Library of Congress-Pathways Project

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Title: The ‘Wright’ Stuff

Theme: Economic Transformations

Historical Period: Progressive Era to New Era, 1900-1929

http://www.loc.gov/teachers/classroommaterials/presentationsandactivities/presentations/timeline/progress/

Lesson Module Overview: Throughout this unit, students will be emerged into the life of the Wright Brothers, and their journey to successfully create the first airplane. Students will explore the life and history of the brothers, while also learning more about the history of aeronautics through the exploring and analyzing of primary sources from the Library of Congress such as images, documents, political cartoons, and posters.

Grade Range: Third-Fifth Grade
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Title: Who Are The Wright Brothers?

Learning Goals:
Knowledge
- Students will learn who Orville and Wilbur Wright were and describe major events in their lives.
- Students will develop understanding of what life was like in the late 1800’s through the early 1900’s.
- Students will identify major events leading up to the Wright brother’s invention of the airplane.

Skills
- Students will research the Wright brothers using a variety of resources.
- Students will collect facts to create a brief biography of the Wright brothers.
- Students will create a timeline of major events of Orville and Wilbur Wright’s lives.

Dispositions
- Students will summarize and arrange events in chronological order to create a factual timeline.

National Council for the Social Studies Themes:
http://www.socialstudies.org/standards/strands
Time, Continuity, & Change: Social studies programs should include experiences that provide for the study of the past and its legacy.

Power, Authority, & Governance: Social studies programs should include experiences that provide for the study of how people create, interact with, and change structures of power, authority, and governance.

Civic Ideals & Practices: Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.

Materials Needed:
The Wright Brothers by Kerri O’Hern
Biography research worksheet (Appendix III)
Writing utensil
Computers
Encyclopedias
Books from library
Large roll of paper
Lesson Procedures:

Introduction
1. Hook the students by asking them to think of things that fly. Create a list on the board of ideas that students have. 
2. Tell students that they will be learning about airplanes. Ask students if they know who invented airplanes. 
3. Introduce the Wright brothers by reading the book *The Wright Brothers* by Kerri O’Hern.

Development
1. Tell students that they are going to be researchers. Students will choose a subject to research (Orville or Wilbur) and create a brief biography about that person. 
2. Give each student a copy of the biography research worksheet and ask them to fill in which brother they will be researching. Read aloud the questions on the worksheet so students understand what they will be looking for and ask students if they have any questions. 
3. Tell students they will be able to use classroom computers, encyclopedias and library books (pre-selected) for their research. 
4. Give students 30 minutes (more if needed) to explore all of the resources and conduct their research, then ask them to return to their seats 
5. Lead a class discussion about what the students discovered about their research subject. Teacher will use this time to correct any misunderstandings and answer questions.

Culmination
1. Explain to students that now they will be creating a timeline as a whole class. 
2. Ask students for input on how to organize or display the final product of the timeline. Students will have a large roll of paper and writing utensils available to use 
3. Begin a class discussion by asking for key points that students found about each subject and create a list on the board. 
4. Once a list has been made and organized in correct chronological order, allow students to create timeline on the large paper. Students may want to print of pictures to include on the timeline. 
5. Students can display their final timeline however they chose (classroom or hallway wall)

Assessment
1. Students will hand in biography research worksheet to teacher to be checked. 
2. Teacher will also do an informal assessment while observing student participation in class discussions
Images used: 1-1, 1-2, 1-3 (Appendix I)
Title: The First Airplane

Learning Goals:
Knowledge
- Students will develop understanding of what materials the first airplanes were made of.
- Students will learn how the first airplanes were constructed.

Skills
- Students will construct their own airplanes with clay and toothpicks.
- Students will reflected on their first airplane model.

Dispositions
- Students will begin to develop empathy toward the first airplanes and the Wright brothers.

National Council for the Social Studies Themes:
http://www.socialstudies.org/standards/strands

Time, Continuity, & Change: Social studies programs should include experiences that provide for the study of the past and its legacy.

