

History Flies in Michigan!

Note to teachers: This supplement includes a discussion guide, lessons and Michigan Content Standards to use with the Michigan Time Traveler Kids' History page published in the *Lansing State Journal* on November 12, 2003. You may reproduce the pages in this supplement to use with students.

DISCUSSION GUIDE

(SOC.1.2. *Comprehend the Past*; SOC 1.3. *Analyze and Interpret the Past*; ELA.1. *Meaning and Communication in Context*)

Words to know:

Aerial photography: taking photographs from an aircraft while in flight

Aircraft: any machine made to fly in the air

Biplane: an airplane with two main supporting surfaces ("wings") usually placed one above the other

Corrugated: formed into folds or ridges (like the interior of the side of a corrugated cardboard box)

Fuselage: the main body of an airplane carrying the crew and the passengers or cargo

Glider: an aircraft similar to an airplane that flies without an engine

Michigan's First Flight. What anniversary do we celebrate on December 17? (first powered, controlled flight by Wright brothers) Why can we say that Michigan had a flight before 1903? (Herring's flight in 1898 near St. Joseph) What three things kept Herring's flight out of the history books? (no in-the-air photo, lack of controls, reluctance to say he had "flown")

Building for Flight and A Base of History. What did Ford build during World War I? (Liberty airplane engines) How did he get into the airplane business (bought Stout and made it a division of Ford Motor Co.) Look at the photograph of the Tri-motor. Describe the plane. How can you tell that the plane has three engines? (3 propellers) What kinds of jobs did the Tri-motor do? What is the difference between how passengers traveled then and now? (then: sat on wicker chairs; now: seat belts, safety equipment, security checks) What was the Tri-motor's most famous flight? (took Byrd over South Pole) Name two types of aircraft Ford built during WWII. (gliders, B-24 Liberator bomber) Name two Ford "firsts." (modern airport, airport hotel) There are many firsts mentioned on this page; ask students to find all of them and list on the board (see Activity One). Find Selfridge Field on a map of Michigan. How did the Army obtain the base? (purchased from Joy, maker of the Packard auto) Why was the base named for Lt. Selfridge? (died in aircrash) What is the base's nickname? (Home of Generals) Name two famous aviators who trained at the base. (Lindbergh, Rickenbacker) Why do you think early auto manufacturers such as Ford and Joy were so interested in airplanes? In the years before 1950, what did cars and planes have in common?

The Business of Flying. What kinds of work do planes do? Who was Ted Abrams? (founder of Abrams Aerial Survey, Father of Aerial Photography) Discuss: how would aerial photographs help mapmakers?

A Future in Flight. How do Civil Air Patrol cadets learn about aerospace? Why would building rockets help you learn about flying? Discuss: What else might you do to learn about careers in aviation?

ACTIVITY ONE: Aviation Firsts Time Line

(SOC.1.1. *Time and Chronology*; SOC.1.2. *Comprehend the Past*)

Ask students to find all the "firsts" mentioned on the Michigan Time Traveler newspaper page. List these on the board with their date. Ask students to think of other firsts in aviation—on state, national and international levels—that they know from reading or earlier studies. Add these to the list. Assign each "first" that you listed on the board to a student or small group of students to research and put on a page or poster with an illustration. Have students report what they learned and mount each page around the room in chronological order.

ACTIVITY TWO: Mapping the Airports

(SOC.1.2. *Comprehend the Past*; SOC.II.3. *Location, Movement, and Connections*)

Ask students to name their local airport(s) and as many other Michigan airports as they know. List them on the board. Add names of more Michigan airports from the Department of Transportation Airport Directory to the list. (See www.michigan.gov/aero/1,1607,7-145-6777_7036---,00.html.) Assign one or more airport(s) to each student to research. Distribute blank maps of Michigan (www.michigan.gov/hal/0,1607,7-160-15481_20826_20841---,00.html) and ask students to present an oral report about their airport. Have students add each airport to the map as it is presented. Students can find information about their airport by clicking on its name on the MDOT Web page. If individual students do not have computer access, print the information sheets for selected airports before class and provide as handouts. To assist students, also print and post or distribute the Airport Directory Legend available at the same Web page. (Note: Students will find not only facts about their airports, but also other interesting comments, such as “deer on and in the vicinity of the airport” or “airport closed when snow covered.”)

