

GLAD UNIT-FLIGHT

Unit Inventory

GLAD MATERIALS

- 3 pictorial inputs, 2 w/ teacher information sheets
- Hands-on materials for aerodynamic pictorial
- Narrative Input Background with 19 pieces and text
- Teacher-made Big Book, big book text, 5 chants
- Time Line w/ 17 picture files and 5 pages of teacher info
- Picture File Cards
- Idea and Unit Planning Pages
- 3 pages sample bookmarks and “aviator notebook” covers
- Masters for research reports: biography, newsletter, power point
- 9 pages teacher info on Chinese kites
- Video: Flight

BOOKS

English

- *Airplanes and Flying Machines*
- *This Plane*
- *Up in the Air*
- *A Picture Book of Amelia Earhart*
- *Amelia and Eleanor Go For a Ride*
- *Planes*
- *The Fantastic Cutaway Book of Flight*
- *Ride the Wind*
- *Sky Pioneer*
- *The Glorious Flight*
- *Flight*, Robert Burleigh
- *Learn About Flight*
- *One Giant Leap*
- *Mighty Machines: Airplane*
- *Leonardo and the Flying Boy*
- *The Airplane Alphabet Book*
- *The True Book: Helicopters*
- *Whiz Kids: Tell Me Why Planes Have Wings*
- *Fly High! The Story of Bessie Coleman*
- *Pioneers of the Air*
- *Flight*, Donald Lopez
- *Hot-Air Henry*
- *National Geographic Amelia Earhart booklet*
- *Magic school bus Taking Flight (set of 9)*

Spanish

- *La conquista de las alturas*

- *Las plumas y el vuelo*
- *Vuelo en las alturas*
- *El avión de Angela*
- *Los aviones tienen alas*
- *Los Estupendos: Dime por qué tienen alas los aviones*
- *El viaje en globo de Guillermo*
- *El avión*

**Project G.L.A.D.
Forest Grove School District
Idea Pages**

I. UNIT THEME

- The process of achieving flight for humans is the result of many centuries of study of aerodynamic principles, inventions building on previous inventors' ideas, and adventurous attempts at the unknown, by individuals from many parts of the world. Flight exploration is an ongoing process continuing today.

II. FOCUS/MOTIVATION

- Media (books and videos)
- Guest Speaker from Hillsboro Airport
- Big Book, *The Miracle of Flight*
- Observation Charts
- Inquiry Chart

III. CLOSURE/EVALUATION

- Field trip to *Evergreen Aviation Museum* (www.sprucegoose.com, Ryan Lillie – contact)
- Student-made big book
- Action plans
- Unit test
- Parent letter
- Letter to teachers
- Class chants and poems
- Design plane using flight principles

IV. CONCEPTS AND UNDERSTANDINGS

- Structure and design of airplanes
- How flight occurs
- The process of how human “flight” came to be
- How to create/invent airplane

V. VOCABULARY

air pressure	air resistance	aircraft
aviation	balloon	Bernouli
Boeing	drag	engine
feathers	friction	glider
gravity	hover	kite
landing	Lilienthal	Lindbergh
Montgolfier	NASA	oxygen
parachute	pilot	propeller

rocket	rudder	soar
take-off	thrust	turbo-jet
velocity	weight	wind
wings	wing span	Wright Brothers

VI. ORAL LANGUAGE/READING/WRITING SKILLS

- Expressing personal thoughts in a group
- Reacting to speaker with appropriate questions
- Understanding the writing process
- Summarizing
- Relating cause and effect
- Sequencing
- Gathering information/forming conclusions
- Locating information
- Identifying main idea
- Evaluating information
- Supplying evidence and supporting details
- Comparing and contrasting
- Oral delivery

VII. MATH/SCIENCE/SOCIAL STUDIES SKILLS

- Drawing conclusions
- Prediction/inference/conclusion
- Data collection
- Questioning strategies
- Interpreting data
- Problem identification
- Communication of solutions

VIII. RESOURCES AND MATERIALS

Non-fiction

- *Airplanes and Flying Machines*, Gallimard Jeunesse, Scholastic, 1989
- *A Picture Book of Amelia Earhart*, David A. Adler, Holiday House, 1998
- *Amelia and Eleanor Go For a Ride*, Pam Muñoz Ryan, Scholastic Press, 1999
- *Planes*, Angela Royston, Dorling Kindersley, 1992
- *Airplane*, Christopher Maynard, Dorling Kindersley, 1995
- *The Fantastic Cutaway Book of Flight*, Jon Richards, Aladdin Books, 1998
- *First Women of the Skies*, Kitty Crowley, Contemporary Perspectives, 1978
- *The Big Balloon Race*, Eleanor Coerr, Harper & Row, 1981
- *Ride the Wind*, Seymour Simon, Harcourt Brace, 1997
- *Sky Pioneer*, Corinne Szabo, Scholastic, 1997
- *The Glorious Flight*, Alice and Martin Provensen, Puffin, 1983
- *First Facts About Flying Machines*, Michael Teitelbaum, Action, 1981
- *Things That Fly*, Kate Little, Usborne, 1987

- *Riders on the Wind*, Laurence Swinburne, Raintree, 1980
- *First Flight*, George Shea, Harper Trophy, 1997
- *Ruth Law Thrills a Nation*, Don Brown, Harcourt Brace, 1993
- *Flight*, Robert Burleigh, Philomel, 1991
- *Learn About Flight*, Peter Mellett, Lorenz, 1997
- *Airports*, David Petersen, 1981
- *Lindbergh*, Chris Demarest, Crown, 1993
- *Airports*, Andrew Langley, Franklin Watts, 1987
- *Pilots Fly Planes*, Fay Robinson, The Child's World, 1997
- *One Giant Leap*, Don Brown, Houghton Mifflin, 1998
- *Mighty Machines: Airplanes*, Christopher Maynard, DK Publishing Inc., 1995
- *This Plane*, Paul Collicutt, Farrar Straus Giroux, 2000
- *Leonardo and the Flying Boy*, Laurence Anholt, Barron's Educational Series, 2000
- *The Airplane Alphabet Book*, Jerry Pallotta and Fred Stillwell, Charlesbridge, 1997
- *The True Book: Helicopters*, Darlene Stille, Childrens Press, 1997
- *Whiz Kids: Tell Me Why Planes Have Wings*, Shirley Willis, Grolier, 1998
- *Fly High! The Story of Bessie Coleman*, Louise Borden and Mary Kay Kroger, Margaret K. McElderberry Books, 2001
- *Pioneers of the Air*, Molly Burkett, Barron's, 1998
- *Flight*, Donald Lopez, Time Life, 1995

Fiction

- *Wings*, Jane Yolen, Harcourt Brace Jovanovich, 1991
- *June 29, 1999*, David Wiesner, Houghton Mifflin, 1992
- *If I Flew a Plane*, Miriam Young, Lothrop, Lee & Shepard, 1970
- *Up in the Air*, Myra Cohn Livingston, Holiday House
- *Hot-Air Henry*, Mary Calhoun, Mulberry, 1981
- *Abuela*, Arthur Doros, Penguin Books USA Inc, 1991

Spanish Books

- *La conquista de las alturas*, Robert Coupe, Shortland, 1999
- *Las plumas y el vuelo*, Robert Coupe, Shortland, 1999
- *Vuelo en las alturas*, Robert Coupe, Shortland, 1999
- *El avión de Angela*, Robert Munsch, Annick Press, 1997
- *Los Aviones Tienen Alas*, Christopher Maynard, Editorial Everest, 1997
- *Los Estupendos: Dime Por Qué Tienen Alas Los Aviones*, Shirley Willis, Grolier, 1998
- *El Viaje en Globo de Guillermo*, Reiner Zimnik, Susaeta, 1972
- *Orville y Wilbur Wright*, Ann Gaines, Rourke Publishing, 2002
- *Abuela*, Arthur Doros, Penguin Books USA Inc, 1995

Teacher Resources

- *Paper Birds That Fly*, Norman Schmidt, Sterling, 1996

Resources on the Web

- Aviation for Kids (great source for general information about all of flight): www.avkids.com
- NASA home page (lots of pictures and interactive activities): www.nasa.gov
- Evergreen Aviation Museum (great place for a field trip); www.sprucegoose.org

Forest Grove School District
Project GLAD
Unit Planning Pages
FLIGHT

I. FOCUSING/ MOTIVATION

- Inquiry charts
- Observation charts
- Realia
- Big Book, *The Miracle of Flight*
- Signal words
- Awards
- Picture file cards
- Guest speaker from an airport, pilot, etc.

II. INPUT

- Pictorial input chart: *Design elements of a plane*
- 10/2 lecture with primary language groups
- Graphic organizers: *The History of Flight*
- Read aloud/Shared book experiences
- Realia
- Demonstrations/explorations (experiments, paper airplanes)
- Narrative input: *Wings: A flight myth from Greece*
- Comparative input charts: *A plane's flight vs. a bird's*

III. GUIDED ORAL PRACTICE

- T-Graph for social skills
- Cooperative learning for cross-cultural respect, decision making, and language acquisition
- Picture file cards
- Poetry/chanting
- Sentence Patterning (Farmer-in-the-Dell) chart
- Process Grid
- Personal Interaction for bonding/respect
- Variety of discussion/exploration groups, primary language and heterogeneous
- On-going oral processing of charts
- Exploration report
- Home-school connections
- Expert group sharing

IV. READING/WRITING ACTIVITIES

- A. Total Class Modeling
- Total class modeling of reading and writing
 - Done in primary language/English
 - Used as reading/writing practice - all genres
- B. Small group – Cooperative Tasks –Variety of Groupings:
Flexible, Heterogeneous, and Need and Choice
- Focused reading
 - Shared, guided and flexible-group reading
 - Interactive reading
 - Poetry booklets
 - Strip paragraphs
 - Expert groups
 - Oral book sharing – in primary language and heterogeneous groups
 - Flip chants
 - Ear-to-ear reading
 - Mind-mapping
 - Big Books - in many languages
 - Group frame
 - Poetry frame
 - Reading the walls
- C. Individual Practice and Choice:
Reading/ Writing Using Student's Own Language
- Silent Sustained Reading
 - Silent Sustained Writing
 - Reading/Writing to all genres, domains
 - Journals, Logs, Mind-mapping
 - International Library
 - fiction and non-fiction
 - variety of languages
 - Read aloud by teacher and students of a variety of literature, including students' work
- D. Writer's Workshop
- Choice
 - Metacognition
 - mini-lesson
 - conferencing
 - Author's Chair
 - Peer Editing
- V. **EXTENDED ACTIVITIES FOR INTEGRATION**
- Role-playing /drama
 - Guided Imagery
 - Science Explorations

- Music/movement
- Poetry
- Art
- Field trips

VI. CLOSURE/EVALUATION

- Personal exploration
- Team exploration
- Action plans
- Process charts and learning logs
- On-going assessment
- Alternative assessment strategies
 - Videos
 - Plays, presentations, demonstrations
 - Build projects
 - Big Books
 - Portfolios
- Teaching of study skills and test-taking skills

THE MIRACLE OF FLIGHT

By Tessa Williams and Laura Curry

To fly like a bird was once a dream, but is now a miraculous reality.