Power, Authority, & Governance: Social studies programs should include experiences that provide for the study of how people create, interact with, and change structures of power, authority, and governance.

Production, Distribution, and Consumption: Social studies programs should include experiences that provide for the study of how people organize for the production, distribution, and consumption of goods and services.

Science, Technology, and Society: Social studies programs should include experiences that provide for the study of relationships among science, technology, and society

Materials Needed:
The Wright Brothers: How They Invented the Airplane by Russell Freedman
Clay
Toothpicks
Paper
Pencils
Image 2-1 & 2-2 (Appendix I)
**Lesson Procedures:**

**Introduction**
1. Ask students to share what they learned about the Wright brothers in the previous class.
   - Who were the Wright brothers?
   - Why were they famous?
   - What did they invent?
2. After the students finish the discussion about the Wright brothers, introduce Image 2-2 (Appendix I) and explain that that was how the first airplane looked. Continue discussion with questions as:
   - Does this look like a safe airplane?
   - Would you be scared to ride in one of these?
   - Where do the passengers sit?
   - Does it look anything like today’s airplanes?
3. After the students finish the discussion, let students know that today they will be learning about the Wright brothers’ first airplane.

**Development**
1. Start out by reading *The Wright Brothers: How They Invented the Airplane* by Russell Freedman. The book explains their love for fixing, taking apart and putting together toys as kids, and how they got into making the first glider.
2. Make stops during the book and check for understanding.
   - What is happening in the story so far?
   - What is something new you learned about the Wright brothers?
3. When the book have been completely read, introduce image 2-1 (Appendix I), the outline of the Wright brothers’ first airplane. Then explain to students that they will make their very first airplanes with clay and toothpicks. They will have a specific amount of each so they have to make sure they have enough to build the whole airplane. Students will be working individually.
4. Have helpers pass out 15 toothpicks to each students and a small amount of clay.
5. Give students 10 to 15 minutes to make their airplanes.
6. While the students are working, the teacher should be walking around and helping any students that may need help. The teacher should also be asking the students for their reasoning and thinking about the way they are forming their airplanes.
7. The airplanes will be handed in when finished to be displayed in the classroom.

**Culmination**
1. As students are finishing up, pass out paper or have students take out their own paper and pencil for the next activity.
2. Students will write about their first airplane that they just created. This can be done in a storyline or as an essay. The students’ writing should be at least seven to ten sentences long. Their airplanes should be named and the paper should be creative, not explaining what was just done in class.
3. The remainder of the class will be work time for the model or for the paper.
4. The paper will be handed in after it is completed to go along with the model.

**Assessment**
1. Students will hand in the airplane model that they built for classroom display. The model will not be graded, as long as it is made.
2. Students will also turn in the paper about their airplane model. The students will be graded on their stories and if everything was included that was in the directions.
3. We will share our airplane models and papers at a different time so all students can see their classmates’ hard work.

**Images used:** 2-1, 2-2 (Appendix I)
LESSON MODULE
DAY 3

Title: Have They Always Been ‘Wright’?

Learning Goals:
Knowledge:
- Students will learn the reality of trial and error and be able to relate to the hardships of the Wright Brothers.
- Understand that the design process is a series of methodical steps for turning ideas into useful products and systems (ICC, Economics, Grades 3-5).
- Understand the importance of persistence and perseverance.

Skills:
- Students will make a text to self connection between the highlighted passage taken from the Wilbur Wright letters and record it in their Social Studies Journal.
- Students will brainstorm and record a personal goal they hope to achieve within the year and then will make a timeline of methodical steps for achieving that goal.

Dispositions:
- Students will begin to show signs of persistence through goal setting.

National Council for the Social Studies Themes:
http://www.socialstudies.org/standards/strands

Time, Continuity, & Change: Knowledge and understanding of the past enable us to analyze the causes and consequences of events and developments, and to place these in the context of the institutions, values and beliefs of the periods in which they took place.

