



## Teacher Resources and References

### Print Material

The following lists of print materials, associations, and web sites simply serve as a reference which offer additional materials and information to the classroom teacher. These lists are not to be considered an endorsement by NASA Ames Research Center.

Aviation and Space Science Projects

Dr. Ben Millspaugh  
Tab Books (A division of McGraw-Hill, Inc.)  
New York  
ISBN: 0-8306-2157-1

Cross Sections: Look Inside Planes

Michael Johnstone  
Dorling Kindersley  
London  
1994  
ISBN: 1-56458-520-4

Experimenting with Air and Flight

Ormiston H. Walker  
Franklin Watts  
New York  
1989  
ISBN: 0-531-10670-5

How it Works: The Worlds of Flight

Bill Gunston  
Barnes and Noble Books  
New York, 1997  
ISBN: 0-7607-0427-9

The Lore of Flight

John W.R. Taylor  
Barnes & Noble, Inc.  
New York, NY  
1996  
ISBN: 0-7607-0364-7

The Story of Flight: Early Flying Machines, Balloons, Blimps, Gliders, Warplanes And Jets (Voyages of Discovery)

Editors: Dan Hagedorn & Sheila Keenan  
Scholastic Trade  
1995  
ISBN: 0-590-47643-2

Timelines Flight: Fliers and Flying Machines

David Jefferis  
Franklin Watts  
New York  
1991  
ISBN: 0-531-15233-2

Up, Up and Away: The Science of Flight

Dr. David Darling  
Dillon Press  
New York  
1991  
ISBN: 0-87518-479-0

The Visual Dictionary of Flight (Eyewitness Visual Dictionary)

Dorling Kindersly Books  
London, Great Britain  
1992  
ISBN: 1-56458-101-2

The Wright Brothers: How They Invented the Airplane

Russell Freedman  
Holiday House  
New York, 1991  
ISBN: 0-8234-0875-2



## Associations

Aerospace Industries Association of America, Inc.  
1250 Eye St. NW  
Washington, DC 20005

Airline Pilots Association  
1625 Massachusetts Ave. NW  
Washington, DC 20036

Aircraft Owners and Pilots Association  
421 Aviation Way  
Frederick, MD 21701

American Institute of Aeronautics and  
Astronautics  
370 L'Enfant Promenade SW  
Washington, DC 20024

4-H Aerospace Education  
National 4-H Program  
U.S. Dept. of Agriculture  
Room 38605  
Washington, DC 20250

National Air and Space Museum  
Public Relations Department  
7th St. and Independence Ave. SW  
Washington, DC 20560

NASA  
Educational Affairs Division  
Code XEO, NASA Headquarters  
Washington, DC 20546

## Web Sites

**URL:** <http://www.eng.fiu.edu/aero/tools.html>

**Appropriate user:** teacher or student

**Information offered:** Describes the basics of how an airplane flies and how it is navigated. Included are many pictures and diagrams of the fuselage, empennage, landing gear, wings, and the importance of each. The study is divided into the following six chapters: Structure of an airplane, characteristics of the Flight Atmosphere, Principles of Flight, The Four Forces of Flight, Flight Navigation, and Aircraft Propulsion.

**Possible correlation:** This URL would be most appropriate for at least eighth grade and above. Teachers would find this valuable as a refresher to the principles of aeronautics as well as a site to access other links, history, and career information on aeronautics.

**URL:** <http://www.lerc.nasa.gov/WWW/K-12/windtunnel.html>

**Appropriate user:** elementary, middle school, or high school teachers

**Information offered:** The K-12 Wind Tunnel Homepage offers the user access to historical information of wind tunnels, general classroom aeronautics activities, build your own wind tunnel activity, and links to wind tunnels on the web. It provides a very clear explanation of the Bernoulli Principle and the first and second laws of motion, and then has question exercises and Space Mathematics worksheets for students to check understanding.

**Possible correlation:** The teacher can access activities, experiments, and lesson plans that will help explain some of the basic principle's of aeronautics.