ACTIVITY THREE: Story of a Flyer

(SOC.1.2. *Comprehend the Past*; ELA 2. *Meaning and Communication: Writing*; ELA 10. *Ideas in Action*)

Distribute copies of House Resolution No. 553 (page 3) to students. Introduce it by telling students that this resolution was passed in both the Michigan Senate and House of Representatives in 2002 to honor Herring and his flight. If students are not familiar with the language of a resolution, explain that “whereas” is a conjunction (like “and”) which means “considering that” or “in view of the fact that.” Ask students to read the resolution. Have them name and discuss Herring’s accomplishments. Tell students that many authors have written books about the Wright brothers because of this year’s centennial (have some in class to show, if possible). Ask students to write a biography of Herring (or a story of one day or one event in his life) based on their information. Share the biographies by reading to students in younger classes. For more information about writing biographies refer to the students’ earlier language arts and literature units and/or to the Biography Writer’s Workshop with Patricia and Fredrick McKissack at the Scholastic Web site: <http://teacher.scholastic.com/writewit/biograph/>.

ACTIVITY FOUR: Flight in Fact and Fiction

(SOC.1.2. *Comprehend the Past*; ELA 1. *Meaning and Communication: Reading*)

Encourage reading about aviation. Ask students to name interesting books they have read and to name topics they might like to read about such as early flight, space flight or careers in aviation. Distribute copies of the matching game (page 4). Visit the library where they can select their own books. Also choose a book to read aloud to the class after lunch or for the last 10 minutes of a class period.

MORE RESOURCES

Up in the Air: The Story of the Wright Brothers Written and illustrated by Brian Floca The <i>Lansing State Journal</i> is printing this story of the Wright brothers on the Schools page of the Local & State section each Monday. Episodes of the story began October 6 and will continue into January 2004. Use the story for a weekly shared class reading and discussion session.	Workshop The 11th Annual Aviation/Aerospace Teacher Workshop, sponsored by the Michigan Department of Transportation, will be held on Saturday, May 22, 2004, at Capital City Airport in Lansing. Teachers will participate in activities designed to show how aviation and aerospace concepts can be used in classrooms to motivate students. The workshop features a vast resource center with aviation curricula, classroom aids and industry materials that can be put to immediate use in classrooms. Cost for the day is \$35 and includes all resource materials and lunch. Contact Tom Krashen at (517) 335-9977 or krashent@michigan.gov .
Web Links Find bonus pages of Web links, project ideas and a bibliography related to this month’s topic at www.sos.state.mi.us/history/timetraveler/ in the online version of this month’s Teacher’s Guide.	

Teachers, please send your suggestions for these Teacher’s Guides to timetraveler@michigan.gov.

House Resolution No. 553 (2002)

A resolution honoring Augustus Moore Herring for his 36 outstanding years in aviation service.

Whereas, Augustus Moore Herring was born in Georgia in 1867 to Cloe Berry Conyers and a wealthy cotton broker, William F. Herring. At a young age, Augustus knew he wanted to be involved in aviation. In 1888, while attending the Stevens Institute of Technology, he began building models of flying machines. By 1893, he had built a full sized glider which he crashed. He was also testing rubber band powered models; and

Whereas, In 1894, Augustus Herring built a Type 11-monoplane glider based on Lilienthal's patent submitted in Germany in 1893. He built several versions of his own glider based on the Lilienthal design, incorporating some of his own recalculations of Lilienthal's coefficients of lift. One of these designs had a horizontal tail and rudders in front for steering. He flew those designs successfully, but control was of a minimum. Later in the year, Octave Chanute hired Augustus Herring to build model and full sized gliders; and

Whereas, In 1895, Octave Chanute and Augustus Herring tested gliders with three types of wings. Those tests were conducted from the Huron Street Beach in Chicago. One of these particular aircrafts was successful and is now on display in the Museum of Science and Industry in Chicago, Illinois. Augustus Herring took a position with Professor Samuel Pierpont Langley where he convinced the professor to use a curved shape airfoil (an aerocurve) instead of a flat wing. Mr. Herring was responsible for many major changes in configuration that led to the successful aerodrome flights of 1896. One of those changes was an elastic hinged tail called the "Herring Regulator," which automatically stabilized the models in gusty conditions. He also built a high temperature burner for steam engines and changed the designs used on Professor Langley's models; and

Whereas, In 1896, Augustus Herring returned to Octave Chanute's team and flew a variety of gliders. When Augustus Herring and Charles Avery added an elastic tail to one of the biplane designs, a very successful glider was created and called the Chanute-Herring Glider. Mr. Herring submitted a patent and was rejected. That was possibly the earliest patent application of its type in this country; and

