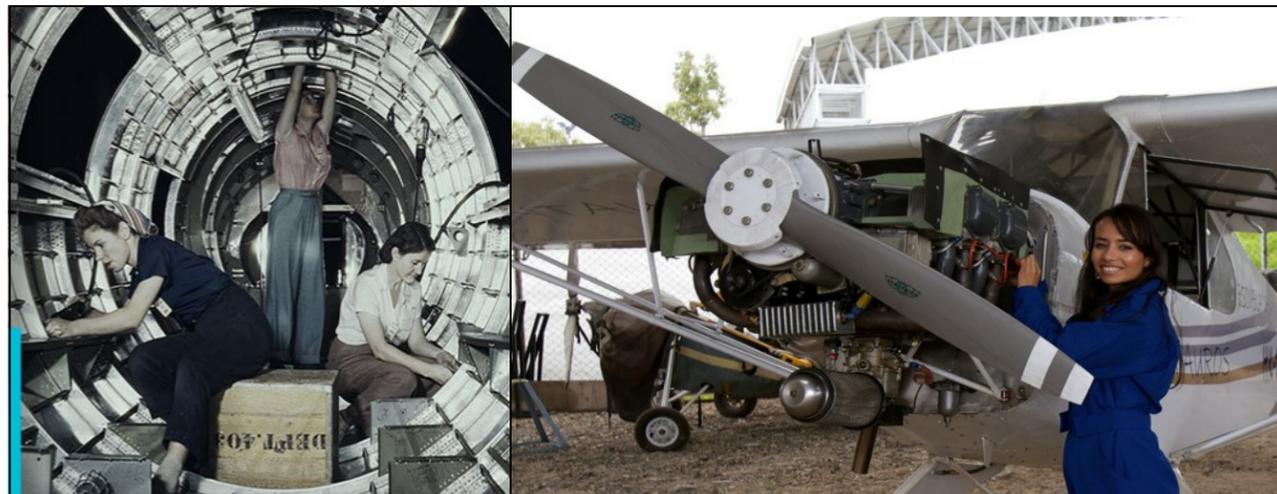
Jeanne Labrosse was the first woman to solo in a hot air balloon in 1798. Let’s find out more about aviation as you explore. The sky is the limit. *From “Where No Man Can Touch” by Pat Valdata

- Steps:
- Preflight
 - Taxi
 - Takeoff
 - Flight
 - Landing

Purpose: By completing this badge, I’ll be on my way to investigating how aviation can be in my future.

Preflight: Choices—Do one

- Interview a pilot or two. What is in their flight bag? How do they prepare? What is their favorite part? What inspired them to fly?
- Research women that are breaking barriers in aviation today. Find some local examples and interview them to get their perspective.
- Using a model airplane, explain the forces that act on an aircraft in flight. Include lift, weight, drag and thrust.



What’s in your tool box? Women have had a role in building and maintaining aircraft from the beginning.

Now that I’ve earned this badge, I can give service by:

- Organizing an aviation exploration event for younger scouts.
- Joining Civil Air Patrol to serve my community through aviation.
- Exploring a Gold Award project involving aviation.

Written by Kentucky Bluegrass Ninety-Nines 2017
 The Ninety-Nines are an international organization of women pilots that promotes advancement of aviation through education, scholarships and mutual support while honoring our unique history and sharing our passion for flight.
 To order this badge contact: tgsanders@att.net

The first astronauts were animals. What animal was on the first flight and why?

Taxi: Choices—Do one

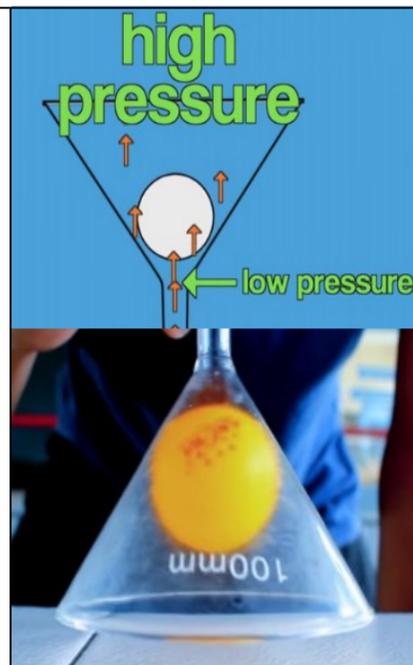
- Create an original poster of an aircraft instrument panel including the necessary gauges for a specific style of plane. Give a description of each component.
- Experiment and demonstrate alternative energy sources that planes use such as—electric power, bio fuel, solar powered batteries and non powered flight (soaring on the natural currents of air).
- Explore the challenges that stand in the way of obtaining a private pilot certificate. Include economic, culture, gender, location and aircraft availability.

Bernoulli's Principle

This principle in hydrodynamics that an increase in the velocity of a stream of fluid (air) results in a decrease in pressure is credited to Daniel Bernoulli in 1738 and helps explain lift in aviation.

To demonstrate this principle you only need a ping pong ball and a funnel. What would you need to do to lift the ball into the funnel? Try on your own to lift the ball. Use the top diagram on the right. Any success? Now set the ball on the table and place the funnel over it. While blowing strongly, lift the funnel off of the ball and what happens? As air is blown downwards into the inverted funnel, the air flow above the ping pong ball flows faster than the air that reaches the bottom of the ping pong ball. This creates a greater pressure at the BOTTOM of the ball and it is lifted up .