**URL:** [http://www.nasm.edu/GALLERIES/GAL\\_109/NEWHTF/HTF030.HTM](http://www.nasm.edu/GALLERIES/GAL_109/NEWHTF/HTF030.HTM)

**Appropriate user:** elementary and middle school students

**Information offered:** The How Things Fly homepage is a great URL for elementary and middle school students to browse through and learn about several aspects of flight. Students study how balloons are like boats, why we can't fly like the birds, how a jet weighing thousands of pounds can fly, how air is stuff, and how spacecraft in orbit don't float, but they fall around the Earth. Included at the end of each page is a "Did You Know?" button, when pressed it reveals fun facts relevant to the topic studied.

**Possible correlation:** This URL provides an interactive and stimulating approach to discovering how things fly for students.

**URL:** <http://www.planemath.com/>

**Appropriate user:** teacher and elementary or middle school students

**Information offered:** This web site presents math and aeronautics in a fun way. Students can partake on a math lesson that is related to flight. They can create a flight path and find the shortest route between two cities, or look at plane capacity and figure out how many people can board the plane, fly a herd of buffalo to the prairies and evaluate the runway and takeoffs, or embark on a bird's eye view and learn to fly a rescue helicopter. You can go right to the lesson, get some help to get started, check out other web sites, or show a friend how to use this site and have fun learning about math and aeronautics.

**Possible correlation:** Teachers can find a list of other places on the world wide web to find math, aeronautics, or disability information. There is also a parent/teacher information site to find a resource list or look at math standards and objectives addressed by the program activities.

**URL:** <http://hermes.k12.ar.us/docs/think/web/models/mendocino/fly2.htm>

**Appropriate user:** elementary teachers

**Information offered:** At this web site, elementary teachers can find a flight unit. Listed are highlights from the materials used in this unit that includes design group applications, economic indicator, graphic organizer, and interned survey form used. Students' aircraft designs in rough draft and final copy form can be looked at. This is helpful so that teachers can get an idea of the great work that young students can create when inspired. There are also personal highlights for the teachers who wrote the units.

**Possible correlation:** Teachers can find a list of other Internet resources for further study of aeronautics and other teaching resources.



**URL:** <http://www.avhome.com> (The Aviation Home Page)

**Appropriate user:** teachers and high school students

**Information offered:** An aviation directory that is simple and searchable. Each subject has a summary that gives you some information before you select it. The subjects cover the following: airlines, airports, clubs, organizations, companies, academies, universities, flight schools, federal and military resources, newspapers, magazines, museums, flight simulation, art, photography, poetry, meteorology, satellite images and more.

**Possible correlation:** Research site for teachers and high school students.

**URL:** <http://www.aircruise.com/aca/wia> (Women in Aviation)

**Appropriate user:** elementary and up

**Information offered:** This easy-to-use site links you to other hard-to-find resources in books, training, mailing lists, museums, publications, video tapes and upcoming events.

**Possible correlation:** Research resources and connection to other resources.

**URL:** <http://www.nasm.edu> (National Air and Space Museum)

**Appropriate user:** upper elementary to adult

**Information offered:** This virtual museum gives you an excellent look at aviation history. You can view exhibition galleries, educational programs geared for students, and be linked to other NASM resources.

**Possible correlation:** Visit here to see some of the actual vehicles that made history and to do further research on any of the topics covered in the Exploring Aeronautics unit.

**URL:** [http://www.southwind.net:80/~wknapp/air\\_cap?](http://www.southwind.net:80/~wknapp/air_cap?)

**Appropriate user:** upper elementary to adult

**Information offered:** This site gives wonderfully written accounts and informative historical facts about the early aircraft years from 1911-1929. It gives additional information about some of the great aviators of the time.

**Possible correlation:** Additional information for research on other aviators not mentioned in the timeline.



**URL:** <http://hawaii.cogsci.uiuc.edu/invent/airplanes.html>

**Appropriate user:** upper elementary and above

**Information offered:** This virtual museum tour on the invention of the airplane has fun graphics. It includes a gallery of aviation inventors, photo gallery and a list of relevant readings.

