



YALE NATIONAL INITIATIVE

to strengthen teaching in public schools®

Curriculum Units by Fellows of the National Initiative
2015 Volume III: History in Our Everyday Lives

Ripple Effect: How Major Events Effect Everyone

Curriculum Unit 15.03.08, published September 2015

by Ray Ott

Overview

This unit is about studying some of the major historical events regarding aviation and then exploring how they had an effect on a local level. For example, Charles Lindbergh crossing the Atlantic, the Japanese surprise attack at Pearl Harbor, the dropping of the atomic bomb and Neil Armstrong becoming the first man to step on the moon were all major events that served to change the world forever. Students will learn about these events and the ripple effects each had. When teaching the course, if one of the selected events does not appear to have had a major influence on your community then I encourage at least some research before disregarding. I am frequently amazed at how major events find a way to influence even the smallest of communities. Additionally, this unit will provide examples on how to get students connected to historical events. Therefore, if there is an event that is not listed here you will learn ways to share that history with your students.

I am a retired military officer who now serves as an Air Force Junior Reserve Officer Training Corps (AFJROTC) Instructor at POLYTECH High School in the small state of Delaware. The high school was founded as a *traditional* VOTEC public school in 1993 but has evolved into a comprehensive school that still offers a traditional VOTEC experience. It is located just miles from Dover Air Force Base (DAFB) which is important to note for later application.

During my 26 years of serving in the military I was always around airplanes. I am a career military pilot with experience operating several types of aircraft in the Navy and in the Air Force. I have flown aircraft all over the world during peace and during conflict. The only continent I have not flown an airplane in is Antarctica and I am comfortable with missing that lovely location. Needless to say, my experience with airplanes is very diverse. Consequently I am passionate about the role of aviation and its influence on history. The power of aviation is far reaching. So the opportunity to lead a unit that teaches the impact aviation had upon history on a global level and a local level is something I am passionate about. This lesson will help students better understand local history while embracing the core mission of AFJROTC - to create better citizens. My students, and your students, will be more aware of the world around them and the community they live in. It is not meant to teach students about airplanes in preparation for a life in the military. The majority of my AFJROTC cadets never enter a career in the military, but they all enter the world we live. A better appreciation of how to look at the history all around them makes them better prepared for the mission of citizen.

With that said, my background in aviation should not deter anyone who has not flown a plane, or even been in a plane, from teaching the awesome power of aviation and its impact on history. If you have an interest in aviation and how it impacted history you will enjoy this lesson. If you can show you care about the topic then your students will follow. I believe the only requirements a teacher should possess when teaching this history class are the traits that all teachers should display - care, motivation and fun. History is difficult to teach because it is often difficult to relate to. Don't make it harder by forgetting to have fun. In the end this focus will serve as a foundation of success that will help you get over the hump of getting students to relate to the historical moments of the past.

Rationale

Because AFJROTC has specific curriculum requirements the objectives of the course must meet the overall objectives of Air Force. Specific learning objectives are to know the historical facts and impacts of the early attempts to fly, know the major historical contributors to the development of flight, contributions to aviation in the role of warfare and the key events of space exploration. This lesson will reveal that aviation was largely contained only in myth and stories until man was able to leave the ground by way of a balloon. Glider and airplane flight would soon follow, accelerated by the Hindenburg explosion. Students will find out that airfare was first able to contribute to warfare by providing overhead reconnaissance via a balloon. Finally, students learn that space exploration was largely driven by the Cold War. Most likely this lesson will offer the first time your students hear the term *Cold War*. With that said, the Air Force is very open minded with the presentation and content of lessons plans and finds that almost any educational experience can be tied to the mission of making *better citizens*.

The unit is built around my school's *4X4 block* schedule with long 80 minute periods. I have taught this course to all high school grade levels to students with a broad range of abilities. I also purposely provide no demographics on the students I teach because JROTC is inclusive - all are welcomed. However, students volunteer to be in JROTC. In my school we always have about 105 volunteers from the school's 1300 total student body. You may not have the luxury of having willing volunteers.

