Waynesburg University TPS Unit Outline

Title of Learning Unit: The Wright Brothers and Aviation

Subjects: Social Studies, Language Arts, and Science

Grade Level/Range: 2nd-4th grade

Overarching Goal or Concept for the Learning Unit:
The impact of the Wright Brothers on aviation and the impact of aviation on the world.

Overview:
The students will learn about the Wright Brothers and aviation through primary sources, a science experiment, reading historical fiction and non-fiction, creating a historic timeline, making inferences, and forming conclusions about the impact aviation has had on our world.

Written By: Breann Putman and Makayla Vidosh

Date: 12/6/2015

*** *** *** ***

Pre-instructional Assessment/Introduction: The students will complete their own pre-instructional assessment through a personal know, want to know, learned (KWL) chart. The students will write everything they know about aviation and the Wright Brothers, and then they will write questions they have about the topic. This will also serve as part of the summative assessment when they fill out the learned section of the chart following the completion of the learning unit. For second grade students or students who struggle with writing, they may do this verbally. The results must still be recorded, even if they are stated orally.

Waynesburg University TPS Unit Outline

Title of Lesson/Activity #1
Book Backdrop Lesson (approximate time length- 25-30 minutes per chapter/lesson)

Overview of Lesson
The primary sources from the book backdrop will be hung at the front of the classroom as an interactive display. Throughout our classroom reading of *The Wright Brothers: Pioneers of American Aviation*, the teacher and students will discuss each primary source as it is read about in the text. After a classroom discussion, the students will write a reflective paragraph about why each primary source is useful in learning about the Wright Brothers and their advancements in aviation.

PA Standards

S3.A.1.1.2: Identify examples of common technological changes, past and present, in the community (e.g., energy production, transportation, communication, recycling).
1.5.3. C: Organize writing in a logical order. Include a recognizable beginning, middle, and end
8.1.3. B: Identify fact, opinion, multiple points of view, and primary sources as related to historical events.

Investigative Question for this activity

"What importance does each of these primary sources hold in our investigation of the invention and evolution of aviation?"

Objective(s)
Following the reading of each chapter, the students will summarize the chapter of the book in a well-written paragraph of three to four sentences with fewer than five grammatical, punctuation, or spelling mistakes.

The students will be able to identify technological transportation changes from the past to the present using examples from the book and information that can be found on https://en.wikipedia.org/wiki/History_of_aviation and pictures from http://www.airplane-pictures.net/.

The students will be able to form their own opinions about the evolution of aviation and invention of airplanes based on the information learned from the chapter book and additional research by participating in classroom discussions with at least three points of view.

Print Sources:

- Printed Primary Sources (listed on Book Backdrop)
- *The Wright Brothers: Pioneers of American Aviation* by Quentin Reynolds
- Primary Source Analysis Worksheet
- Paper
- Pencils

Waynesburg University TPS Unit Outline

- Computers

Online Collections/Exhibits/Websites:

http://www.airplane-pictures.net/
https://en.wikipedia.org/wiki/History_of_aviation
Library of Congress website (specific sources listed on Book Backdrop)

Student Learning Process:

1. To begin each lesson throughout the unit, the teacher and students will read a chapter of the book together as a class. After the first chapter has been read, chapters for the following lesson will begin with the students sharing something they have learned with a partner to get the students ready for the lesson.
2. After the completion of the reading of the chapter, the teacher and students will discuss as a class the events that took place in the chapter. The teacher and students will complete this activity for every chapter in the book.

"What was a major event that took place in this chapter?"
"What significance does this have on aviation today?"

3. For the chapters in which primary resources will be discussed, the students will participate in class discussion of the events in the chapter. They will also complete the Primary Resource Reflection worksheet.

After reading Chapter 8: "The West Side News" ask, "What is one important fact that we can take from this chapter?"
"What in this chapter do you think helped the Wright brothers make any type of step towards their invention of the airplane?"