Whereas, Financed by Matthias Arnot of Elmira, New York, Augustus Herring developed a flying machine while he lived in St. Joseph, Michigan. On October 10th, 1898, Mr. Herring flew a two-cylinder compressed air engine aircraft from Silver Beach to St. Joseph. He did this five years before the Wright brothers flew their first "Flyer"; and

Whereas, In 1902, Augustus Herring rebuilt Chanute's "Katydid" aircraft and flew it for the Wright brothers at Kitty Hawk. On December 28th, 1903, he wrote the Wright brothers suggesting they form a company to produce an aeroplane. The Wright brothers did not agree but Wilbur Wright wrote Octave Chanute saying that their machine was similar to the one that Mr. Chanute and Mr. Herring built in 1896; and

Whereas, In 1903, Augustus Herring moved to New York and bought Glenn H. Curtiss' small manufacturing business and formed the Herring-Curtiss Company. That was the first company specifically established to manufacture airplanes as a business. Two of those planes were the competition winning Rheims Racer and Golden Flyer, the first aeroplane to be sold commercially. Though the company planned to deliver a plane to the U.S. Army Signal Corps, other projects prevented it from doing so. Later, it went bankrupt when Augustus Herring was setting up the Herring-Burgess Company in Massachusetts where various amounts of aircraft were built. One of them in which [was] made the first recognized public flight in New England; and

Whereas, Though Mr. Herring did some engineering work for the military during the World War I, much of the remainder of his life was spent on his lawsuit against Glenn Curitss. Augustus Herring died in 1926 at the age of 59, and his lawsuit was settled and paid in 1932; and

Whereas, It is with deep appreciation for the hard work, dedication, and professionalism that Augustus M. Herring put forth on behalf of people that we offer this expression of our thanks and gratitude. As the people of Michigan recognize the loyalty, love, and devotion that Mr. Herring put towards aviation, we add our sentiments of gratitude for a job well done. This has been deeply appreciated, both by citizens and organizations throughout Michigan that have benefited directly from Augustus M. Herring's works. We offer our thanks for this personal endeavor; now, therefore, be it

Resolved by the House of Representatives, That the members of this legislative body honor Augustus Moore Herring for his 36 outstanding years in aviation service; and be it further

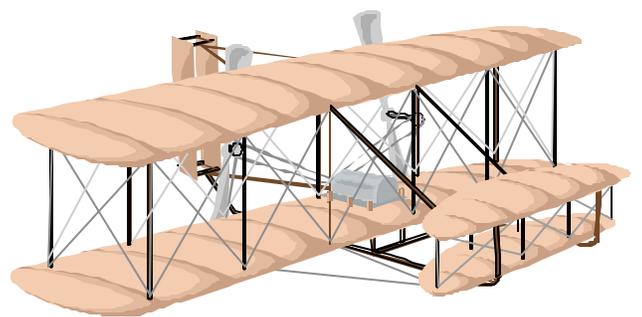
Resolved, That a copy of this resolution be transmitted to the Museum of Science and Industry in Chicago, Illinois, as a token of our esteem.

Flight in Fact and Fiction

Can you match these characters from books, stories and poems with the type of "flying machine" they flew? If you can't, check out the books when you visit the library! Print the letter of the aircraft in the blank in front of the "pilot's" name.

1. ____ **Harry Potter** (*Harry Potter and the Goblet of Fire* by J.K. Rowling)
2. ____ **Amelia Earhart and Eleanor Roosevelt** (*Amelia and Eleanor Go for a Ride* by Pat Munoz Ryan)
3. ____ **Wizard of Oz** (*Wizard of Oz* by L. Frank Baum)
4. ____ **Santa Claus** (*Twas The Night before Christmas or A Visit from St. Nicholas* by Clement Clarke Moore)
5. ____ **Willy Wonka** (*Charlie and the Chocolate Factory* by Roald Dahl)
6. ____ **Brian Robeson** (*Hatchet* by Gary Paulsen)
7. ____ **Aladdin** (*Tales from the Arabian Nights*)
8. ____ **Sally Ride** (*To Space and Back* by Sally Ride)
9. ____ **Jemima and Jeremy Potts** (*Chitty Chitty Bang Bang* by Ian Fleming)
10. ____ **Ned Nickerson** (*Mystery of the Glowing Eye*, Nancy Drew Series by Carolyn Keene)
11. ____ **Faith and Eddie, a dog** (*Faith and the Electric Dogs* by Patrick Jennings)
12. ____ **Lt. Gail S. Halvorsen** (*Mercedes and the Chocolate Pilot* by Margot Theis Raven; Gijsbert van Frankenhuyzen, illustrator)