I believe a course in aviation history touches many facets of learning; science, history, social issues, leadership and geography are just some of the many. But the aim of the unit is to have your students learn about major historical events and how they are remembered, documented and in some cases memorized on a large scale and on a smaller, local scale. If your area of expertise falls somewhere outside of aviation I am sure the opportunity to elaborate and spend more time on a particular lesson that you are more comfortable with will present itself. Aviation is a broad topic but the focus of the unit will involve students focusing on the question of what events/technological advances of aviation have most impacted our world history and in some cases the community they reside in. With that notion, this will be a research-based curriculum that emphasizes the impacts of major aviation events on the world and the resulting implications to the community surrounding Dover Air Force Base in Kent County Delaware. The intent is that the same understanding of major historical aviation events that my students learn about can be applied accordingly to any community in America. The unit can be taught as one whole course or taught as individual segments depending on your community situation and other classroom requirements.

A great deal of the students I teach are from families that are employed at Dover AFB. Many of them have

been affected by some of the greatest aviation news stories of the last 100 years. Some may not have an active duty person serving in the military, but still reside in Delaware due to a previous family member being relocated to Kent County as a result of a historical aviation incident. In Delaware, aviation in some way greatly influenced the communities that surround Dover AFB and the people that reside in them.

Content Objectives

Primary Objective - What are the major aviation events in History?

Secondary Objective - How do the major events surrounding aviation history relate to your community and understanding of aviation?

The Unit

The following events incidents were selected for their potential to relate to students of Delaware. Other events may be more applicable to your location in the country. For instance, if you live near Cape Canaveral or the Houston Space Center, then the explosion of Falcon 9 on June 28, 2015 certainly impacted your community.



- 1783 - The first balloon flight - sheep, duck, rooster
- 1903 - The first heavier-than-air flight - Orville and Wilber Wright
- 1922 - The first Dirigible over Delaware
- 1927 - The first solo, non-stop, crossing of the Atlantic - Charles Lindbergh
- 1941- Aviation as a weapon - Surprise Attack Pearl Harbor
- 1957 - The first Satellite - Sputnik / Space Race
- 2001 - The events of 911 - Aviation as an instrument of terror

Sheep - Duck - Rooster

The first documented balloon flight occurred in France in 1783. The Montgolfier brothers, Joseph and Etienne invented the hot air balloon by experimenting with the rising of air when heated from below. They built the first successful balloon and are credited with launching the first passengers of aviation - a sheep, a duck and a rooster. On 12 September 1783 they launched a 41 foot diameter balloon that carried the passengers. Both the balloon and the animals survived a less than 2 mile flight. A huge success! It also started a battle between the Montgolfier brothers and another Frenchman, J.A.C. Charles, who used hydrogen to launch his balloons. In America, including Kent County Delaware, the progression of the balloon was not as rapid as it was in France. There simply was not a need for such an instrument.

For Delawareans, that moment occurred in 1834 when James Mills flew his balloon from Lancaster, PA to New Castle, DE. Most of my students, when told this fact, are not impressed. They simply cannot relate to the significance of the event nor the timeframe. Even though it stands also as the first aviation incident in the state of Delaware. (Trimble, 9) Despite ballooning failing to grow in Delaware, it did spark a growth in the

United States. In Washington D.C., a man named Thaddeus Lowe displayed the ability of balloons, convincing President Lincoln that they play a role in the ongoing Civil War. President Lincoln wanted Thaddeus Lowe to show the Union Army the potential the balloon had for spotting the enemy. This was the beginning of aviation as a tool of aerial reconnaissance. Thaddeus Lowe used balloons in the Civil War to observe the positions of the Confederate Soldiers. Not only was this the first use of aviation by a US military unit, it also marked the formation of the first military aviation unit when the balloon was placed in the US Signal Corps under the control of the Union Army. Interestingly, aviation units would continue to be placed under the control of the US Army or the US Navy until the birth of an independent Air Force that did not occur until after World War II in 1947. The potential for aviation sparked by Thaddeus Lowe attracted a man named Ferdinand Von Zeppelin who travelled from Germany to America to learn from one of Lowe's apprentices. Zeppelin would later return to Germany to build the first aviation commercial transportation company.