Individual Development and Identity: The study of individual development and identity will help students to describe factors important to the development of personal identity.

Power, Authority, & Governance: Through study of the dynamic relationships between individual rights and responsibilities, the needs of social groups, and concepts of a just society, learners become more effective problem-solvers and decision-makers when addressing the persistent issues and social problems encountered in public life.

Civic Ideals and Practices: An understanding of civic ideals and practices is critical to full participation in society and is an essential component of education for citizenship, which is the central purpose of social studies.
**Materials Needed:**
Image 3-1, 3-2, and 3-3 (Appendix I)
Social Studies Journals
Blank paper cut into 4x4 squares
Stapler/Staples
Pencils
Markers/Crayons

**Lesson Procedures:**

**Introduction**
1. Start the lesson by asking the students:
   a. What do you remember about the airplane you talked about yesterday?
   b. Was your airplane perfect the first time you made it?
   c. What did you do if your airplane didn’t look the way you wanted it to right away?
2. Transition the students’ thinking to the importance of persistence by asking questions like:
   a. What would have happened if you just gave up the first time your airplane model didn’t look exactly like you wanted it to?
   b. Have any of you tried to do something that you didn’t get at first?
      i. Prompt: Think back to when you were little, did you come out of your mom’s tummy running or did you have to learn how to walk and over time learn how to run.
   c. What would have happened if the Wright brothers would have quit after this (hold up image 3-3, Appendix I).
   d. How long do you think the brothers were working on making their best airplane?
      i. Tell student the answer: 1899-1905...7 years!
   e. Have you ever worked on something for SEVEN YEARS?!

**Development**
1. Hand the students their own highlighted passages from images 3-1 and 3-2 (Appendix I).
2. Ask the students to read the passages silently and to write down some of the struggles the Wright brothers may have encountered while configuring the airplane in their journals.
3. Then have the students make a text to self connection with the passages.
   a. Ask the students to really think about the way the Wright Brothers must have felt based off of what they read.
   b. Tell the students that if they would like, they can write their text to self as a letter to the Wright brothers. They can include their text to self and also ask the wright brothers any questions they might have or what they admire about the men.
      i. Give the students about 5 minutes to journal at least five sentences.
Culmination

1. After the students have finished up their journaling, have a helper pass out four 4x4 squares to each student.
2. Have the students write down a goal in their journal. Tell them it could be anything. Tell them that it might have to do with relationships, school, sports, or anything else they can think of.
3. The teacher should model a goal of his/her own.
   a. My goal is to be able to sing the high note in choir.
4. Then tell the students to write down at least two steps they can take to reach that goal.
5. The teacher should model steps that relate to his/her goal.
   a. Goal: to be able to sing the high note in choir.
      i. Steps:
         1. I will warm up with the piano once a week
         2. I will warm up on my own EVERY DAY
         3. I will drink more water
         4. I will work on my breathing exercises every other day
         5. I WILL NEVER GIVE UP
6. Then have the students write their goal at the top of the first square and then their steps on the top of the other squares.
7. Have the students draw a picture on each square that relates with the goal and/or step.
8. When completed, have the students put their steps in order with the goal as the final square and staple them together.
9. Show the students that they have created their own flip book.
   a. Discuss how the steps represent a process.
   b. Tell the students that the process can sometimes be hard work, but the outcome will be worth it.

Assessment

1. Students will turn in their flip books. The teacher will check to make sure that the student has a goal and at least two steps. The books will be graded upon completion (not including drawings).
2. The students will also turn in their text to self writing. The teacher will check for the connection made and the quality of writing (grammar). The teacher will also check for length. The journal entry should be at least five sentences long.

Images used: 3-1, 3-2, 3-3 (Appendix I)
LESSON MODULE
DAY 4

Title: Wrights’ Fly Toward Success

Learning Goals:
Knowledge
- Students will be able to describe the first airplane’s flight.
- Students will be able to answer questions based on their paper airplane’s flight.

Skills
- Students will be able to build a paper airplane with teacher instructions.
- Students will be able to fly their paper airplane.