How does this principle relate to aircraft?



Flying in small private planes, helicopters, blimps or hot air balloons are not approved as Girl Scout Program activities.

Takeoff: Choices—Do one

- Obtain (either online or through general aviation airport) and learn how to read an aeronautical chart . Chart your course from start to destination taking into account wind drift, magnetic variation, and compass deviation.
- Shadow an aircraft mechanic as they perform maintenance. What training did their job require and where in your community is that training available.
- Research the parts of an aircraft and name their function.

Innovative women in aviation: Ida Van Smith founded a series of flight training clubs for minority children to encourage their involvement in aviation and aerospace sciences. In 1967, at the age of 50, she finally fulfilled a personal dream to learn to fly. Once she had her private pilot's license and instructor rating, Smith founded the Ida Van Smith Flight Club on Long Island, New York. Training for the students was provided in an aircraft simulator funded by the FAA and an operational Cessna 172. Soon there were more than 20 clubs throughout the country, with members ages 13-19. As a result, thousands of children were exposed to aviation and many pursued careers in aviation.

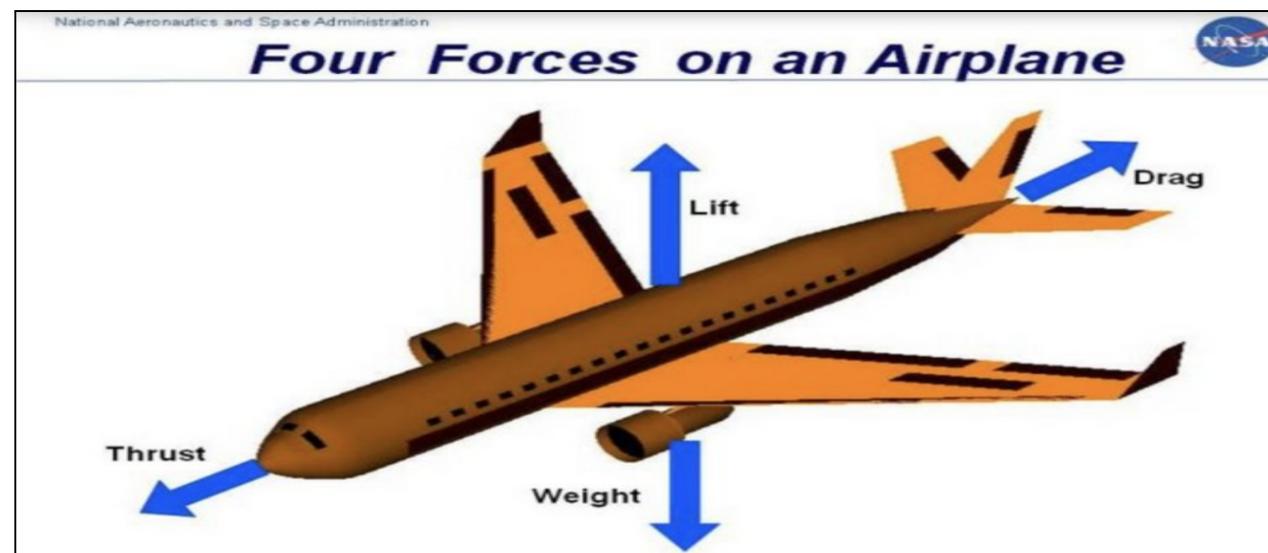
*Smithsonian Air & Space Museum

Innovative women in aviation: Patty Wagstaff became the first woman to win the title of U.S. National Aerobatic Champion, a title she then defended in 1992 and 1993. She began flight instruction in a Cessna 185 on floats and earned her private pilot license in 1979. Patty moved quickly to earn her commercial and instrument ratings for single and multi-engine aircraft and seaplanes. She entered her first aerobatic competition in 1984 and moved to the Unlimited category (most proficient) in only two years. Patty was a six-time member of the U.S. Aerobatic Team, which competes in world competition every two years, until her retirement from competition in 1996. Today, she is a premier aerobatic pilot in air shows throughout the United States, performing dynamic and precise routines in her Extra 300L. She is also a commercially rated helicopter pilot, a flight instructor for unlimited aerobatics, and she flies for motion pictures and television. Patty was the 1995 recipient of the National Air and Space Museum Trophy for Current Achievement in Aviation. In 2004, she was inducted into the National Aviation Hall of Fame. (See if she is coming to an airport near you)

*Smithsonian National Air & Space Museum

Flight: Choices—Do one

- Experience flying through a flight simulator. Become familiar with the skills needed to taxi, take off, climb, bank, set headings and land.
- Crew for a hot air balloon. Investigate what it takes—training, etc. The Balloon Federation of America will be the place to start.
- Visit a radio controlled (RC) club or meet. Report on your observations.



Landing: Choices—Do one

- Find an aviation mentor. She or he can help answer your aviation questions. Get together on a regular basis to plan your path.
- Describe the differences in training and certification for sport, recreational, lighter than air or private pilot and instrument, glider and seaplane rating.
- Explore the service organizations affected by flying. Animal rescue, medical transport, missionary, aerial photography, Civil Air Patrol, environmental, etc. What organizations pique your interest? Are there any that interest you?