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American Aviation

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Title: American Aviation

Overview: The activities, background and lessons will give the students background and an understanding of American aviation, its early pioneers and contributors using various forms of media instruction. i.e. The Library of Congress website, PBS movie DVD, picture books, various aviation models, other primary resources and a field trip to the Museum of Science and Industry, Chicago.

Goal: This unit explores aviation using various forms of media. Transportation is used everyday in every aspect of our lives. It is important for students to have a historical view of the American contribution to flight and aviation.

Objectives: Students will learn the basic vocabulary/language of aviation. Students will observe actual early American aircrafts and make comparisons with middle modern and current aircrafts. Students will identify and research early model, military aircrafts and commercial aircrafts. Students will compare early American aviation pioneers.

Investigative Questions: What is aviation? Who were the major contributors to American aviation?

Time Required: 8 class periods plus 3 computer lab sessions (Computer teacher in cooperation with the research portion of the unit).

Recommended Grade Range: 2-4

Subject/Sub-Subject: Language Arts, Social Studies/History, Science, Technology

Standards:

16.A.1c Describe how people in different times and places viewed the world in different ways.

16. A.1b Ask historical questions and seek out answers from historical sources (e.g., myths, biographies, stories, old photographs, artwork, and other visual or electronic sources).

16.A.1a Explain the difference between past, present and future time; place themselves in time.

5.A.1a Identify questions and gather information.

5.A.1b Locate information using a variety of resources.

5.B.1a Select and organize information from various sources for a specific purpose.

5.B.1b Cite sources used.

5.C.1b Use print, nonprint, human and technological resources to acquire and use information.

13.B.1c Describe contributions men and women have made to science and technology.

13.B.1d Identify and describe ways that science and technology affect people's everyday lives (e.g., transportation, medicine, agriculture, sanitation, communication occupations).

2.B.1a Respond to literary materials by connecting them to their own experience and communicate those responses to others.

4.A.1d Use visually oriented and auditory based media.

4.B.1b Participate in discussions around a common topic.

Credits:

<http://www.cyberbee.com/> for the Photo Analysis Rubric sheet (modified by Andrew Gibbs).

Analysis Tool from the Library of Congress at
<http://www.loc.gov/teachers/usingprimarysources.guides.html>

Margo Tomaras, Andrew Gibbs: their knowledge and expertise using primary sources and help with the process of this unit.

Materials Used: Picture/history books, computers, internet & noted websites (including photos for analysis), DVDs/television, transportation to the museum via bus/Museum of Science and Industry, pencils, paper, crayons, aircraft models/toys.

Resources Used:

Book: "Black Wings: Courageous Stories of African Americans in Aviation and Space History"

Title: The Tuskegee Airmen, DVD
Author: HBO Films
Date: 2009

Title: Nightfighters, The True Story of the 332nd Fighter Group, The Tuskegee Airmen
Author: Xenon Pictures
Date: 2002

Title: Museum of Science and Industry, 57th and Lakeshore Drive, Chicago, IL 60637
(students will visit the museum and use the website)
URL: <http://www.msichicago.org/>
Author: Museum of Science and Industry, Chicago
Date: 2011

Title: The History of Aviation
URL: <http://www.historycentral.com/aviation/>
Author : Multieducator, Inc.
Date: 2004

Title: Aviation
URL: <http://www.loc.gov/shop/index.php?action=cCatalog.showSubCategory&cid=21&sc>

[id=124](#)

Author: Library of Congress

Date: 2011

Title: Amelia Earhart

URL: <http://www.loc.gov/rr/program/bib/earhart/>

Author: Library of Congress

Date: October 6, 2010

Title: Pictorial Americana

URL: <http://www.loc.gov/rr/print/list/picamer/paTrAvia.html>

Author: Library of Congress

Date: October 27, 2010

Title: Wright Brothers Negatives

URL: <http://www.loc.gov/pictures/collection/wri/>

Author: Library of Congress

Date: 1948

Title: Horydczak Collections

URL: <http://www.loc.gov/pictures/related/?fi=subject&q=Airplanes.&co=thc>

URL: <http://www.loc.gov/pictures/related/?va=exact&co=thc&st=grid&q=Airplanes.&fi=subject&sg=true&op=EQUAL>