Dispositions
- Students will be able to discuss and analyze data relating to their paper airplane flights.

National Council for the Social Studies Themes:
http://www.socialstudies.org/standards/strands

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Civic Ideals & Practices: Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.

Materials Needed:
Paper airplane drawings
Scissors
Paper clips
Writing utensils
Paper Airplane Data sheet (Appendix III)
Measuring tape
Duck tape
Stopwatch
Art supplies
Images 4-1 and 4-2 (Appendix I)
Lesson Procedures:

Introduction
1. Reflect back on the previous lesson... “As we’ve learned earlier, the Wright brothers have been through alot since the beginning. They were able to build gliders, which are a lot like airplanes, only they don’t have a motor. (Show image 4-1 from Appendix II.) However, through trial and error, the Wrights were able to get a manned-glider with a motor off the ground.”
2. Introduce the following YouTube clip: http://www.youtube.com/watch?v=q3beV. During each flight, students will time how long the plane is in the air using a stopwatch. Then, they will record it on their worksheet. (Appendix III)
3. After each flight, students will measure how far their plane flew using measuring tape. Then, they will record it on their worksheet.
4. After two failed attempts to fly, Orville Wright was the first person to take the Flyer they built with a motor, *Wright Flyer I*, for a 12-second, sustained flight on December 17, 1903, in Kitty Hawk, North Carolina. (Show image 4-2 from Appendix I.) Now, it’s our turn to create airplanes and send them on their first flights.
5. Explain that the way that planes fly through the air is called "aerodynamics." As planes fly, they push air ("drag" or resistance). When you "launch" a paper airplane, your throw is the "thrust" or movement that starts it flying. Finally, your plane will "glide" with air under its wings until it lands. All those factors together determine how far a plane can fly and for how long.

Development
1. Demonstrate to students how to build a paper airplane.
2. Divide students up into groups of five.
3. Each group of students will build five different airplanes. There are many choices to chose from the following websites: http://bestpaperairplanes.com/ and http://www.funpaperairplanes.com/.
4. Teacher will first demonstrate how to fly the paper airplanes.
5. After building each paper airplane, students will fly their airplanes from the duct tape line.
6. After each flight, students will fill out their worksheets.

Culmination
1. Students will take information from their worksheet and create boards with their research from the worksheet.
2. Students are allowed to decorate their airplanes and then they will attach their paper airplanes to the board.
3. They will label each airplane and underneath say the award the airplane was given.
4. Next, they will create a graph that shows the information from the worksheet.
5. Students can decorate the board to make it more appealing as well.
6. To conclude this lesson, students will participate in a “Museum Walk.” A “Museum Walk” is where all students set up their boards on desks around the classroom. There is a pathway in which the students can easily move from one board to the next.

**Assessment**

1. For this assessment, students will create a poster with the airplanes they made glued onto it. They will also create a graph that shows each airplane’s speed and a graph that shows each airplane’s distance. They will glue one of the worksheets onto their board as well. Students are also encouraged to give each of their planes awards, such as coolest flight or most dangerous. Also, students are encouraged to color and decorate their planes AFTER they have been flown but BEFORE gluing them onto their board.

**Images Used:** 4-1 and 4-2 (Appendix I)
LESSON MODULE
DAY 5

Title: Today’s Flying Machines: Then and Now

Learning Goals:
Knowledge
- Students will develop a better understanding about flying technology from the early 1900’s and today.
- Students will develop understanding about how technology can change over time.
- Students will understand how flying machines fly and an understanding of mechanics.

Skills
- Students will develop research skills using books and the internet.
- Students will develop and create a timeline about a piece of technology that has developed and improved since the 1900’s.
- Students will explain and present their timeline to the class using their poster timeline, picture artifacts, and explanation of the item: How it was in the 1900’s, how the item was in the 1940-1950 era, now in 2012, and what the item does.

Dispositions
- Students will create a factual timeline of their piece of technology.