The first flying machine, the kite, was invented in China more than 2000 years ago. There are stories of the Chinese using kites for sending messages and spying during wartime, and the 13th century explorer Marco Polo reported seeing people suspended in air by kites. Perhaps the Chinese were the first humans to "fly."

In the 1500's, Italian artist and scientist Leonardo da Vinci investigated a way for humans to fly. His designs were based on his observations of birds' flight, but machines based on his ideas were failures.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

The first successful aviators were Jacques and Joseph Montgolfier. In the 1700's, they built a hot air balloon of paper, which ascended with a sheep, duck and rooster to a height of 6000 feet in Paris, France. Today's jets fly at an altitude 5 times higher than that. Several months later, they designed a balloon large enough to carry two people for 25 minutes.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

Work continued on perfecting inventions for human flight. George Cayley designed a glider from wood and fabric in the mid-1800's which lifted a small boy briefly into the air. From 1891 to 1896, the German Otto Lilienthal made

over 2000 flights in hang gliders he built. He was interested in understanding how to use the forces of air to control the direction of a flight, and then planned to attempt motor-powered flight. Unfortunately, he died in a crash landing before he could pursue his ideas.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

Americans Orville and Wilbur Wright successfully implemented the concepts of powered, controlled flight in 1903. Their airplane, the *Flyer*, powered by an engine and a propeller, flew for 59 seconds in Kitty Hawk, North Carolina.

Within two years, they were able to design another plane, based on the *Flyer* model, that could fly 25 miles.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

During the next several years, inventors continued to improve upon the Wright Brothers' flying machine with many new models. Louis Blériot became famous by winning a contest for flying his own plane across the English Channel between France and England, a risky flight with the planes of the early 1900's. Because of his success, he received many orders for his planes, and in 1914, the French Air Force hired him to design fighter planes for use in World War I.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

Flying was still seen as a dangerous adventure during the next two decades.

Some of aviation's most daring pioneers included Charles Lindbergh, Amelia Earhart, and Bessie Coleman.

Over time, people came to understand flight more and planes continued to improve. In 1935, Frank Whittle used a new concept to create the jet engine. It was first tested by the military, and by 1952, was used for passenger flights. The jet planes that are common today use engines similar to the one developed by Frank Whittle.

The miracle of flight is still unfolding.

To fly like a bird was once a dream, but is now a miraculous reality.

Rockets were invented during World War II, and since then aviation has expanded rapidly. This same technology was later used to send satellites, and eventually humans, into outer space. The National Aeronautics and Space Administration (NASA) tests new aircraft daily to better understand the process of flight, and to continue scientific exploration of the solar system.

The miracle of flight is still unfolding.

Narrative Input Text

Wings

Adapted from *Wings*, by Jane Yolen

Once upon a time, according to Greek legend, a prince named Daedalus lived in Athens. He was intelligent, but too sure of himself, and this made him careless. When he accidentally caused the death of the king's son, he was banished from the city, and sent to live on the island of Crete.

The king of Crete had heard of the great Daedalus and how truly smart and inventive he was. He sought Daedalus out to build an intricate maze, with pathways so complicated that only he and a few others would possibly find their way out.

After this, Daedalus spent many happy years in Crete, and married and had a son named Icarus. The boy was quick and bright like his father, and Daedalus was proud. But he missed his home of Athens.

One night a prince from Athens came to Daedalus, and begged him to reveal the secret of the maze. Because he wanted to please this prince from his homeland, Daedalus agreed, and drew him a map.

King Minos knew he had been betrayed by Daedalus and immediately imprisoned him and his son in a tower on a cliff overlooking the sea. There father and son lived with only one small window to watch the sea and its life. Icarus loved watching the birds and often exclaimed to his father, "Look father, see how beautiful their wings are? See how easily they fly." Daedalus and Icarus spent many hours observing and talking about the birds' flight patterns, their wing movements, and how different currents of air seemed to affect their flight.

One day Daedalus realized that his young son had shown him a possible means of escape from their prison. He and Icarus began to coax birds to the windowsill in order to study their body and wing structure, and day by day they began to gently pluck their feathers. Daedalus instructed Icarus to lay out the feathers on the floor in order of size, and soon the piles of feathers were huge. Then clever Daedalus fashioned a needle from a bone left over

from dinner, used a thread from his shirt, and sewed together the grouped feathers. He followed the arrangement he had studied on the birds' wings. He then used candle wax to fasten the feathers into great arcs, and used leather from their sandals to make straps to attach to them. Finally Icarus understood and exclaimed, "WINGS, FATHER! We are making wings!"

So when finally the pair were ready to fly, Daedalus warned his son over and over, "Be careful not to fly too high or the sun would melt the wax. Also do not fly too low, or the water will soak the feathers." Tentatively, Daedalus placed Icarus on the sill, and then climbed up himself. They pumped their arms, leapt into the air, and father and son were flying!

Icarus lost himself in the freedom of flying and soon forgot his father's warning. Daedalus tried in vain to remind his son, but Icarus did not hear his father. Too late, Icarus felt the wax running down his arms as the wings began to fall apart, and he plunged down towards the waiting sea. Daedalus flew for days searching for his son, to no avail. Weeping, he flew on to the Italian island of Sicily. There he built a temple to the god Apollo, who symbolized life and light and never grew old, but remained a beautiful boy forever. Daedalus hung his beautiful wings on a wall of the temple as a remembrance to the son he had lost.

Aerodynamic Pictorial Input: Teacher Information

By Tessa Williams

This input gives students the concepts used by of airplanes. There are 4 factors that designers can manipulate: wing shape/size, power source, materials, and control mechanisms.

For each factor, the principles of flight are also sketched in. For example, the wing shape and size is directly related to *lift*. How you will power the airplane is directly related to *thrust*. If you change one factor, most likely the others will be affected.

I recommend talking about all the different types of planes (use books and picture file to illustrate) and what their "jobs" are (what they are used for). If a plane needs to be fast and agile, the power source must be strong and the weight as light as possible. Designers need to consider all the needs of their plane!

For follow-up and application of this information, I have children design airplanes/air engines and make at least three different designs, altering one of the four factors every time. For example, my students made wings of different sizes and shapes, added more/less weight, added tails, etc.

The materials included in the GLAD unit are actual materials used to construct planes. The different fabrics are actually laid over a frame and painted with a fixative (looks like clear nail polish). When dry, they are almost unbreakable! Some fabrics, like *kephlon*,
Are much stronger, while the fiberglass is not as strong. The different pieces of metal are laid over the frames as well and fastened into place with rivets. Some metals are thicker and stronger than others. The honeycomb pieces take up space in the body and wings of planes with limited weight and maximum strength (try stepping on it- it can't be crushed.)

Word Cards: Flight Vocabulary

force

drag

gravity

thrust

fuselage

wing

nose

engine

flaps

cabin

passenger door

lift

yaw

roll pitch

pilot navigator

landing take-off

taxi cockpit

propeller aileron

taillight rudder

landing gear fin

landing light

elevators

windshield

cabin door

jet pod

Comparative Input Chart: A plane's flight vs. a bird's

BIRDS

- Flying for millions of years
- Use feathers (light/strong/flexible). Feathers are only on the top surface, called *feather tracks*; underneath is down (this reduces weight). The bone-like shafts are made of keratin and are hollow, also reducing weight. The barbs between the feathers create more air space therefore more lift and lighter weight.
- Tail acts as a rudder helping to steer, balance, and stop.
- Most birds are small and have fewer bones than other animals. The bones they do have are hard and thin.
- Powered by large flight muscles.
- Fuel to power the muscles is organic material.

PLANES

- Planes have only been around 100 years.
- They use lightweight materials like fiberglass and various metals and plastics. Plane flight is dependent upon wing shape, and having enough engine power to lift the weight of the plane design.
- Powered by engines (primarily).
- Require some sort of fuel like gasoline to power the engines.
- Rudder and tail function the same as a bird's.

Graphic Organizer: Flight Timeline

Dreams of flight:

- 1100BC Chinese Kites, first kites used for entertainment. Also used sending signals and spying on enemies during battle.
- 822BC King Bladud believing he had magical powers stuck feathers to his body and jumped from atop the temple of Apollo. (He did not survive his attempt!)

Pioneer Age:

- 1500 Renaissance genius (Leonardo da Vinci)
- 1500 Wan-Hu put two kites together with 47 rockets attached. He Sat on the kites and had the rockets lit. He did not fly but Created many sparks!
- 1738 Daniel Bernouli helps to explain lift and force.
- 1783 First Humans to fly. (Montgolfier Brothers)
- 1785 First gas filled balloon flown across English Channel (Jefferies & Blanchard)
- 1797 First working parachute, used to jump out of a balloon. (Garneriean)
- 1881 Monoplane and biplane hang gliders built and flown. (Otto Lilienthal)

Powered Flight:

- 1896 First steam powered model airplane. (Samuel Pierpont Langley)
- 1902 Flapping machines. (Ornithopter)
- 1903 First sustained powered flight. (Wright Brothers)
- 1908 First powered flight in Britain. Sammuel F. Cody)
- 1909 First to cross the Channel. (Louis Bleriot)
- 1910 Women "barnstorming pilots", daredevil aviators performing Flying shows. Also training pilots for WWII. (Stinson sisters)

Mastery of Flight:

- 1918 Delivery of mail by air begins.
- 1919 First transatlantic crossing. (Vickers Vimy)
- 1923 Autogyro built, nicknamed the "Windmill planes". (Juan de la Cierva)
- 1927 First solo nonstop flight across the Atlantic. (Charles Lindbergh)

1930 First women to solo flight to Australia. (Amy Johnson)

Jet Age:

1931 World speed record. Supermarine S6B

1939 First practical helicopter built and flown. (Igor Sikorsky)

1940 Battle of Britain. Spitfire, Hurricane

1941 First jet aircraft. Gloster E28/39

1947 First person to fly faster than the speed of sound. (Charles Yeager)

Modern Aeronautics:

1957 Russia launches first satellite. (Beginning of the space race).

1960 First VTOL fighter, P1127

1967 First supersonic passenger jet.

1968 Largest passenger airplane, Boeing 747.

1981 First US space shuttle launch.

2000 X-33 will be used for aeronautical research as well as ferry passengers and cargo between earth and the spacestation.

Graphic Organizer: Timeline of Flight: Teacher Information

Chinese Kites - 1000 BC: Kites were many times used in military battles as a way to signal messages from afar.

Leonardo DaVinci investigates the flight of birds - 1486: Leonardo studied the flight of birds in an attempt to find a way for humans to fly. He designed a flying contraption that a young boy test-flew for him (because of his light weight). The boy almost died when he fell to the ground. Models of DaVinci's design have been built and are on display in the U.S.

Montgolfier brothers fly first balloon - 1786: Joseph and Jacques designed and built a hot-air balloon made of paper. They flew their balloon successfully to 6000 feet over Paris, France, the first flight of its kind.

Sir George Cayley designs gliders - 1804 : Cayley is sometimes called the "Father of Flight" because of all the research he invested into the aeronautical field. He stressed the scientific approach when studying the mechanics of flight, and successfully designed gliders, but the flights were always brief. Otto Lilienthal would use his research to design more successful gliders later in the century.