Author: Library of Congress

Title: Patriotism, Courage, Discipline, Skill & Determination

URL: <http://www.loc.gov/loc/lcib/0705/tuskegee.html>

Author: Library of Congress

Date: May 2007

Title: Several Tuskegee Airmen Attending a Briefing In Ramatelli, Italy 1945

URL: <http://www.loc.gov/pictures/resource/ppmsca.13260/>

Author: Library of Congress

Date: (photo 1945)

Title: Tuskegee airmen Marcellus G. Smith and Roscoe C. Brown, Ramitelli, Italy, March 1945

URL: <http://www.loc.gov/pictures/item/2007675063/>

Author: Library of Congress, Frissell, Toni, 1907-1988, photographer

Date: March 1945

Title: Today in History December 17

URL: <http://memory.loc.gov/ammem/today/dec17.html>

Author: Library of Congress

Date: 10/12/2010

Title: Compare and contrast graphic organizer
URL: http://www.edhelper.com/compare_and_contrast.htm
Author: EdHelper.com
Date: 2011

Title: North American Aviation
URL: <http://www.centennialofflight.gov/essay/Aerospace/NorthAmerican/Aero37.htm>
Author: Stephen Garber
Date: 08/28/2009

Title: file: First Flight2.jpg
URL: http://en.wikipedia.org/wiki/File:First_flight2.jpg
URL: <http://www.loc.gov/pictures/resource/cph.3a53266/>
Author: John T. Daniels
Date: March 2009

Title: Quizlet, Paper airplane Lab
URL: <http://quizlet.com/3314251/paper-airplane-lab-vocab-flash-cards/>
Author: Quizlet LLC
Date: 2005-2011

Title: North American P-51 Mustang
URL: <http://www.aviation-history.com/north-american/p51.html>
Author: Larry Dwyer
Date: October 25, 2009

Title: What are promising ways to assess student learning?
URL: <http://www2.ed.gov/pubs/IASA/newsletters/assess/pt3.html>
Author: Improving America's School: A Newsletter on Issues in School Reform
Date: Spring 1996

PROCEDURE: Description of Procedure:

1. As a class, we will brainstorm all ideas and concepts involved with aviation based on the student's prior knowledge and personal experiences (trips, movies, etc.). We will identify some of the early pioneers, both male and female (Bessie Coleman, Tuskegee Airmen, Wright Brothers, etc.) who contributed to early American aviation. Students will research and learn about some of the early inventors and identify the very first aircrafts using photos from the websites, books, DVDs, actual aircrafts on display at the Science and Industry Museum and children's toys. (Inquiry Cycle: Connect, Wonder)
2. Students will be introduced to the concepts/vocabulary involved in aviation, focusing on aircrafts Vocabulary: airplane, glider, aerodynamic, air resistance, thrust, lift, gravity, pilot, force, mass, outlier. Students will then identify the parts of an aircraft/plane using a blank diagram. (Inquiry Cycle: Connect)

VIDEOTAPED LESSON:

3. Students will research a specific person/group who contributed to American Aviation i.e., Bessie Coleman, Wright Brothers, Tuskegee Airmen, Amelia Earhart, Charles Lindbergh. Students will organize the information in a sequential order focusing on their contribution to aviation. This project will be entirely student directed and will do all of the research in class. Students will present their project to the class. (Inquiry Cycle: Connect, Investigate, Express, Reflect).