National Council for the Social Studies Themes:
http://www.socialstudies.org/standards/strands

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Civic Ideals & Practices: Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.

Materials Needed:
Images 5-1, 5-2 (Appendix I)
Paper/pencil
Computer and internet
Lesson Procedures:

Introduction
1. Ask students to share what they learned about the Wright brothers in the previous class.
   - Who were the Wright brothers?
   - Why were they famous?
   - Why did our planes work/did not work?
   - What do we think we can do better next time?

Reflection paragraph- students will reflect on their airplane’s flight.
   - What did the plane do?
   - About how far did the plane fly?
   - Why did the plane fly/what makes a plane fly?
   - What do you think you could do next time to make the plane fly straighter/faster/higher/further?

2. Students will be shown a picture (Artifact 5-1, Appendix I). This picture is the rebuilt Wright Brothers 4 cylinder engine. Engines run on a mixture of gasoline, oxygen, and a spark in each of the cylinders to create a controlled explosion. (Draw cylinder and piston on the board) This explosion pushes a piston downward to drive a shaft. (Draw piston forced downward by explosion) This shaft is connected to the propeller or turbine on a modern day plane. (Draw propeller moving) This propels the plane forward through the air causing lift. Lift forces the plane into the air enabling the plane to fly.

3. This first engine that they created, what can you see on this engine class? The engine is small/does not look safe/powerful/does not look like it will fly well. That is right. This engine was only able to fly the brothers plane for how long? 59 seconds!!! That is correct. The engine was not very powerful because they did not know how to build them very well yet. Can we all do everything perfectly the first time class? NO!!! No we can not. It takes practice, and we need to look at what we have done before to improve on what we have done. We need to reflect on it.

4. (Show students artifact/picture 5-2) This is what 40 years of improvement has done to that engine. These WWII bombers are the product of thousands of man hours and thousands of dollars and hundreds of planes being made to create this plane. These planes had many pistons, meaning they could fly over 150 miles per hour at an altitude of over 10,000 feet in the air. These planes weighed well over what your parents car or van weighs, over 7,000 pounds. How many tons is that again? 3 ½ tons. That is right. This is what hard work and time can do for technology.
5. You each are individually going to research, on the internet, items that have been around since the early 1900’s. You will create a timeline that show this machine or technology as it was. You will include:
   ● What it was called back then and invented by (date invented and name of inventor).
   ● What it does for people
   ● A picture of what the item is
   ● And a brief description of how it works with its parts
The second piece of the timeline will be the same item in the 1940’s-1950’s
   ● What is the item called now
   ● A picture of the item
   ● What improvements have been added to the device (what it is capable of doing)
The third piece of the timeline
   ● What the item is called now
   ● A picture of the item
   ● What improvements have been added (what the device is capable of)
   ● and what do you think will be improved on the item 40 years from now (2052)

**Development**
1. Show the students the artifacts
2. Explain how a simple gas engine works
3. Show them that things can be improved
4. Show explain what can change on an item and how it can be made more useful
5. Explain their project “Timeline”

**Culmination**
1. The students will research their item and create their timeline
2. The students will present their timeline to the class

**Assessment**
Students will write a short reflection about their item. They will include what the item is and what the item does. They will also write a brief summary on another item that was presented to the class.

**Images used:** 5-1, 5-2 (Appendix 1)
APPENDIX I:
IMAGES AND GRAPHIC MATERIALS FROM THE LIBRARY OF CONGRESS

1-1. Image
Wilbur Wright and Orville Wright seated on steps of rear porch, 7 Hawthorne St., Dayton, Ohio
http://www.loc.gov/pictures/resource/cph.3b13001/
1-2. Image
Front view of 7 Hawthorn Street, the Wright home, with bare trees and a bicycle resting by the right gate of the front fence, about 1900
http://www.loc.gov/pictures/resource/ppprs.00523/
1-3. Image
Orville Wright, about three years old, half-length portrait, in oval, facing front
http://www.loc.gov/pictures/item/2003663044/resource/
2-1. Image
The plan outline that the Wright brothers used to build their first airplane. The picture includes the different views of the airplane.
www.loc.gov/pictures/resource/cph.3c27779/
2-2. **Image**
The first glider being flown by one of the Wright brothers.