Otto Lilienthal flies gliders - 1891: A pioneer in glider flight, Otto made over 2000 flights in gliders he designed himself using Cayley's research. Unfortunately, Lilienthal died in a crash landing testing one of his gliders in 1896.

The Wright Brothers fly first plane – 1903: Orville and Wilbur Wright, who worked in their own bicycle shop, designed the first successful plane, *The Flyer*, powered by an engine. Their test flight took place in Kitty Hawk, North Carolina and lasted less than a minute. *The Flyer* would only fly for another minute before it crashed.

US Army orders first planes - 1909: The US Army placed its first order of planes to be used for battle in World War I. The planes could fly around 62 MPH for about 100 miles. Initially, the planes were used for observing enemy activity.

Blériot crosses the English Channel - 1909: Frenchman Louis Blériot flew his plane over the English Channel, solo, with no glass or protective cockpit to protect him on the flight. After his flight, hundreds of his planes were ordered; he spent almost his entire fortune on planes and flying before dying.

First helicopter flight - 1907: Frenchman Paul Cornu hovered in the air only briefly before crashing and breaking the fragile first helicopter!

Boeing company is founded - 1916: Fred Boeing started the Boeing Company after many years of keen interest in planes and flight. Before long, his company would become the largest manufacturer of planes around the world.

Amelia Earhart crosses the Pacific - 1934: Amelia was the first person to fly across the Pacific Ocean non-stop.

Charles Lindbergh crosses the Atlantic solo - 1937: After believing that several would beat him to it, Lindbergh became the first man to cross the Atlantic Ocean in a non-stop flight covering 3,600 miles in 33 hours and 30 minutes. The most challenging part: staying awake!

Amelia Earhart is lost -1937: Earhart's plane disappeared mysteriously while she was attempting to fly around the world, somewhere near New Guinea.

First passenger flights - 1939: This picture is of a Boeing plane that was a first of its kind. This was the first to consider the *comfort* of its passengers, a luxury ride!

Frank Whittle designs a jet engine - 1942: A new propulsion system, and a new way to power airplanes. The engine essentially worked by converting oxygen to power by igniting it, releasing immense amounts of energy.

First man in Space - 1961: Gagarin was a Russian, and the first one to ever enter space on a spaceship called *Vostok 1*. Neil Armstrong's walk on the moon would not come around for another 8 years.

Student Writing Frame: Expository

My Biography Report on an Inventor/Aviator

Name _____

Date _____

The name of my inventor/aviator is _____

She/He was born on _____ in _____

She/He died on _____

A. Facts about his/her childhood or family:

1. _____

2. _____

3. _____

4. _____

5. _____

B. Facts about his/her schooling/education:

1. _____

2. _____

3. _____

4. _____

5. _____

C. Marriage and Family (wife/husband and children):

1. _____

2. _____

D. Facts about his/her invention or aviator experience:

1. _____

2. _____

3. _____

4. _____

E. Why is this person famous and why should he/she be remembered?

1. _____

2. _____

3. _____

F. Did you find any interesting facts about your person?

G. Where did you find your information? With books, include the author; with the Internet, include the search engine and web address.

H. What did you like about your work on this report?

G. What would you do next time to make it even better?

Name _____ Date _____

<p align="center">Slide 1: Title Slide</p> <p>Name of Aviator/Inventor: Your Name: Your Grade: Third Grade Date:</p>	<p align="center">Slide 4:</p> <p align="center">His/Her Family or Other Information:</p>
<p align="center">Slide 2: Birth and Childhood:</p> <p>Tell the birth date of your aviator/inventor. Tell several details about his/her childhood, family, education—what schools did he/she go to?</p>	<p align="center">Slide 5: Why he/she is famous:</p>
<p align="center">Slide 3:</p> <p align="center">How did he/she get interested in flight and/or their invention?</p>	<p align="center">Slide 6: My Cited Resources:</p> <p>You need to give the Internet Web Sites where you found your information as well as printed materials (books, magazines, etc.)</p> <p align="center">Thanks for watching my presentation! Any questions or comments?</p>

Chants

Aircraft Here, Aircraft There

by Tessa Williams and Laura Curry

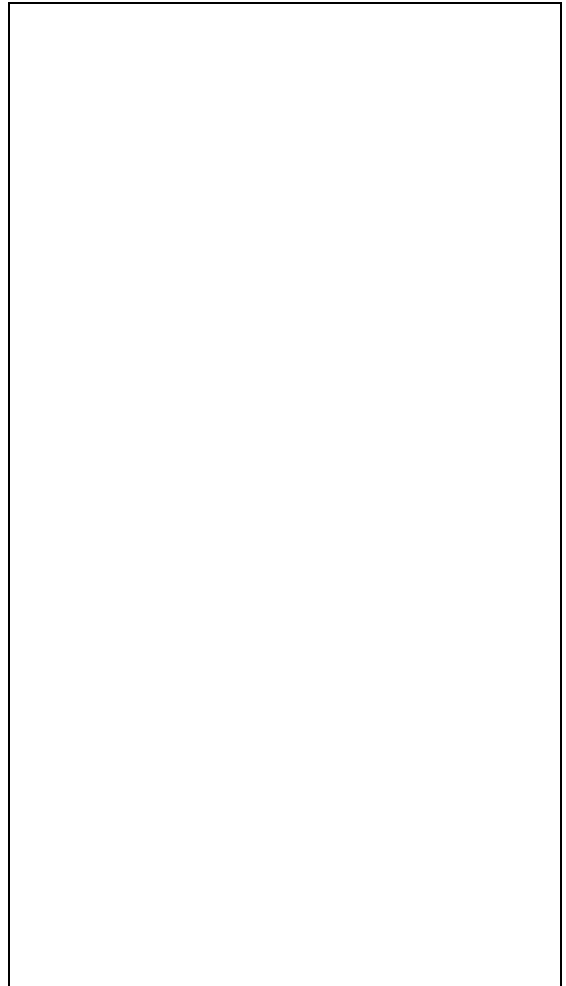
Aircraft here, aircraft there,
Amazing aircraft everywhere!

Jet planes zooming,
Light-weight gliders drifting,
Hot air balloons floating,
And hovering helicopters lifting.

Aircraft here, aircraft there,
Amazing aircraft everywhere!

Planes on the runway,
Planes above the sea,
Planes in the sky,
Planes soaring free.

Aircraft here, aircraft there,
Amazing aircraft everywhere!
Spaceships, helicopters, planes!



FLIGHT SOUND-OFF

By Karen Billette and Ruth Anne McCullough

We all know 'cause we've been told,
To fly a plane takes a certain mold,
Bernoulli's principle is a special thing,
That helps the people take to wing.

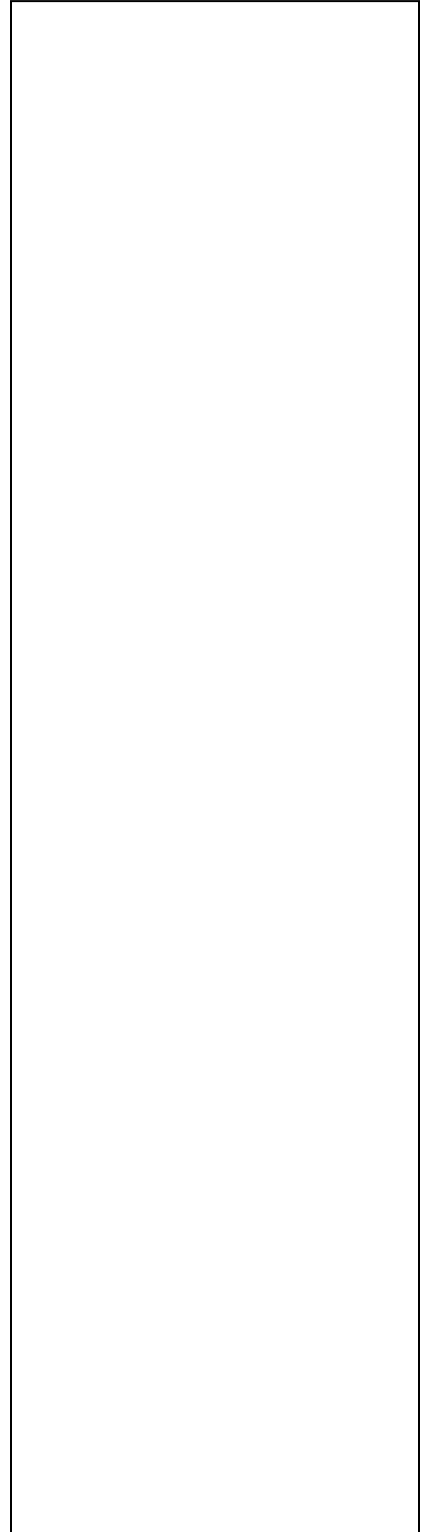
Airplanes -- airplanes,
Flight -- flight,
People flying -- high in the sky!

Four forces act on a moving plane,
In the sun or in the rain,
Gravity, thrust, drag, and lift,
All will help the plane to shift.

Airplanes -- airplanes,
Flight -- flight,
People flying -- high in the sky!

Pitch, roll, and yaw to the left and right,
All can make a level flight,
Nose and wing change the motion of the plane,
All help balance in thunder and rain!

Airplanes -- airplanes,
Flight -- flight,
People flying -- high in the sky!

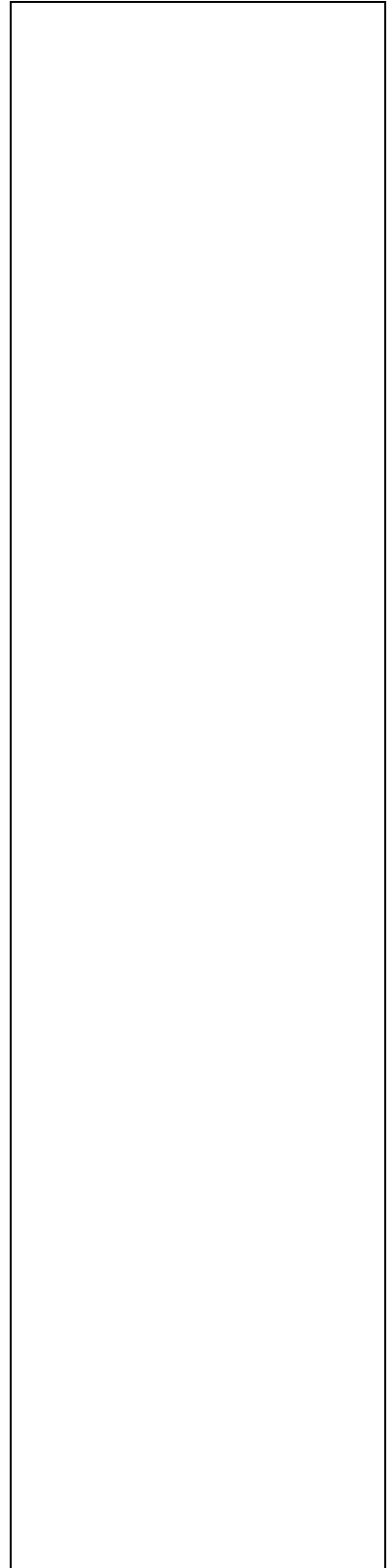


The ailerons help bank to the left and right,
High and low pressure gives the plane its might,
The airfoil of the wings help us fly,
With the propellers make a growling cry.