For my students, I think it is important to learn about one of Delaware's most important employers - and it is NOT an airplane company. I teach them about the *DuPont Co.*, and their patent with the invention of Nylon in 1938. *DuPont* transformed the balloon making industry when it was asked to come up with an alternative to silk for making parachutes. Silk was a perfect material for parachutes and balloons but was way too expensive. Consequently, most balloon makers could not afford silk and used canvas materials instead. Nylon was the perfect alternative for making balloons and parachutes. Nylon became so successful that at the start of WWII the US government declared all of DuPont's newly inventive Nylon be reserved for making parachutes. The production of Nylon in WWII became so important that DuPont's production facilities were listed as strategic assets and were protected by the construction of a small army base called Fort Miles on the mouth of the Delaware Bay. During World War II Fort Miles was tasked with the prevention of enemy ships from attempting to enter the Delaware River and travel towards *DuPont* and other valuable factories which were along the banks of the Delaware River. My class has taken trips to Fort Miles National Park where they learn about the strategic importance of war time production, coastal artillery defense, and the lives of the soldiers who were assigned to the base. Many of the students were not even aware the base ever existed and find it interesting that little Delaware held such a strategic asset during World War II. All because a better material was needed for the construction of balloons and parachutes.



The story of Nylon and Dupont continues to affect the communities surrounding POLYTECH today. The founding facility that Dupont used to manufacture Nylon started in a small town south of Dover Delaware called Seaford. At the location of the original plant is a plaque that states - at this site on December 15, 1939, DuPont began commercial production of nylon. Seaford would grow into a vibrant community filled with engineers, technicians and productive workers from the *Dupont* plant. Its public schools were highly regarded, and well funded. However, the plant slowly began to be outproduced by companies in Asia that could simply make Nylon cheaper. Furthermore, other derivatives of Nylon became in greater demand. The plant rapidly slowed production during the 90s and was closed permanently in 1998. It was later sold by *Dupont* to a company that now employs a relatively small amount of workers. The community and schools of Seaford became the complete opposite of what they once were. As our school's soccer coach my players laugh when we have to play Seaford. They do not take the game seriously and consequently hate playing Seaford and nearby Laurel High School. I have to teach my players and my cadets what happens to a community when a major employer leaves. It is normally a very beneficial discussion with many of my students offering stories of friends and family that were impacted by the closing of the plant and the massive lose of jobs. Driving through Seaford and Laurel one can see the closed restaurants that still remain as they slowly rot. They are a bleak reminder of what once were the communities of Laurel and Seaford Delaware and what they are today. It also serves as a symbol that not all technological advances automatically lead to social and economic progress for everyone. Impacts to a community may be difficult to discern right away and changes may take time to reveal consequences.

Kill Devil Hills - The first heavier-than-air flight

Historians can use many sources for information and fiction is one of them (Millbrooke, 2-5). The notion that man desired flight even in ancient history is suggested by the Greek myth of Daedalus and Icarus. I enjoy telling this ancient Greek story about how Daedalus and his son Icarus were able to fly away from imprisonment on homemade wings made of feathers and glue. Unfortunately, Icarus did not heed his father's warning and flew too close to the sun where the glue melted and his feathers slowly fell off. Icarus died as he fell into the sea and drowned. I often show my class how many versions of the story exist on youtube. Every year I start my first day of class with the story because it is more than just man's desire to leave mother earth. It is about rules, responsibility and trust. Three things I want my students to understand on day one.