Closure:

To wrap up the lesson, the teacher and students will do an end-of-the-unit classroom discussion about all of the primary resources as a group. The teacher and students will talk about what the students thought was most useful in the invention and evolution of aviation and why they thought that.

Modifications/Accommodation Techniques for Students with Special Needs:

Students who write at a grade level below or lower will only have to write two –three complete, well-formatted sentences with the use of a dictionary for spelling needs. If students have writing that is not legible to the teacher, the students will be permitted to verbally answer the questions.

Students who do not have the motor skills to operate a computer mouse to access the online websites will be permitted to use either a printed version of the websites or have a classmate sitting with them, operating the mouse and clicking to where the student with special needs instructs them.

Waynesburg University TPS Unit Outline

Formal Assessment:
At the end of each chapter, the students will write in their reading journals about what was read that day as a class.
Informal Assessment:
At the end of each chapter that has a primary source to accompany it, the teacher and students will discuss the primary resource and why it was helpful aiding in the invention of aviation, and how students thought the advancements made in aviation technology and construction benefited from the primary resource represented. The students will fill out a worksheet to express their opinions on each topic.

Waynesburg University TPS Unit Outline

Title of Lesson/Activity #2
Learning Center & Science Experiment (approximate time length- 45 minutes)

Overview of Lesson
For this learning center the students will work in groups of two-three to create paper airplanes; they will go out into the hallway and throw the airplanes from a designated marker. Once both planes have landed and the measurements from the marker to the planes have been taken, the students will write a reflective paragraph. The students will also use the interactive technology QR code reader in order to research more about airplanes and the Wright Brothers. They will also use the included primary resource to observe and reflect upon the impact of airplanes on today's world.

PA Standards

CC.1.2.3.E: Use text features and search tools to locate and interpret information.
8.3.3.C. Identify and describe how continuity and change have impacted U.S. history Technology
3.2.3.B7. Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.
3.4.3. E1. Identify the technologies that support and improve quality of life.

Investigative Question for this activity

What can be discovered through research about airplanes and the Wright Brothers?
How have airplanes impacted the world?
What can be learned through testing paper airplane flights?

Objective(s)
Following the students' research using the QR codes the students will be able to complete the three accompanying questions (only the section on the Wright Brothers-page 2) correctly.
Following the observation of the included primary source, the students will write at least three sentences about what they saw and how airplane technology improved our world today.
Following the online research and primary source activity, the students will create their own paper airplane to be used for a science experiment by following the attached directions, and then fly them as a group and recording the data on the distance for each plane.

Print Sources:

Paper Airplane Directions

Interactive Technology Worksheet with QR Codes
Primary Source Analysis Tool

Waynesburg University TPS Unit Outline

Online Collections/Exhibits/Websites:

Famous Inventions That Shaped Lives (Interactive technology lesson)
https://www.teacherspayteachers.com/Product/Famous-Inventions-That-Shaped-Lives-307495

Paper airplane directions: **http://www.10paperairplanes.com/**
Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Originals, 1901,
http://hdl.loc.gov/loc.mss/mwright.04003

Primary Source Analysis Tool:
http://www.loc.gov/teachers/primary-source-analysis-tool/

Student Learning Process:

This center will begin with the students creating their own paper airplanes using the provided instructions. Each student in a group must choose a different type of paper airplane. Then the students will fly the paper airplanes in a designated area to see which will go the farthest. The students will then measure how far each plane went and record the data. Next, the students will complete the interactive technology portion of the center. The students will use the attached worksheet and QR reader to research more about the Wright Brothers and aviation. The students should use the QR code reader on the IPad in order to scan the code next to the airplane. They will use the website information in order to complete the questions on the worksheet. Once the group of students at the learning center has completed this, they will look at the primary source provided. As a group the students will use the Primary Source Analysis Tool worksheet in order to observe, reflect, question, and further investigate the primary source about Kitty Hawk, North Carolina.