**Possible correlation:** It relates well with the history section and the regimes of flight. Students could use this as a research resource.

**URL:** [http://pchelp.inc.net/paper\\_ac.htm](http://pchelp.inc.net/paper_ac.htm) (Paper Airplanes)

**Appropriate user:** upper elementary and above

**Information offered:** This is a fun site offering step-by-step directions with diagrams for making paper airplanes.

**Possible correlation:** This is a good teacher resource for free paper airplane making instructions that can be used to illustrate the unit, for art and even to help students with ideas for the culminating air show event.

**URL:** <http://quest.arc.nasa.gov/aero/WrightFlyer.html>

**Appropriate user:** teacher or student

**Information offered:** This Web site covers the Wright Flyer Project as it relates to NASA. It is under construction, but will ultimately include the history of the project and how it came to Ames Research Center's wind tunnels; some of the people involved in the project; educational material relating to the Wright Brothers and wind tunnel test data; puzzles, activities and contests; a photo gallery and a Frequently Asked Questions page.

**Possible correlation:** The Web site combines information about the history of flight and NASA Ames' wind tunnels with a focus on education. The Teacher's Lounge contains lesson plans which cut across literature, math, science, social studies and composition.



**URL:** <http://hawaii.cogsci.uiuc.edu/invent/gallery/airphotos.html>

**Appropriate user:** teacher or student

**Information offered:** This site contains links to photographs and movies about the invention of the airplane. It includes one of the largest collections of Wright photographs ever published in any single source. All still images and movies in this site are public domain.

**Possible correlation:** These images bring history alive and can be used by students as part of a research project.

**URL:** <http://firstflight.open.ac.uk/flight/april1news.html>

**Appropriate user:** teacher or student

**Information offered:** Footage of Orville Wright's first flight. The famous photo of the Wright Brothers' first flight was actually taken from the filming of the event.

**Possible correlation:** Historical interest.

**URL:** [http://hawaii.cogsci.uiuc.edu/invent/gallery/movies/WB\\_onboard.mov](http://hawaii.cogsci.uiuc.edu/invent/gallery/movies/WB_onboard.mov)

**Appropriate user:** teacher or student

**Information offered:** This film was taken in Italy on April 24, 1907. It is the first time a motion picture was ever shot from a plane in flight. The footage shows what it was like to fly on one of the early Wright craft, with Wilbur at the helm. The clip opens with the launching, then the plane climbs, levels off, and passes over the flight grounds.

**Possible correlation:** Historical interest.



**URL:** <http://www.alumni.caltech.edu/~johnlatz/1903.html>

**Appropriate user:** teacher or student

**Information offered:** This Web site is authored by the folks who built the replica—the Los Angeles Section of the American Institute of Aeronautics & Astronautics. It gives the background of the Wright Flyer Project,

**URL:** <http://www.wam.umd.edu/~stwright/WrBr/Wrights.html>

**Appropriate user:** teacher or student

**Information offered:** Biographical information about Wilbur and Orville Wright, along with photographs and a bibliography, are included in this site. It also contains links to articles which were written by the Wright Brothers.

**Possible correlation:** This site would be useful to a student doing a research project.

**URL:** <http://www.outerbanks-nc.com/wrightbrothers/wrightlc.htm>

**Appropriate user:** teacher or student

**Information offered:** Wilbur and Orville took more than 300 glass-plate photographs of their expeditions and later travels. These negatives were donated to the Library of Congress. Many were damaged when Dayton, Ohio was flooded in 1913. The microfiche publication, available in many libraries, is entitled: *Photographs by the Wright Brothers*. This Web site provides a collection of some of these images from the Outer Banks area of North Carolina.

**Possible correlation:** These images document some of the major and minor events in the Wright Brothers' lives from 1900-1911 and give a flavor of both the time and the places in which these historical events occurred.