Finally, the story also clearly illustrates how the awesome power of aviation must be respected or the price can be costly. In this case Icarus lost his life. To prove that I subscribe to this power and responsibility I show them my badge as a member of the *Order of Daedalions*. The *Daedalions* is a club that current and former military pilots can join in honor of the first flight, even if fantasy, while paying respect to the person who followed the rules and consequently gained his freedom. You do not need to be a member to tell your students about the *Daedalions*.

The tale of Daedalus and Icarus also inspired Leonardo da Vinci to design several flying wings with the ambitious intent to have man fly. His drawings and concepts were way ahead of his time. Consequently, man's desire to fly would have to remain in fictional tales, like the story of *Rasselas* written by Samuel Johnson. It is a book about the fictional Prince of Abyssinia, Rasselas, and his flights across Egypt. Similar to Daedalus, Rasselas attempts flight on manmade wings. (Millbrooke, 2-5).

Fictional tales of flight are useful in making a connections with your student on the challenges that faced aviation. They should find the stories interesting and be able to better understand why men like Otto Lilienthal and Sir George Cayley wanted to fly. Both of these individuals did extensive work with gliders and wing shape determining how much lift a wing could create. The goal was to create enough lift to fly a person. However, power limitations were still present and control was also an issue. The efforts of Samuel Langley, whose attempts to fly powered airplanes he called *Aerodromes* off house boats in the Potomac River, met with disaster when an attempt with a human at the controls in August of 1903. His latest *Aerodrome* crashed and went to the bottom of the river basin. This event occurred less than 80 miles from our school. If successful it would have been the first self-powered, controlled, heavier-than-air flight by man.

Man still believed it was possible to fly and efforts to do so continued. Unfortunately, Otto Lilienthal died in a glider accident as he attempted to go farther and higher when an abrupt wind change spoiled his glider's lift. (Millbrooke, 2-12) His accident served to challenge further aviation efforts but did not hinder the efforts of two bicycle makers, Orville and Wilber Wright. The Wright brothers believed flight was possible. They did extensive work studying gliders and wing performance with the first constructed wind tunnel at their shop in Dayton, Ohio. (Millbrooke, 2-19)

Eventually the Wright Brothers would achieve man's dream of flight. Their historic moment took place on 17 December 1903 on the windy beaches of Kill Devil Hills in Kitty Hawk, North Carolina. They achieved the first heavier-than-air flight traveling 120 feet in 12 seconds! That was the extent of the Wright brothers historic flight. However, this small flight marked a huge turn in the advancement of aviation. Now man can take to the air in a heavier-than-air aircraft for a sustained and controlled period of time. These accomplishments could certainly be a course in itself. However, I treat it as another major evolution in the growth of aviation. Now man can take to the skies with a machine that creates lift through the use of wings fulfilling Leonardo da

Vinci's dream.