Closure:

Once each group has completed the learning center, there will be a whole class discussion on what was done. The students will share the information they found through research and their thoughts on the primary source using the analysis tool. Finally they will share their data from flying the different airplanes. The students who created the same type of airplane from different groups will then meet as a group to discuss the similarities and differences between how well they were able to follow directions and the outcome of their flight.

Modifications/Accommodation Techniques for Students with Special Needs:

A possible accommodation for students is the provision of a word bank for the writing about the primary source. The provided words could include:
-airplane
-The Wright Brothers
-Kitty Hawk, North Carolina
-technology
-improve
-change
-resource
-travel

Another possible accommodation for measuring the airplane distances is having pieces of tape marking every six inches. The students could use this as a way to help them measure or double check their work once they have measured.

Informal Assessment:

The teacher will assess the worksheet for the interactive technology, writing about the primary source, and recorded data from the science experiment. The teacher will informally assess students by observing their behavior and their ability to work in a group during the center time. The teacher will also note student participation levels during the whole class conclusion when information is shared.

Materials:

- iPads with QR code reader
- Paper
- Pencils
- Paper Airplane Directions
- Worksheets for QR code activity
- Copy of Primary Source
- Copy of Primary Source Analysis Tool

Waynesburg University TPS Unit Outline

Title of Lesson/Activity #3
ReadWorks Lesson (approximate time length- 25-30 minutes)

Overview of Lesson
The students will be assigned to read the ReadWorks passage, “The Amazing Flying Machine.” The students will use the provided conclusions: “We now have the ability to fly and transport goods through the air." and "The Wright Brothers made important strides in the area of aviation which have impacted our world today." The students must then highlight evidence from the text to support these conclusions. While reading the students will also mark sections in the text that the provided primary sources show a visual for using numbers 1-3.

PA Standards
8.1.3. B Identify fact, **opinion**, multiple points of view, and **primary sources** as related to historical events.
CC.1.2.4.B: Refer to details and examples in text to support what the text says explicitly and make inferences.

Investigative Question for this activity
“What evidence supports the conclusions drawn from the text?”
"What primary sources can help visualize what the text is saying?"

Objective(s)
Following the reading of the nonfiction article, the students will find evidence in the text to support the conclusions by highlighting at least two supportive pieces in the text.

During the reading of the article the students will mark the sections of the text that describe the provided primary sources using a 1, 2, or 3 that corresponds to the correct primary source.

Materials:
- ReadWorks Passage- student copy
- ReadWorks Passage- teacher copy for assessing students
- Highlighters
- Pencils
- Paper
- Copies of Primary Sources (URLs listed above)

Print Sources:
"The Amazing Flying Machine" ReadWords Passage (Note: Must have an account to access.)
Primary Sources 1, 2, and 3 (indicated in next section)

Waynesburg University TPS Unit Outline

Online Collections/Exhibits/Websites:

"The Amazing Flying Machine"- **http://www.readworks.org/passages/amazing-flying-machine**

Primary Sources (http://www.loc.gov/resource/ppprs.00552/; http://cdn.loc.gov/service/pnp/ppprs/00500/00540r.jpg, and http://hdl.loc.gov/loc.pnp/ppprs.00629

Student Learning Process:

1. The anticipatory set for the lesson is to have the students choose a classmate who has ridden in the same type of transportation as the other student. For example, one student who has been on airplane would work with a student who also has been. If a student has been in a car, they will work with a student who has been in a car. This is relative to the theme of transportation/aviation and is a fun way to group students in get them ready for the lesson.
2. Either read the passage as a whole class or as partner work, depending on the students' needs.
3. After we have read the passage, briefly discuss what was read.
   "Name some major points in this passage that you think is an important piece of information."
   "What were the turning points in the passage that showed success of the Wright brothers?"
4. At this time, the students will be working in pairs to pick out conclusion points of the passage.
   "Does everyone know what a conclusion is? It is a statement that sums up a paragraph or paper to a satisfying and logical. You need to pick out a sentence that you think is a conclusion to some point or points in the passage."
5. Once a conclusion statement has been explained, the students will then be instructed to find one or two supporting sentences to accompany the conclusion sentences.
   "You will need to tell the class why you chose the supporting sentences you did, and how it relates to the conclusion sentence."