[http://lcweb2.loc.gov/ammem/wrighthtml/wrightphot.html](http://lcweb2.loc.gov/ammem/wrighthtml/wrightphot.html)
3-1. Image
A letter written from Wilbur to his father about various components of his flying experiences. (The letter is continued on the next page.)
http://memory.loc.gov/cgi-bin/ampage?collId=mwright&fileName=02/02055/
mwright02055.db&recNum=1&itemLink=r%3Fammem%2Fwright%3A%40field%28DOCID%2B%40lit%28wright002317%29%29

The Hotel Arlington,

Dear Father:

I am at this place waiting for a boat to take me across Albemarle Sound to Kitty Hawk, which will be my address for the present. I supposed you knew that I was studying up the flying question with a view to making some practical experiments. I chose Kitty Hawk because it seemed the place which most closely met the required conditions. In order to obtain support from the air it is necessary, with many reasonable exceptions, to move through it at the rate of fifteen or twenty miles per hour. If there is no wind movements your speed with reference to the ground must be the same. If the wind blows with proper speed support can be obtained without movement with reference to the ground. It is easier to practice in a wind provided this
is not too much broken up into sudden and sudden
quote by hills, trees, etc. At Kitty Hawk which
is on the narrow 100 separating the sound from
the ocean there are matter hills or trees so
that it offers a safe place for practice. Also
the wind there is stronger than any place near
home and is almost constant so that it is
not necessary to wait days or weeks for a suit-
able breeze. It is much cheaper to go to a
distant point where practice may be constant
than to choose a meaner spot where the days out
of four might be wasted.

I have no intention of risking in-
juring to any great extent, and have no ex-
pecation if being hurt. I will be careful,
and will not attempt new experiments in
dangerous situations. I think the danger much
less than in most athletic sports. I will write you
again soon. Fortunately you begin well.
3-2. Image
This is a letter written from Wilbur to his father about the cautions taken in preparing to fly. Cautions based off of previous failures. (The letter is continued onto the next page.)

http://memory.loc.gov/cgi-bin/ampage?collId=mwright&fileName=02/02055/mwright02055.db&recNum=3&itemLink=r%3Fammem%2Fwright%3A%40field%28DOCID%2B%40lit%28wright002317%29%29
3-3. Image
An image of a crumpled glider from an attempt at flying.
http://www.loc.gov/pictures/item/2001696439/
4-1. **Image**
This is a picture of *Kitty Hawk #30*, in 1901. It’s one of the first gliders made and was the first manned glider.

4-2. Image
This is a picture of the Wright brothers’ first official flight with *Wright Flyer I* in 1903. 
http://www.loc.gov/pictures/resource/ppprs.00626/
5-1 Image- Rebuilt 1903 Engine
This engine was used by the Wright Brothers on one of their first flights. This was rebuilt in the 1920’s and is a 4 cylinder engine. http://memory.loc.gov/cgi-bin/query/r?ammem/AMALL:@field(NUMBER+@band(ppprs+00649))
5-2. Image (Luke Webster):
This bomber was used during WWII by American forces to drop bombs. This engine is extremely powerful and is capable of high altitude flight at high speeds.
http://www.loc.gov/pictures/item/oem2002007991/PP/
APPENDIX II:
BIBLIOGRAPHY AND WEBLIOGRAPHY
OF RESOURCES FOR STUDENTS AND TEACHERS

Bibliography of Children’s Literature


Webliography of Supporting Online Resources for Students

1. **The Wright Brothers and the Aerial Age**
   a. [http://airandspace.si.edu/wrightbrothers/#1903](http://airandspace.si.edu/wrightbrothers/#1903)
   b. This website offers students information about the Wright Brothers and their journey into the Aerial age. It includes visual models of airplanes they brothers created to help students understand more about the development of the airplane.