4. Students will work independently and analyze various photos (pilots, aircrafts, etc.) using the Primary Resource Analysis Tool for Photographs. (Inquiry Cycle: Investigate, Express, Reflect)

5. Students will watch the PBS film of The Tuskegee Airmen (DVD) to gain background about the Tuskegee Airmen and their role in the civil rights movement and their contribution during World War II in the American military. Students will observe the types of planes the Tuskegee Airmen used during WWII and each planes purpose. (Inquiry Cycle: Connect, Wonder)

6. Students will research and investigate pictures and a biography of early aviation models online in the computer lab (with Mr. Ruggiero). Once students have used the LOC to collect information regarding air transportation and aircrafts from different eras, they will organize it in Microsoft Word. After the students have organized (paired up images with summaries and references) information they will print. Students will then create a small research book by cutting and pasting pictures, summaries of pictures, and references of where they found this information. Students will work in pairs to accomplish this project. Mr. Ruggiero will provide home made books for each pair. Students will work in pairs to answer the questions on the Primary Sources Analysis Tool for Photographs, based on their individual photographs. (Inquiry Cycle: Investigate, Construct, Reflect)

7. As a follow up to Lesson 3, students will visit the Museum of Science and Industry to observe and identify the early models of aircrafts displayed in the Transportation Gallery. Students will board an actual United Airlines Boeing 727 and explore the inside of the aircraft including the cockpit, passenger seats and observe the mechanics of the aircraft (through the glass partitions for viewing). (Inquiry Cycle: Wonder, Connect, Construct, Express, Reflect)

Evaluation: Open-ended or constructed response items that ask students to respond in their own words: Lesson 1 Lesson 3, Lesson 4, Lesson 6, Lesson 7

- Performance-based items or events: questions, tasks, or activities that require students to perform an action: Lesson 1, Lesson 2, Lesson 6, Lesson 7
- Projects or experiments: extended performance tasks that may take several days or even several weeks to complete: Lesson 3, Lesson 6
- Portfolios: collections of student work that show teachers knowledge: Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7

Appendix: The Inquiry Cycle 'Defined'

Connect: Students connect new insight, gain background information, observe, learn and experience.

Wonder: Students develop questions and create hypothesis or predictions.

Investigate: Find and evaluate information to answer questions; test hypotheses; think about information to illuminate new questions and hypotheses.

Construct: Construct new understandings connected to previous knowledge; draw conclusions about questions and hypotheses.

Express: Apply understandings connected to previous knowledge; draw conclusions about questions and hypotheses.

Reflect: Reflect on own learning; ask new questions.

AMERICAN AVIATION

REVISED LESSON PLAN

Library of Congress

BY CHRISTINA M. STEVENS

Alain Locke Charter Academy

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AMERICAN AVIATION

REFLECTION

In the beginning I had many ideas, the hard part was narrowing them down into one theme and branch out from the original Tuskegee Airmen, which was the sample used with the entire staff. I didn't want to be redundant and replicate what other staff members were covering so I went in a more 'historical' direction incorporating significant people, groups, etc. American Aviation is very broad so I chose a few lessons that would take some time for the students to absorb the information, yet is engaging and self-directed.

Brainstorming as a group and watching the DVDs about the Tuskegee Airmen gave the students a varied perspective from the other people/groups that we studied within the project.

Introducing the vocabulary was simple with this group because we try to use unit vocabulary in other lessons/subjects throughout. The students liked identifying the new words because the theme of 'aviation' was new to them altogether.

The group research project went in a very different direction than I had planned. (I thought the project would be more teacher-directed, however, it turned out to be entirely student-directed). I thought the students would have difficulty working in groups and

organizing their information in a sequential order, I was wrong. Once the people/groups were assigned to each classroom group, the students took control of the project, assigned parts and responsibilities to each member of the group and worked together cooperatively. The results and the presentations were better than I originally expected.

I thought the Photo Analysis activity would be difficult for the students because they were viewing photos related (i.e. themed time period, regional, cultural) to their assigned project person/group. This assignment proved to be very easy for the students.' I was pleased with the student inquiry and results.

The computer lab research and the trip to the Museum of Science and Industry integrated the research project very well. Everything was tied into the theme of people/pioneers, early aviation models, etc., plus viewing actual aircrafts of the time period.

Overall, I am pleased with the results of this unit/project. I underestimated the amount of time required to complete all of the lessons. Next time, I will allocate more class time (and weeks) to work on each lesson and I would order the lessons differently, to gain more of a build up to the final results (which was the final research project assigned to each group). I enjoyed working with my students on American Aviation; the students were enthusiastically engaged with each activity and exceeded my expectations.