Airplanes -- airplanes,
Flight -- flight,
People flying -- high in the sky!

When we land, gravity's a force,
That allows the plane to stay on course.
Flying is such a great big joy,
For all the world to truly enjoy.

Airplanes -- airplanes,
Flight -- flight,
People flying -- high in the sky!



FLYING HERE, FLYING THERE

by DeAnn Pope and Ruth Anne McCullough

Flying here, flying there,
Things are flying everywhere!

Airplanes flying way up high,
Birds soaring through the sky.
Helicopters hovering every place,
Shuttles thrusting throughout space.

Flying here, flying there,
Things are flying everywhere!

Gliders sliding through the air,
Insects buzzing without a care.
Blimps floating over parades,
Rockets blasting with accolades.

Flying here, flying there,
Things are flying everywhere!

Flying! Flying! Flying!



I Can Spell

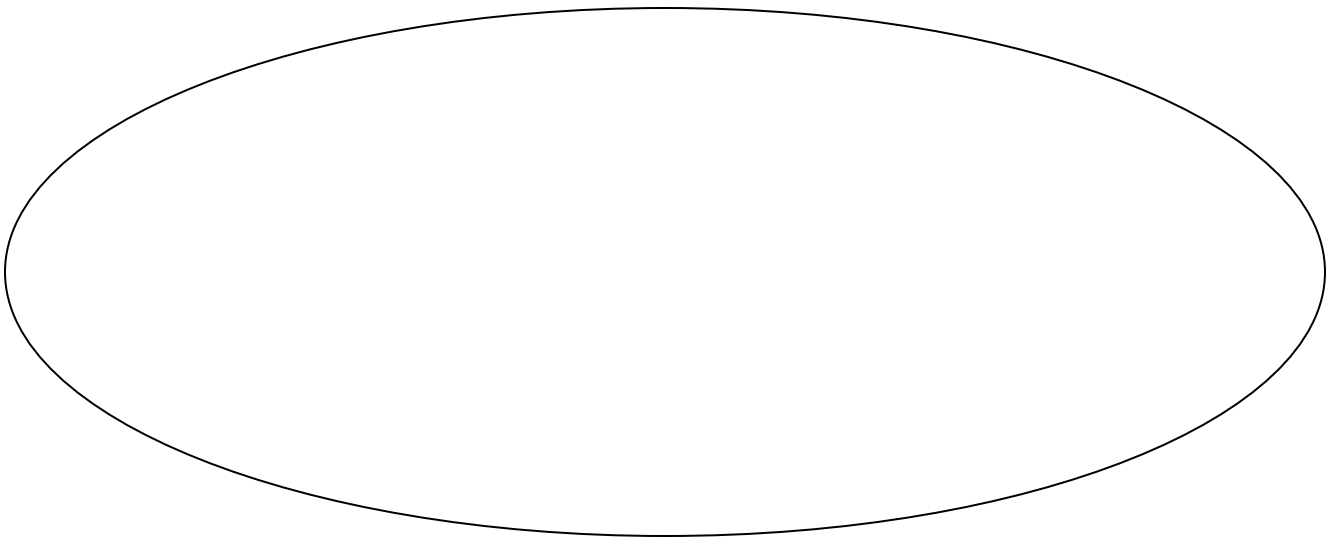
By Tessa Williams and Laura Curry

I can spell fly, f-l-y,
I can spell sky, s-k-y,
I can spell air, a-i-r
But I can't spell aviation.

I can spell wing, w-i-n-g,
I can spell land, l-a-n-d,
I can spell lift, l-i-f-t,
But I can't spell aviation.

I can spell flight, f-l-i-g-h-t,
I can spell plane, p-l-a-n-e,
I can spell space, s-p-a-c-e,
But I can't spell aviation.

Yes I can! Yes I can!
A-v-i-a-t-i-o-n, AVIATION!



IS THIS THE HISTORY OF FLIGHT?

YES, MA'AM!

By Tessa Williams and Laura Curry

Is this da Vinci?

Yes, ma'am!

Leonardo da Vinci?

Yes, ma'am!

Well, how do you know?

He studied how birds flew.

And then what happened?

What he observed, he drew.

Are these the Montgolfiers?

Yes, ma'am!

The Montgolfier brothers?

Yes, ma'am!

Well, what did they do?

They made the first balloon flight.

And how did it work?

Hot air made it light.

Is this Otto Lilienthal?

Yes, ma'am!

Is this Otto Lilienthal?

Yes, ma'am!

Well, how do you know?

He piloted hang gliders.

And what did he prove?

Curved wings work better.

Is this the history of flight?

Yes, ma'am!

Is this the history of flight?

Yes, ma'am!

Are these the Wright Brothers?

Yes, ma'am!

Are they Orville and Wilbur?

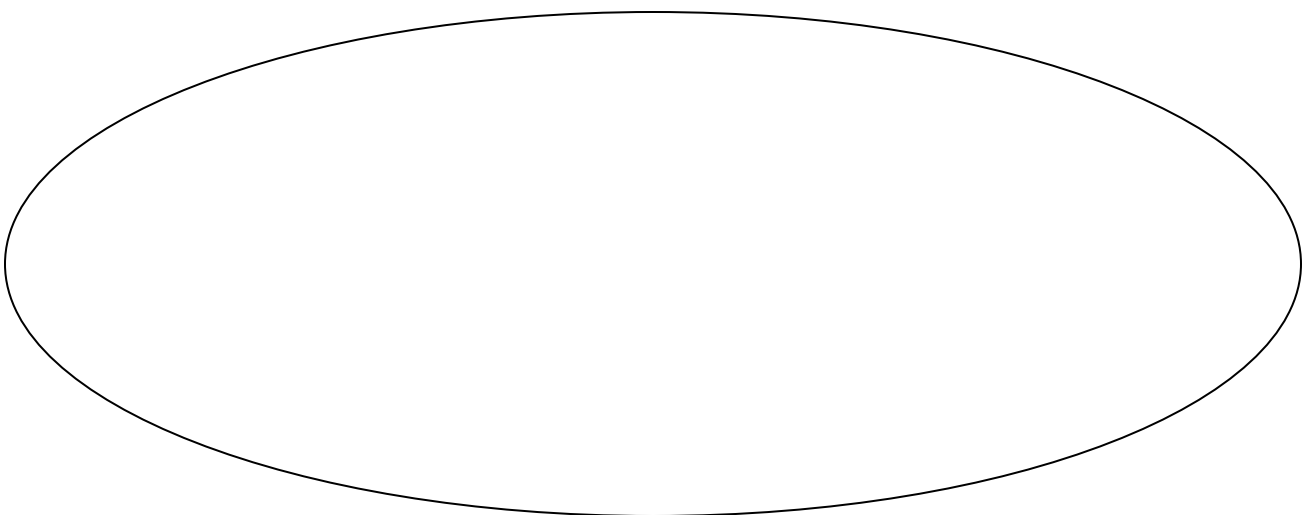
Yes, ma'am!

Well, why were they important?

That's easy to explain!

So what did they do?

They flew the first plane!

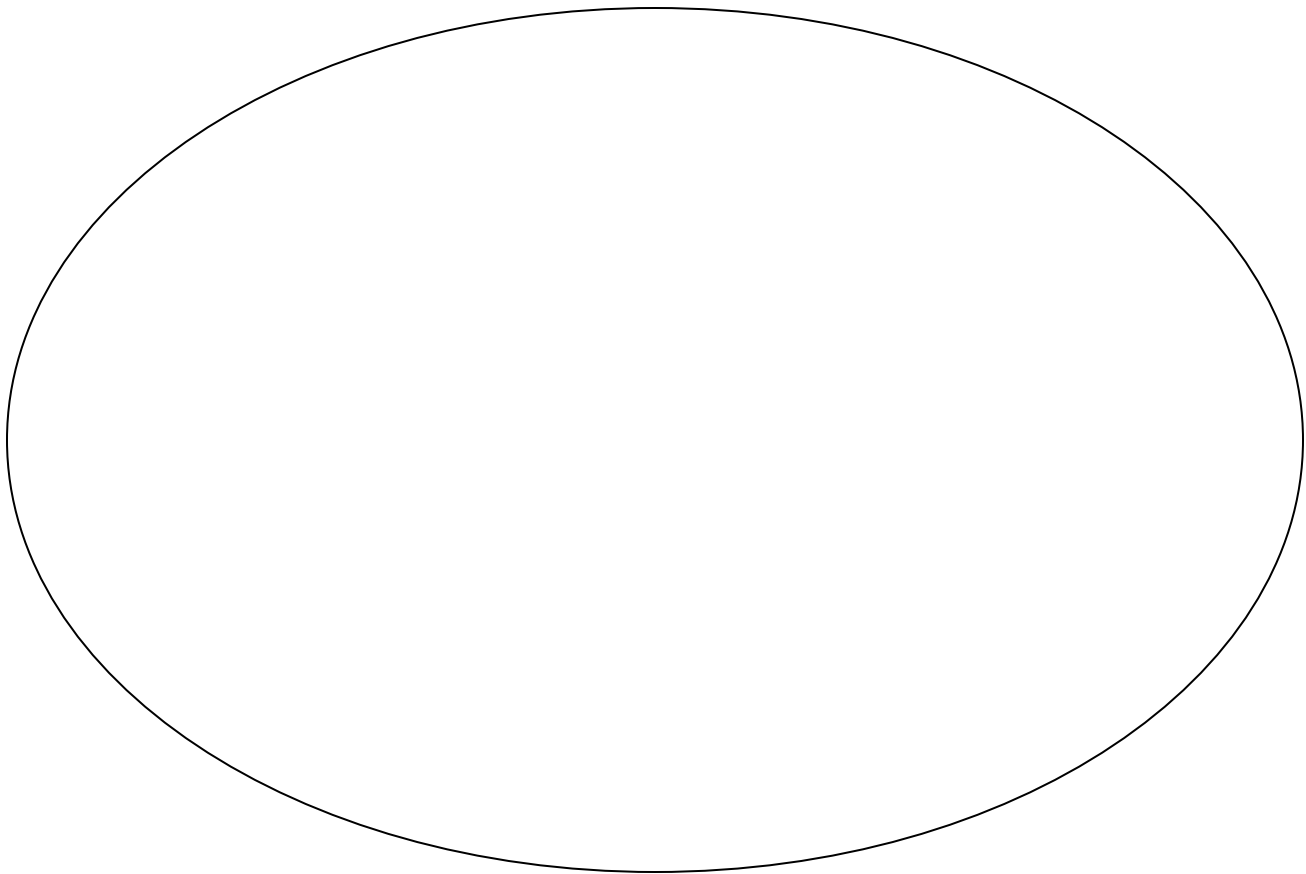


Is this Frank Whittle?
Is this Frank Whittle?
Well, how do you know?
And what made it better?

Yes, ma'am!
Yes, ma'am!
He patented the jet engine.
Its high-speed propulsion.