- A. Flying carpet
- B. Single engine plane
- C. Dirigible (airship)
- D. Space shuttle
- E. Rocket
- F. Firebolt broom
- G. Sleigh pulled by 8 tiny reindeer
- H. Hot Air Balloon
- I. Flying car
- J. Helicopter
- K. *Raisinbomber*
- L. Eastern Air Transport plane



Selected Web Links and Books

Activities and Curriculum Materials

100 Years of Sustained Power Flight History (Time Line compiled by: Barbara Harris-Para)
<http://www2.faa.gov/education/wright/bharris.doc>

Aerospace Activities and Lessons, NASA
<http://www.grc.nasa.gov/WWW/K-12/aeroact.htm>

Aerospace Education Resources include activity booklets and units, Civil Air Patrol
<http://level2.cap.gov/index.cfm?nodeID=5521>

Build a Wright 1903 Flyer out of Styrofoam
<http://www2.faa.gov/education/resource/1903fly.htm>

Careers: Aircraft Pilot and Flight Engineers, U.S. Dept. of Labor
<http://www.bls.gov/oco/ocos107.htm>

Charles Lindbergh, An American Aviator
<http://www.charleslindbergh.com/>

FAA Aviation Education
Kids Corner: <http://www2.faa.gov/education/resource/kidcornr.htm>
Educator's Corner: <http://www2.faa.gov/education/resource/educornr.htm>

FAA Celebrates Centennial of Flight – links to sources of information and curriculum materials
<http://www2.faa.gov/education/wright/wright.htm>

History of Flight, U. S. Centennial of Flight Commission
<http://www.centennialofflight.gov/hof/index.htm>

International Aviation Art Contest (3 age groups: 6 to 9; 10 to 13; 14 to 17)
<http://www2.faa.gov/education/artcontest/00art.htm>

Kites in the Classroom (PFD, 48 pages), American Kite Association (www.aka.kite.org/)
www.aka.kite.org/data/download/pdf/kitc.pdf

Selfridge Field and the beginnings of air power by Vivian Baulch, *The Detroit News*
<http://www.detnews.com/history/self/self.htm>

Team America Rocketry Challenge (middle and HS students)
<http://www.rocketcontest.org/>

The Wright Papers at the Library of Congress (Click on one of the “Special Presentations” to read about the Wright brothers.)
<http://memory.loc.gov/ammem/wrighthtml/wrighthome.html>

Paper Airplane and Other Aviation-related Lessons and Activities

NOTE: Some of these sites have ads and pop-up windows. We do not recommend them for student surfing, but for teachers who wish to find patterns for use in the classroom.

Paper Airplane activity (NASA)

<http://www.grc.nasa.gov/WWW/K-12/aerosim/LessonHS97/paperairplaneac.html>

Paper Airplane Science

<http://explorer.scrtec.org/explorer/explorer-db/html/783750895-447DED81.html>

Mag Flyer

<http://www.yesmag.bc.ca/projects/flyer.html>

Fold a paper airplane with these directions from Canada's Science Magazine for Kids.

Build the Best Paper Airplane in the World

<http://www.zurqui.com/crinfocus/paper/airplane.html>

Photos show how to fold and fly a reasonably high performance paper airplane. The site also has a link to a list of paper airplane books available for purchase at Amazon.com.

Alex's paper airplanes

<http://www.paperairplanes.co.uk>

Make gliders, quick fliers and others; includes diagrams and instructions for making paper airplanes.

PC help Paper Airplanes

http://www.netwww.com/paper_ac.htm

Click on the design for instructions for folding the airplane.

Building the Egret

<http://www.friend.ly.net/scoop/activity/airplanes/index.html>

How to build a paper airplane from the book *Best Ever Paper Airplanes* by Norman Schmidt.