6 . As the students work with their partner they will also mark in the text using the numbers 1, 2, and 3 where the accompanying primary sources best fit to illustrate the words from the text.

Closure:

To close the lesson, the students will present to the class what they have found. They will explain the supporting sentences they chose and where they thought the primary sources best fit.

Modifications/Accommodation Techniques for Students with Special Needs:

To modify the lesson for slower/grade-level behind readers, the teacher would read the passage to the students aloud. If there were multiple students with a reading deficit, the teacher would read the passage to the class as a whole instead of separate groups.

For the students who are having difficulty finding a conclusion sentence, the teacher will give them a list of concluding sentences to pick one from.

Informal Assessment:
To informally assess the students the teacher should check the students' conclusion sentences as well as highlighted supporting sentences. The teacher should also make sure the numbering corresponds with appropriate sections of the text. The teacher should also take note of student participation in the conclusion of the lesson.

Post-instruction Assessment:

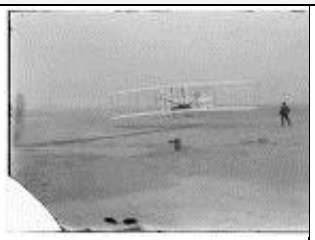
Each individual lesson will include a specific assessment as listed at the conclusion of each lesson under formal and informal assessment.

The assessment for the total unit will be the completion of the final column of the KWL chart that was introduced before the unit began.

Waynesburg University TPS Unit Outline

Bibliographic Organizer of Digital Sources

Title of Learning Unit: The Wright Brothers & Aviation

Thumbnail Image	Document Title, Author/Creator, Date	Library of Congress URL
Lesson #1: Book Backdrop		
	[First flight, December 17, 1903] [Wilbur and Orville Wright] [December 17, 1903]	http://www.loc.gov/pictures/item/00652085/
 8 pages of West Side News Available	[The West Side News] [Wilbur and Orville Wright] [1889]	http://www.loc.gov/item/wright002755
	[Wilbur and Orville Wright meet with Colonel Charles Lindbergh, sent by President Roosevelt] [Wilbur Wright (photographer] [June 22, 1927]	http://www.loc.gov/pictures/collection/wri/item/2001696693/
Lesson #2: Learning Center & Science Experiment		
		http://hdl.loc.gov/loc.mss/mwright.04003-
Lesson #3: ReadWorks Lesson		

Waynesburg University TPS Unit Outline

	[View of Kitty Hawk, North Carolina, photographed by the Wright brothers in the vicinity of their 1900 camp, where they conducted their first gliding experiments in October] [Wright, Wilbur, 1867-1912, photographer Wright, Orville, 1871-1948, photographer] [1900]	http://www.loc.gov/resource/ppprs.00552/
	[Wilbur Wright working in the bicycle shop] Wright, Wilbur, 1867-1912, photographer Wright, Orville, 1871-1948, photographer [1897]	http://cdn.loc.gov/service/pnp/ppprs/00500/00540r.jpg
	[Distant view of the Wright airplane just after landing, taken from the starting point, with wing-rest in center of picture and launching rail at right. This flight, the fourth and final of December 17, 1903, was the longest: 852 feet covered in 59 seconds.] **[**Wright, Wilbur, 1867-1912, photographer Wright, Orville, 1871-1948, photographer] [1903 Dec. 17]	http://hdl.loc.gov/loc.pnp/ppprs.00629