Is this NASA?
What is their mission?
And why is that important?
And why is that important?

Yes, you're right!
The study of flight.
To invent and explore.
It's exciting to learn more.



Picture file cards

They have fixed wings – wings that do not move – in order to get the lift they need to get off the ground. Helicopters, such as helicopters, have rotary wings, and today

the most common military helicopter is the AH-64 Apache, which is a

helicopter. It was developed in 1907, and is a



Helicopters are used for many purposes, including rescue and taking people to and from pads in city centers, ambulances, and at street intersections. They are also used for accidents and can move quickly through a helico



CORNU'S



Whittle



Abuela (Arthur Doros)



airport



balloon race



Bess Coleman



Cayley



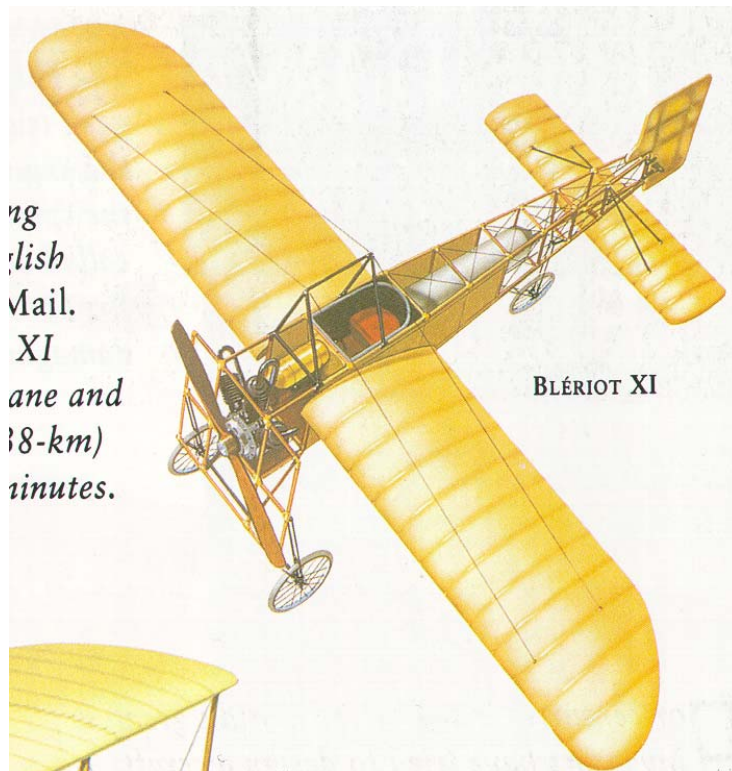
Cayley Glider



bird flight



Bleriot



Bleriot Plane



Cage Flight



THE
Polo, played for
game at the
stirrup gave con
of their horses.
held in the pala
Chang'an where
Zhongzong's tea
players once be
from Tibet. Emp
enjoyed polo so
he neglected hi

DID YOU KNOW?
A special Music Bureau was set up
during the Han dynasty. Its staff
collected official and popular songs
and musical compositions.

Chinese kites



cockpit



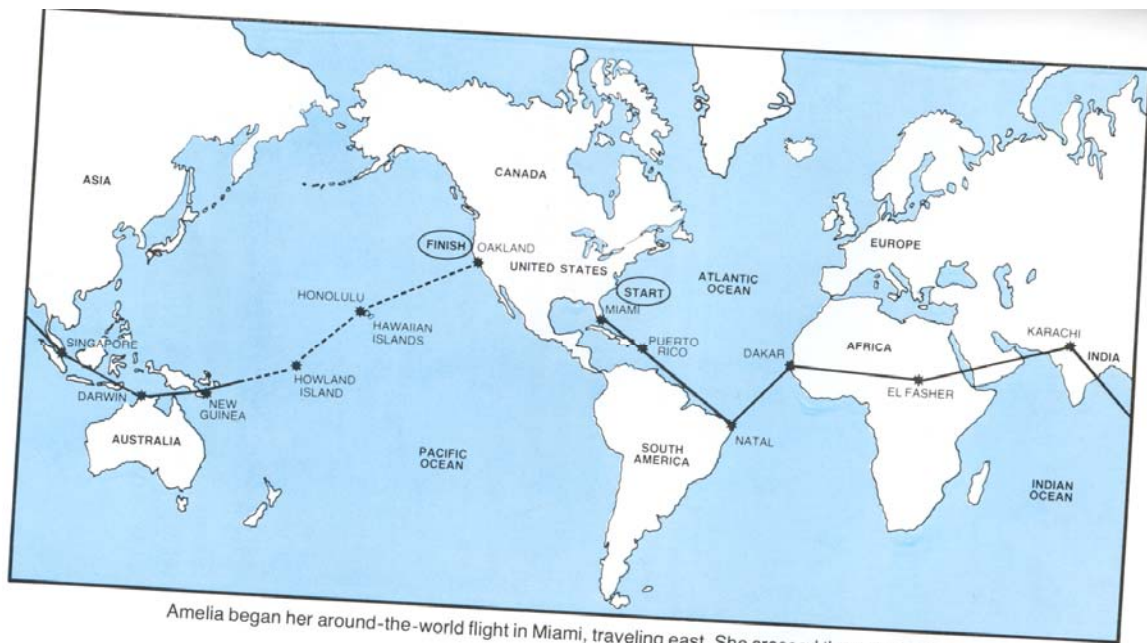
Concorde



Da Vinci illustration of flight



plane for cover of Big Book

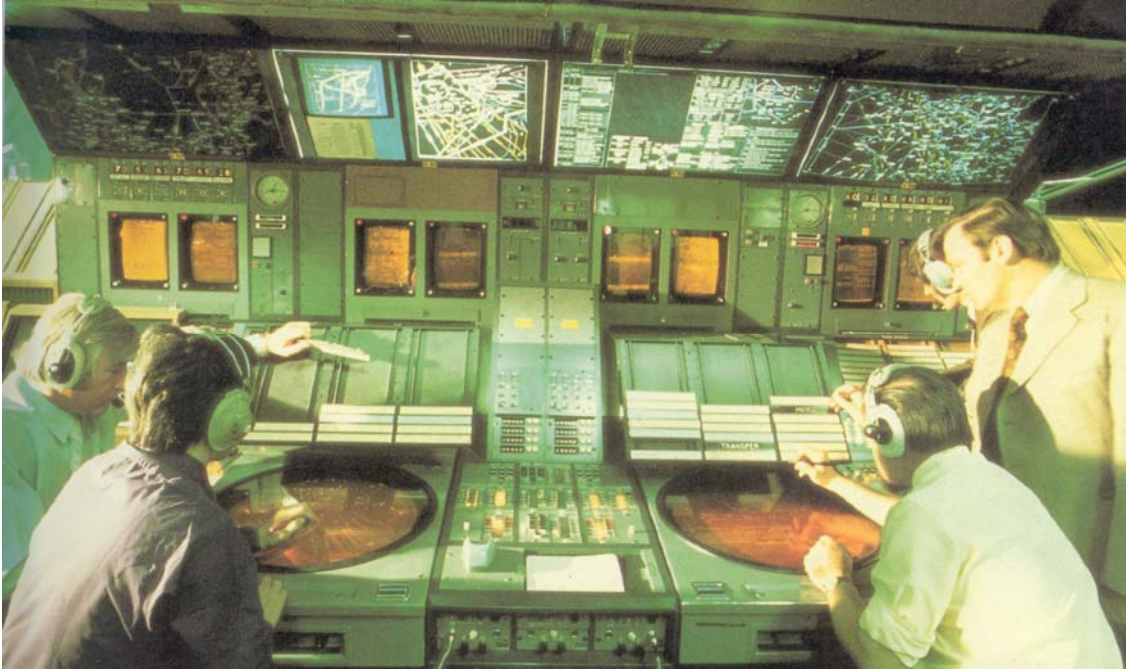


Amelia began her around-the-world flight in Miami, traveling east. She crossed three continents.