Aviation Exhibits and Museums

EAA AirVenture Museum

<http://www.airventuremuseum.org/default.asp>

Heroes of the Sky: Adventures in Early Flight, The Henry Ford, Dearborn

<http://www.hfmgv.org/museum/heroes/default.asp>

Kalamazoo Air Zoo

<http://www.airzoo.org/>

Landings: Aviation Museums (links to many aviation museums Web sites)

http://www.landings.com/_landings/pages/museums.html

Michigan Aviation Hall of Fame

<http://www.michiganaviation.org/>

Michigan Space Center, Jackson

<http://www.jccmi.edu/spacecenter/>

Museum Resources by flight-history.com
<http://museum.flight-history.com/>

Yankee Air Museum, Willow Run Airport, Ypsilanti, MI
<http://www.yankeeairmuseum.org/>

100 Years of Flight, Michigan State University Museum, East Lansing
Heritage Gallery, July 20, 2003 - February 8, 2004

Women in Aviation International Hall of Fame
<http://www.wai.org/resources/pioneers.cfm>

Aviation-related Agencies and Organizations

Civil Air Patrol, Michigan Wing
<http://miwg.cap.gov/>

Federal Aviation Administration (FAA)
<http://www2.faa.gov/>

Michigan Air National Guard
<http://www.mibatt.ang.af.mil/lansing/index.htm>

Michigan Air National Guard, 127th Wing
<http://www.miself.ang.af.mil/>

Michigan Department of Transportation - Bureau of Aeronautics
<http://www.michigan.gov/aero>
http://www.michigan.gov/aero/1,1607,7-145-6777_7036---,00.html (Airport Directory)

The Ninety-Nines, International Organization of Women Pilots
<http://www.ninety-nines.org/>

The U.S. Army Garrison-Selfridge Home Page
<http://www.selfridge.army.mil/>

Women in Aviation Resource Center
<http://women-in-aviation.com/>

Selected Children's Books

- Borden, Louise and Mary Kay Kroeger. *Fly High! The Story of Bessie Coleman*. Illustrated by Teresa Flavin. NY: Margaret K. McElderry, 2001. (Ages 9-12)
- Burleigh, Robert. Illustrated by Bill Wylie. *Into the Air: The Story of the Wright Brothers' First Flight*. San Diego, CA: Silver Whistle, 2002. (Ages 9-12)
- Busby, Peter. Paintings by David Craig. *First to Fly: How Wilbur & Orville Wright Invented the Airplane*. Crown, 2003. (Ages 9-12)
- Carson, Mary Kay. *The Wright Brothers for Kids: How They Invented the Airplane How They Invented the Airplane [with 21 Activities Exploring the Science and History of Flight]*. Chicago Review Press, 2003. (Ages 9+)
- Collins, Mary. *Airborne: A photobiography of Wilbur and Orville Wright*. National Geographic, 2003. (Ages 10+)
- Edwards, Pamela Duncan. Illustrated by Henry Cole. *The Wright Brothers*. Hyperion, 2003. (Ages 5-9)
- Hansen, Ole Steen. *The Wright Brothers and Other Pioneers of Flight*. (The Story of Flight, 6) Crabtree Publishing, 2003. (Ages 9-12)
- Jenner, Caryn. *First Flight: The Wright Brothers*. (DK Readers, Level 4) Dorling Kindersley Publishing, 2003. (Ages 4-8)
- Marsh, Carole. *Orville & Wilbur Wright: Step Out into the Sky*. Gallopade Pub Group, 2003 (Ages 4-8)
- Marsh, Carole. *The Wright Brothers: Two Brothers, One Dream: Let's Fly*. Gallopade Pub Group, 1998 (Ages 4-8)
- Mauer, Richard. *The Wright Sister: Katherine Wright and Her Famous Brothers*. Roaring Book Press, 2003. (Ages 10-14)
- Shea, George. Illustrated by Don Bolognese. *First Flight: The Story of Tom Tate and the Wright Brothers*. Harpercollins Juvenile Books, 1997. (Ages 9-12)
- Sullivan, George . *In Their Own Words: The Wright Brothers*. Scholastic, 2003. (Ages 9-12)
- Van Leeuwen, Jean. Illustrated by Marco Ventura. *The Amazing Air Balloon*. Penguin Putnam/Fogelman, 2003. (Ages 5+)
- Van Steenwyk, Elizabeth. Illustrated by Bill Farnsworth. *One Fine Day: A Radio Play*. Grand Rapids, MI: Eerdmans, 2003. (Ages 9-12)
- Yolen, Jane. Illustrated by Jim Burke. *My Brothers' Flying Machine: Wilbur, Orville, and Me*. Little, Brown, 2003. (Ages 4-8)