2. **Photos of Wright Brothers**
   b. This website has a multitude of pictures that will help students explore the lives, work, and overall journey the Wright Brothers endured on in order to create the first successful airplane.

3. **WWII Fighter Planes**
   a. [http://www.daveswarbirds.com/usplanes/american.htm](http://www.daveswarbirds.com/usplanes/american.htm) (lesson 5)
   b. This website has a great deal of information about WWII planes. They have engine sizes, flight altitudes, and a great deal more information that has been gathered to get a feel for what planes were like and have changed since the Wright Brothers first flight.

4. **Fun Paper Airplanes**
   b. This website is used for lesson 4. It has the different forms of paper airplanes that the students can choose from for this lesson.

5. **Best Paper Airplanes**
   b. This website is used for lesson 4. It has the different forms of paper airplanes that the students can choose from for this lesson.

6. **Wright Brothers Biography**
   a. [http://airandspace.si.edu/wrightbrothers/classroomActivities/4-7_teacher_instructions.html](http://airandspace.si.edu/wrightbrothers/classroomActivities/4-7_teacher_instructions.html)
   b. This website was used for lesson 1. It includes ideas, activities, etc. for the classroom.
Webliography of Supporting Online Resources for Teachers

1. **Paper Airplane Lesson**
   a. [http://www.scholastic.com/browse/lessonplan.jsp?id=1508](http://www.scholastic.com/browse/lessonplan.jsp?id=1508)
   b. Lesson 4 used information from this website to create the lesson. It has useful information on how to effectively use the lesson appropriately. This is a website for teachers on creating paper airplanes and how to fly.

2. **Wright Flight**
   a. [http://pbskids.org/wayback/flight/feature_wright.html](http://pbskids.org/wayback/flight/feature_wright.html)
   b. This is a great informational site for teachers and students alike to use. This website provides factual information about who the Wright Brothers are and the journey they took to create the first airplane.

3. **Aviation Activities for the Classroom**
   b. This website has many interactive experiments and lesson plans that work with the principles of aerodynamics and planes. Teachers can use these experiments in their own classrooms, in order to help students better understand how aerodynamics affects the way planes function.

4. **Up, Up, and Away! Aviation Activities!**
   a. [http://www.educationworld.com/a_lesson/lesson236.shtml](http://www.educationworld.com/a_lesson/lesson236.shtml)
   b. This website has many lesson ideas and information on other historical flying figures for teachers to use as references when teaching about the Wright Brothers.

5. **The Wright Brothers and the Aerial Age**
   a. [http://airandspace.si.edu/wrightbrothers/#1903](http://airandspace.si.edu/wrightbrothers/#1903)
   b. This website offers students information about the Wright Brothers and their journey into the Aerial age. It includes visual models of airplanes they brothers created to help students understand more about the development of the airplane.
Appendix III
Lesson 1 Worksheet

Biography Research Sheet

1. Who?

________________________________________________________

2. When was he born? Where was he born?

________________________________________________________

3. Family members (include ages)

________________________________________________________

4. When did he die? How?

________________________________________________________

5. What did he do for fun as a child?

________________________________________________________

6. What work did he do before he was famous?

________________________________________________________

7. Why is he famous?

________________________________________________________

8. What other ideas or inventions did he contribute to the world?

________________________________________________________

9. List any important, interesting or amazing facts you found:

________________________________________________________
Paper Airplane Flights
Lesson 4 Worksheet

1. Predict which paper airplane will go the furthest. Explain why.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

2. Predict which paper airplane will stay up in the air the longest. Explain why.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

3. Which airplane flew the farthest?

______________________________________________________________________________

4. Which airplane stayed in the air the longest?

______________________________________________________________________________

5. Fill out the graph appropriately based on your flights.

<table>
<thead>
<tr>
<th>Paper Airplane Name</th>
<th>Distance</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classic Dart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dragonfly</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>