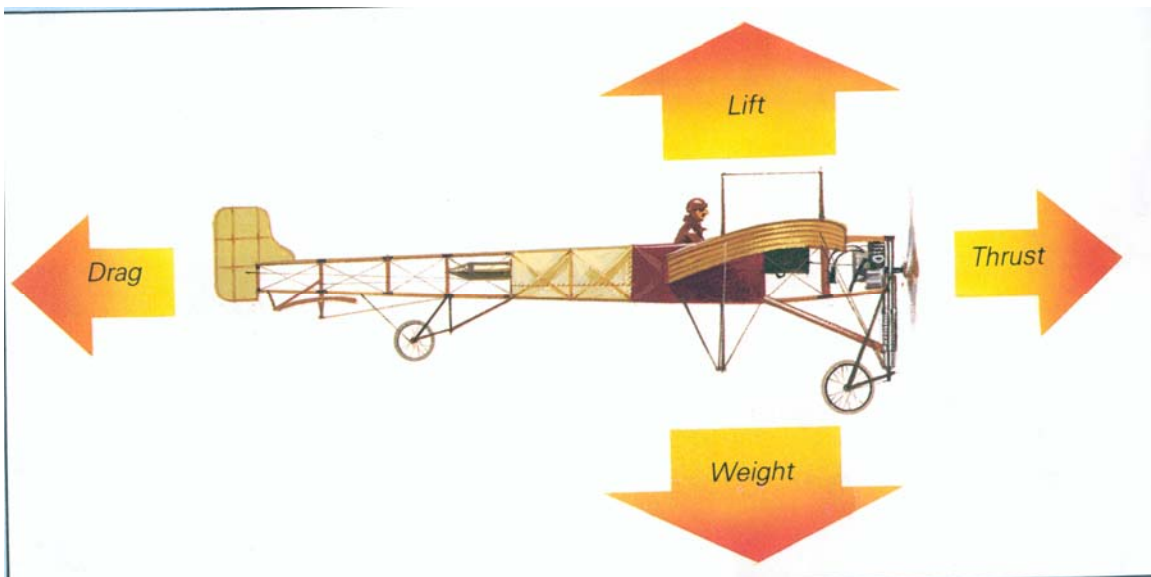
Earhart Map



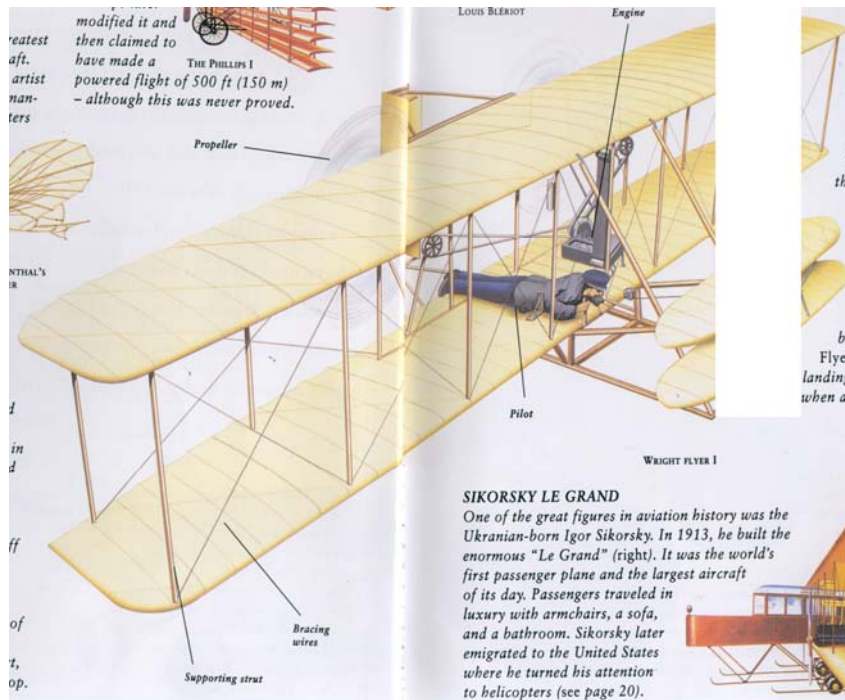
Earhart



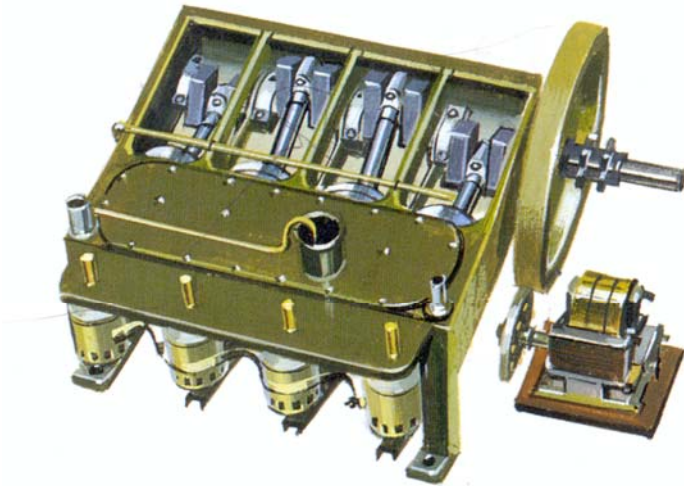
control tower



Flight Diagram



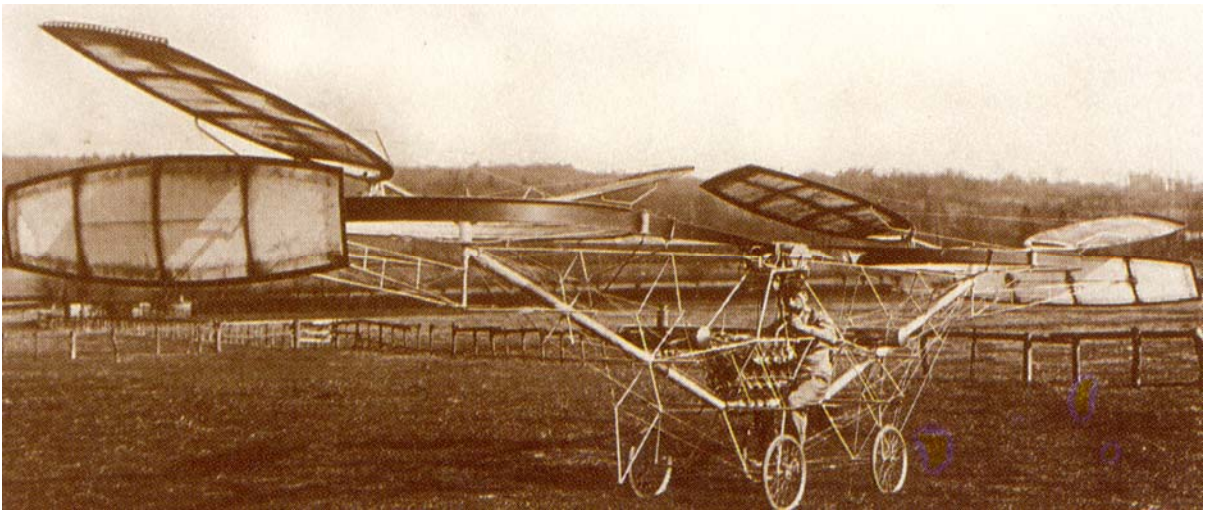
Lilienthal Flyer



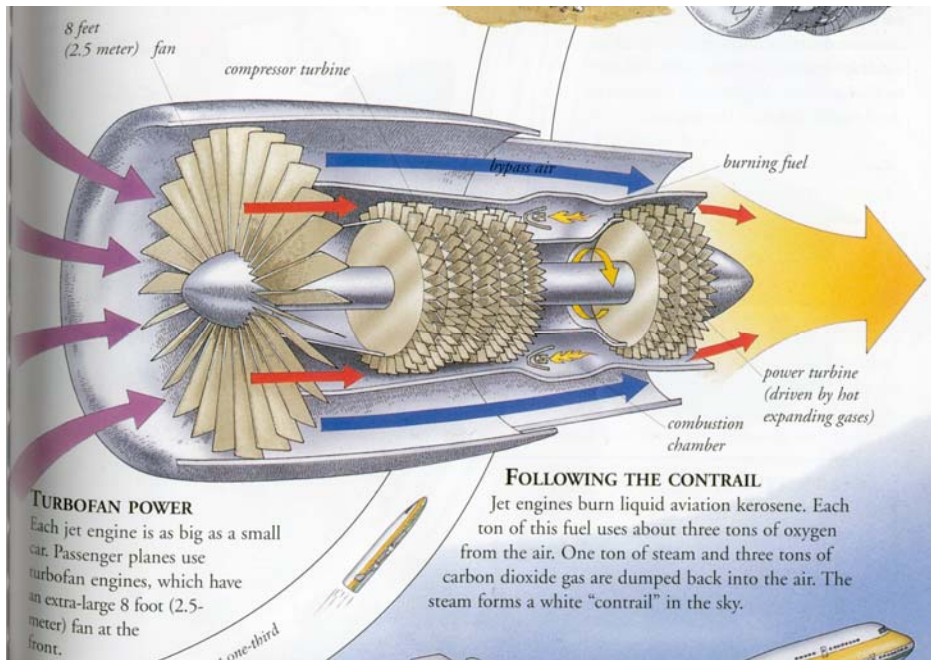
◁ The Flyer took off from a special test track to keep its wooden skids from plowing into the soft sand. The first flight took place just after 10.35 on the morning of December 17, 1903.

△ The Wrights built their own engine for the Flyer as no motor car engine was light enough. The engine was mounted on the lower wing, to the right of the pilot, who lay in the middle.

Flyer engine



Heli

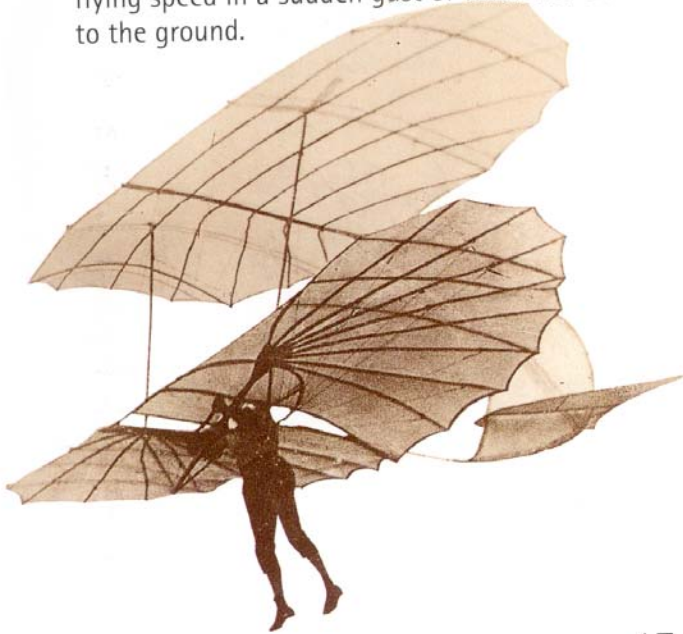


jet engine



Isis

flying speed in a sudden gust of wind and crashed to the ground.



17

Lilienthal



Otto Lilienthal



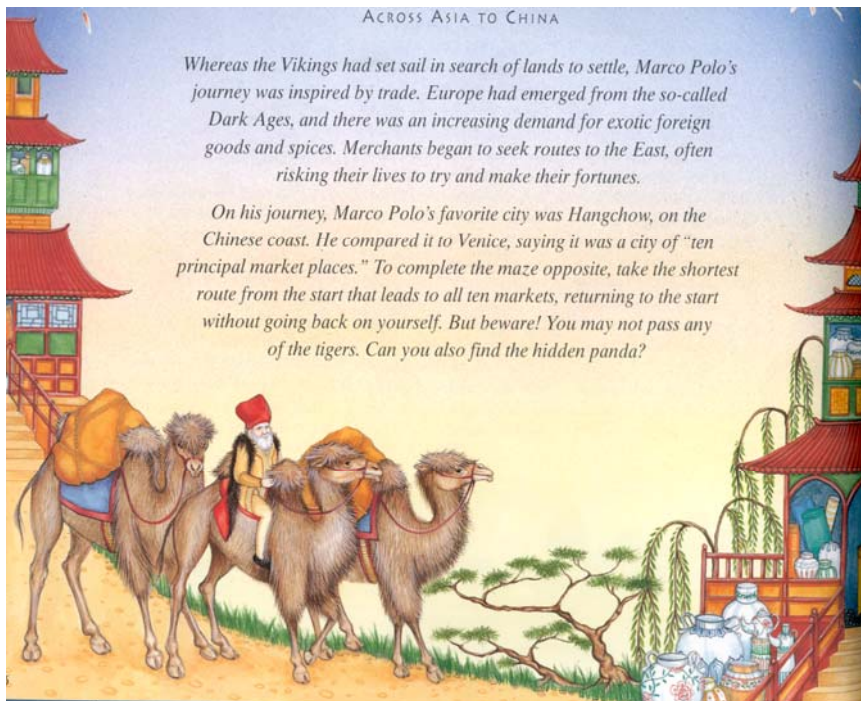
Lilianthal on top of a hill



Charles Lindbergh



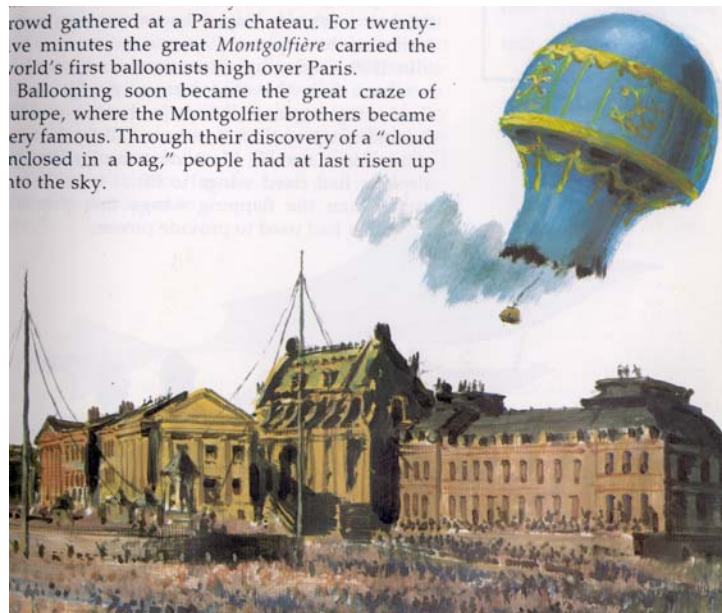
Lindbergh taking off



Marco Polo



military kite

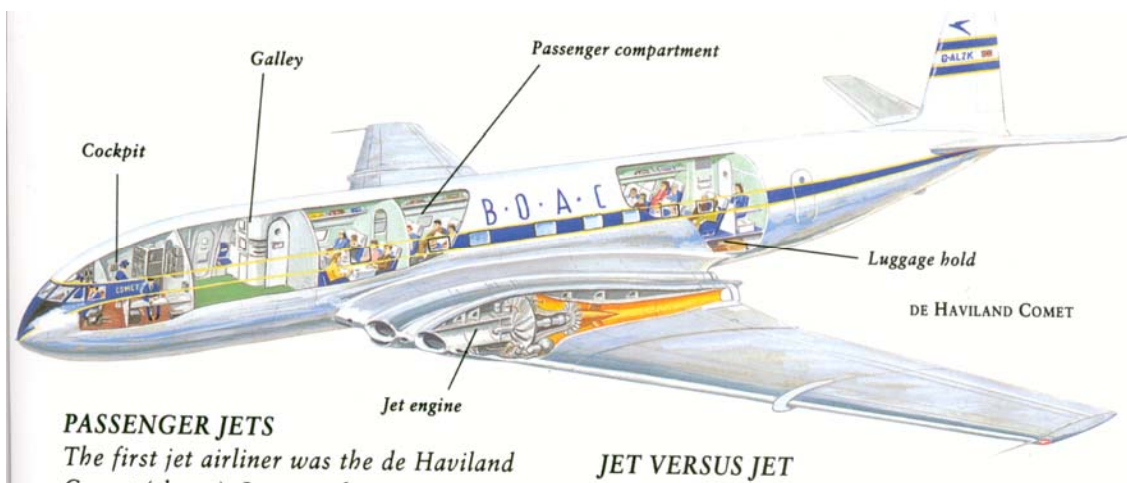


crowd gathered at a Paris' chateau. For twenty-five minutes the great *Montgolfière* carried the world's first balloonists high over Paris. Ballooning soon became the great craze of Europe, where the Montgolfier brothers became very famous. Through their discovery of a "cloud enclosed in a bag," people had at last risen up into the sky.

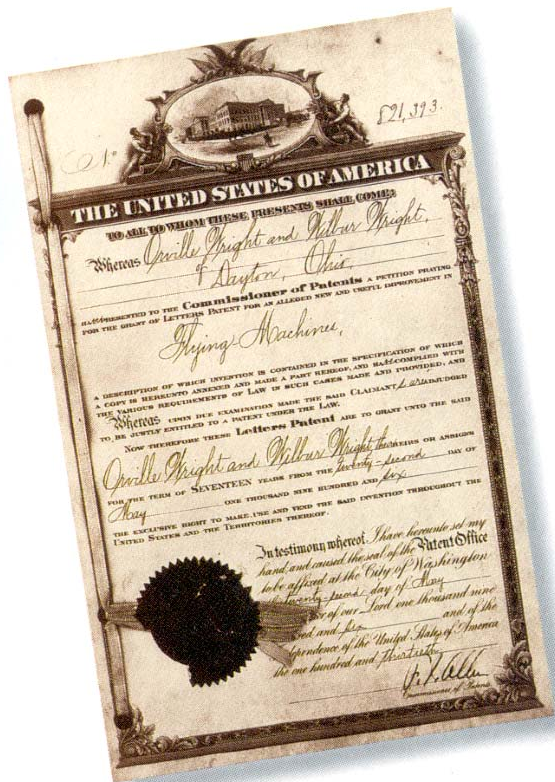
Montgolfier balloon



passenger plane



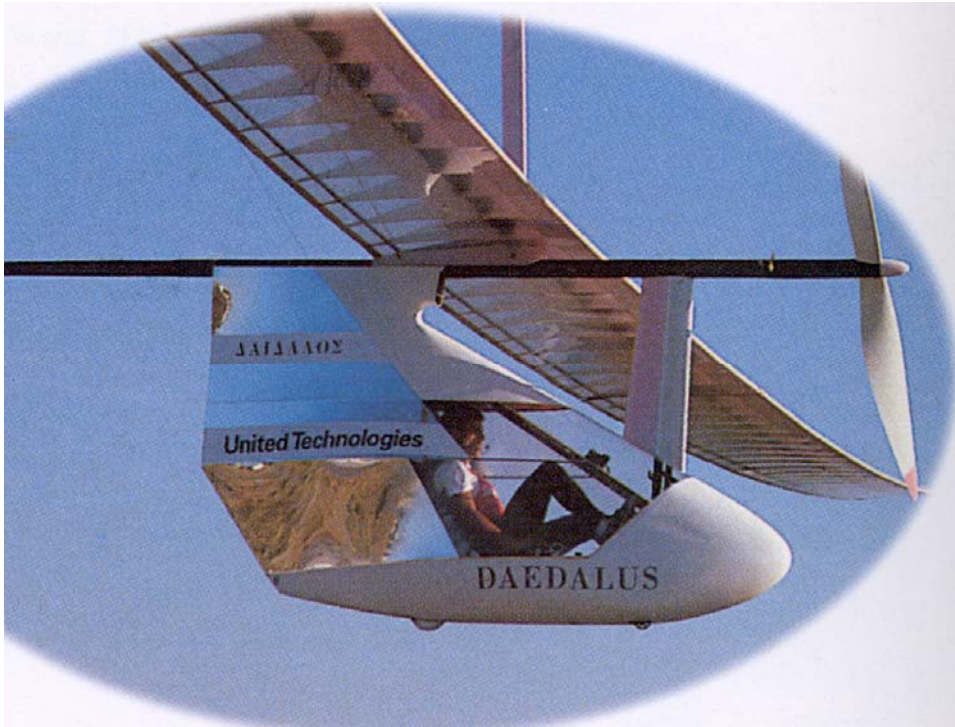
passenger jet



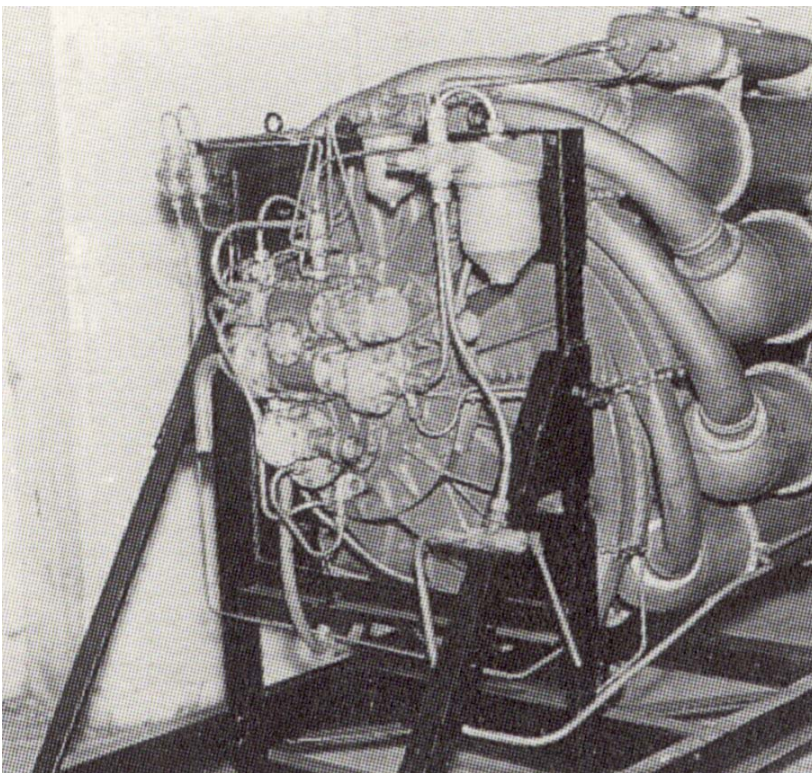
THAT'S MY PLANE

The Wright brothers patented their aircraft in 1906 to stop others from copying their ideas. But aviators in Europe were already designing different kinds of airplanes.

Wright Brothers patent

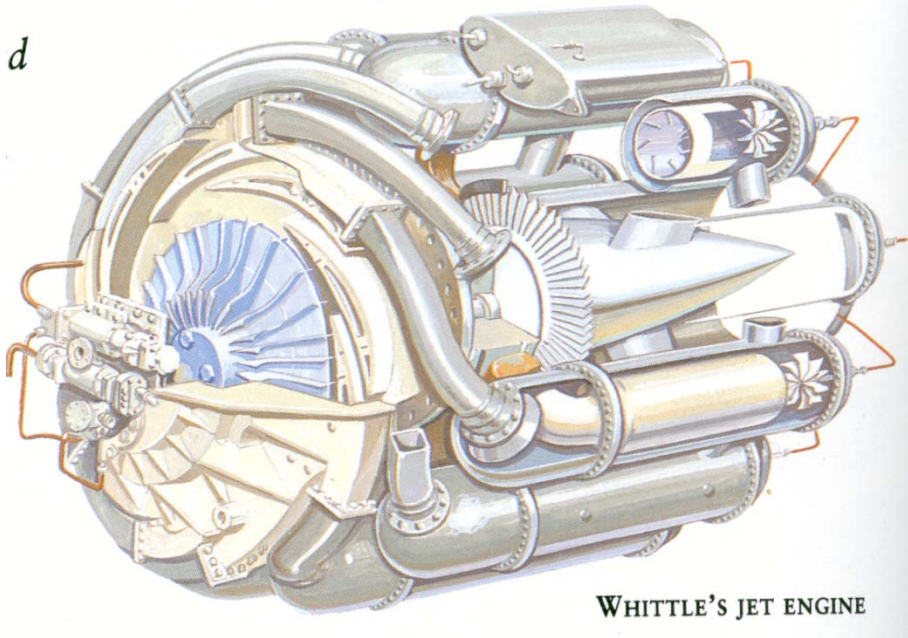


pedal plane



Whittle engine

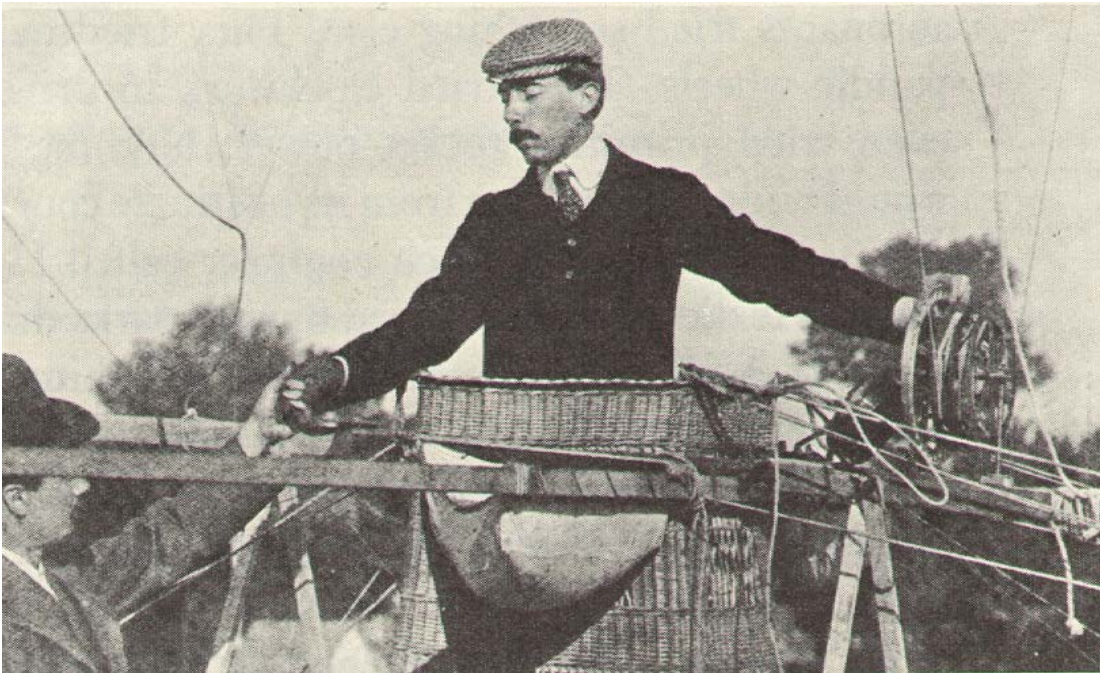
d



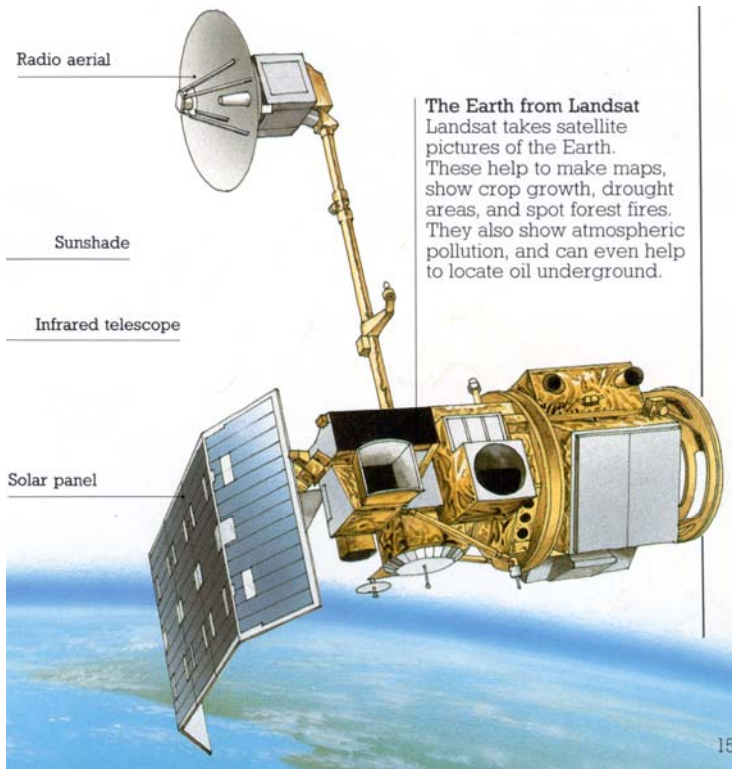
drawing of Whittle jet engine



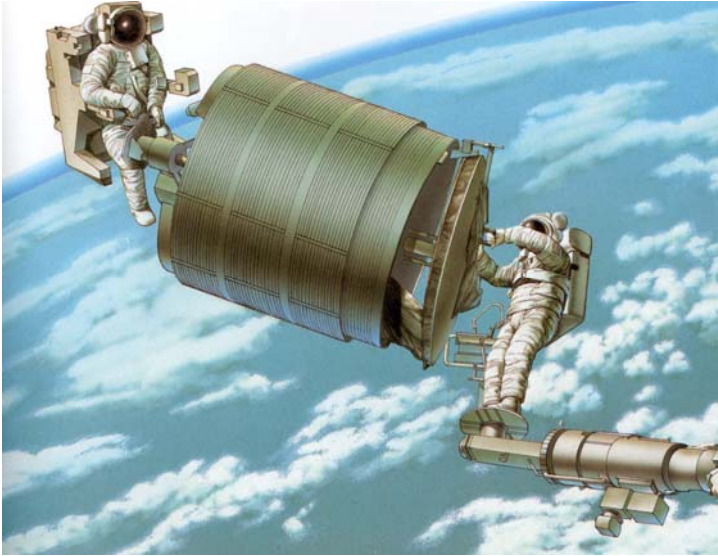
rocket



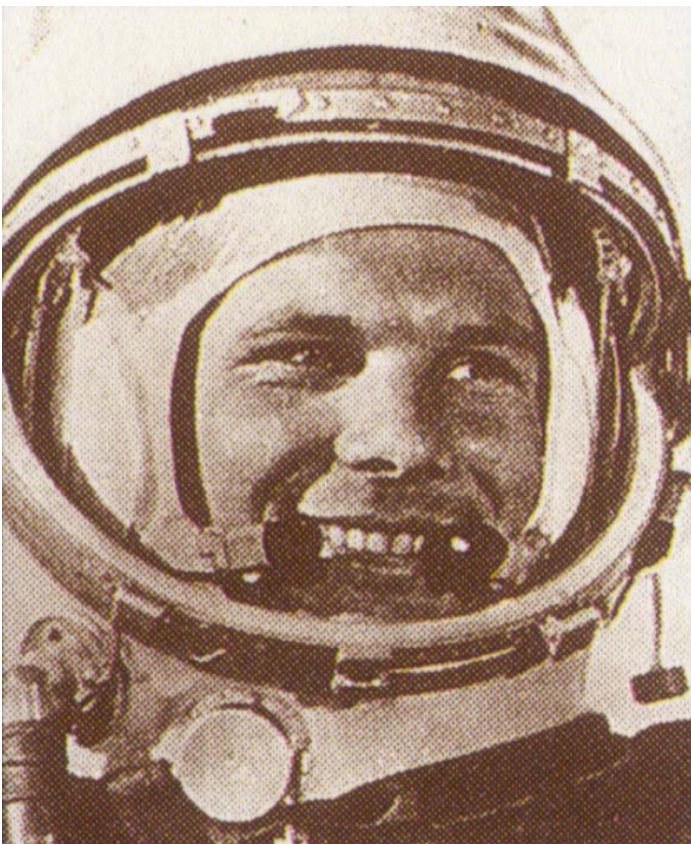
Alberto Santos Dumont



satellite



satellite retrieval



astronaut



Spirit of St. Louis

TEST PILOTS

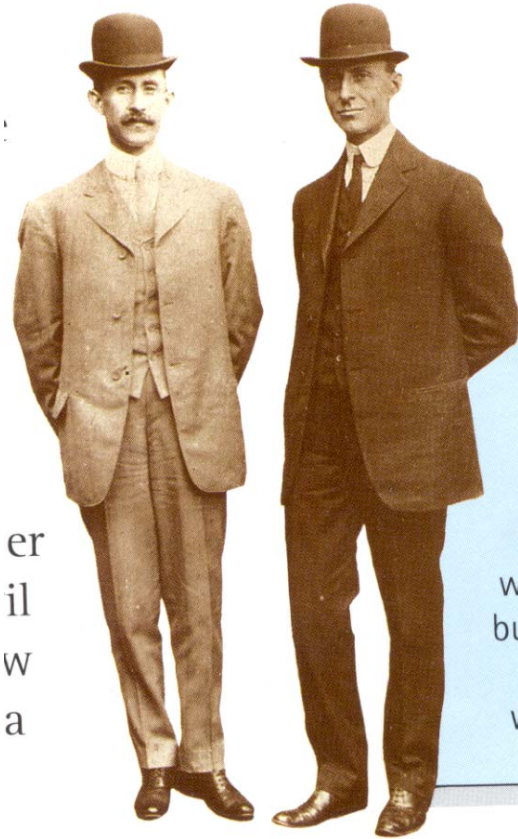
Test flying requires skill and daring—pilots call it "the right stuff." Each new aircraft, whether it is the latest glider, jumbo jet, military fighter or space shuttle, must be tested in flight to check that it is safe and reliable. Test pilots push their machines through every imaginable flight maneuver until they are satisfied that there are no problems with the aircraft. This dangerous task has now been made easier by supercomputers that can simulate the flight performance of new designs before the actual planes are ever flown.



test pilots



balloon



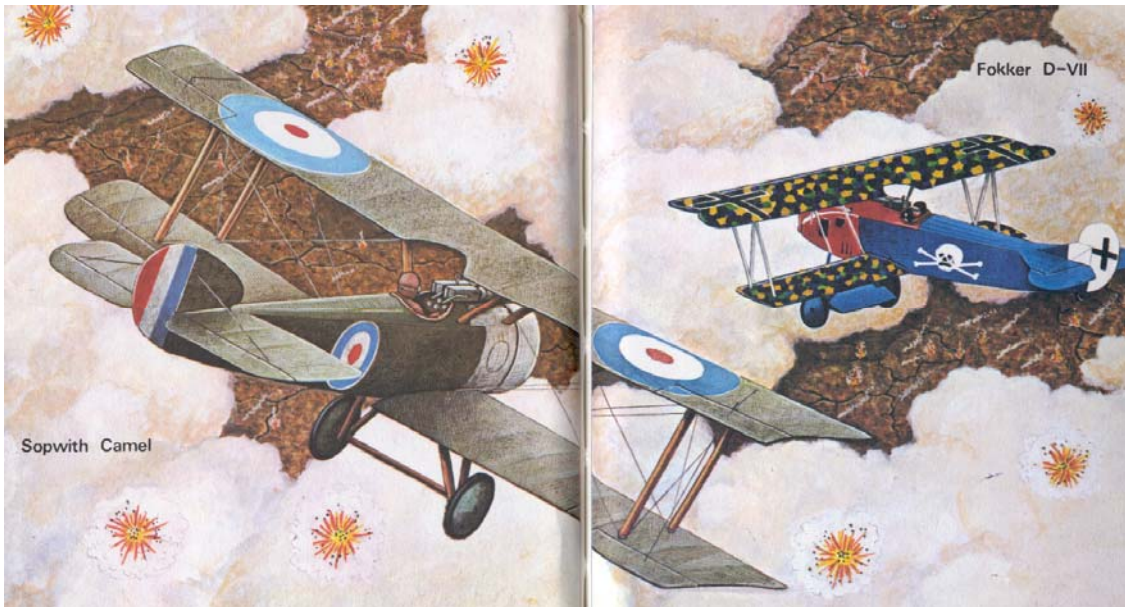
Rudders

Two rudders helped control the direction of the plane (called yawing).

DID YOU KNOW?

Wilbur (left) and Orville Wright tossed a coin to decide who would be the world's first pilot. Wilbur won, but he stalled and crashed into the sand. Orville succeeded where his brother had failed.

Wilbur and Orville Wright



World War I fighter planes



Zeppelin