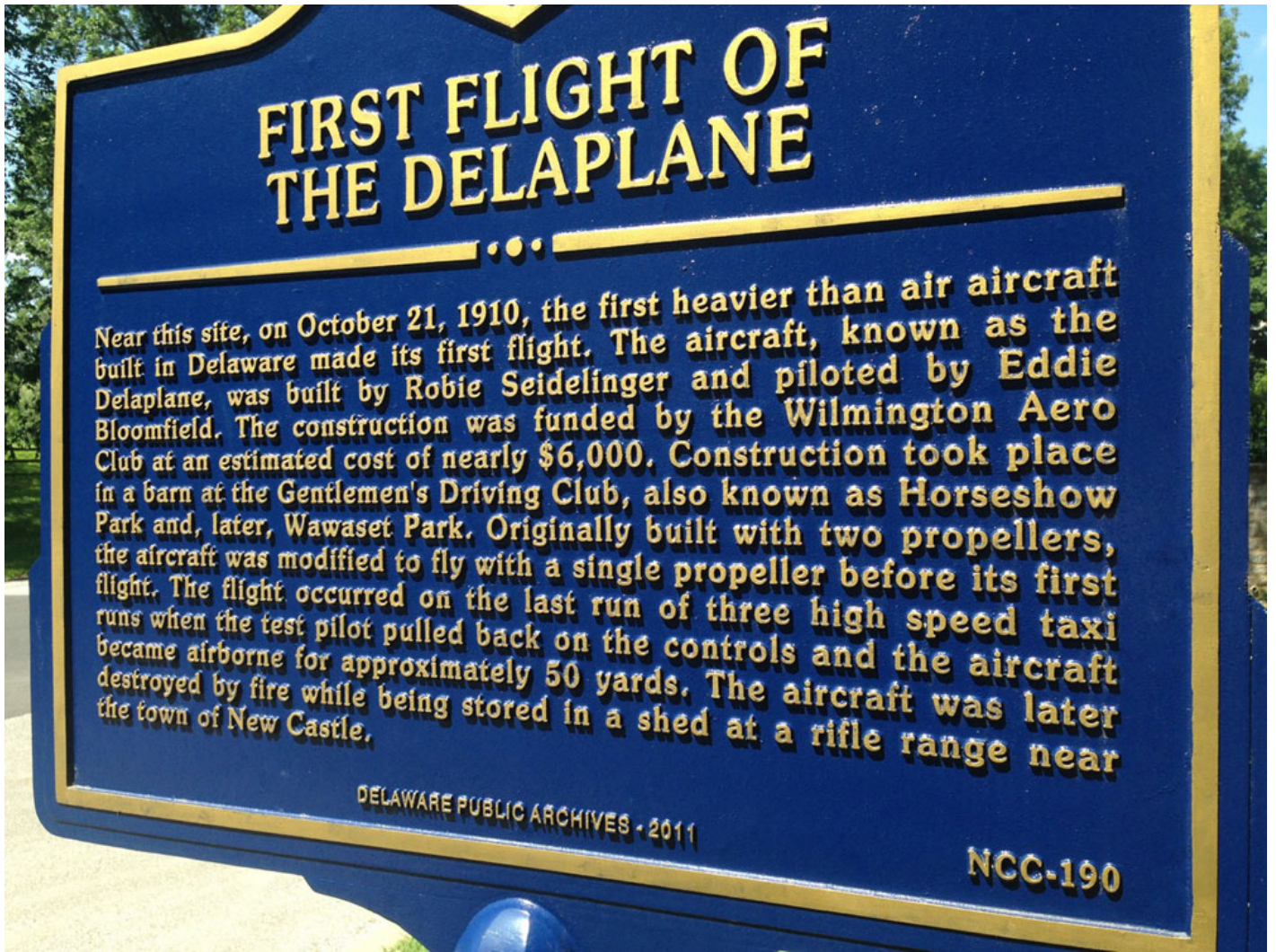


Photo take by Ray Ott: DEPALANE



Myself at entrance of community

I share with my class that Delaware would witness its first heavier-than-air flight in 1910. Sparked by the

Wright Brothers, the Wilmington Aero Club funded and supported the flight of *Delaplane*. However, despite enthusiasm and funding, the club was not able to commence further growth within Delaware. Delaware simply did not have the resources that other states and cities had and industries were not willing to make a move to Delaware without support. The location of the occurrence symbolizes how the societies of Delaware viewed aviation at time. It occurred at what once was a country club. The club offered horse races that were associated with the wealthy and better off families of the time. The location now is a planned community built under the watchful eye of the DuPont family just after World War II. Even today this area remains a very exclusive neighborhood despite the fact that only five miles away some poorer areas of Wilmington exist. Aviation, at the time of the *Delaplane*, was still only for the exclusive and still not part of every day society - - at least not in Delaware. For Delaware, this historical moment goes largely unnoticed with only a plaque at the entrance of the community where the flight apparently took place.

The forgotten recognition of *Delaplane* does not diminish the fact that flight enthusiasts continued to experiment with aviation. Inspired by the Wright Brothers, *Delaplane* represents the efforts of a group of people who recognized the potential of aviation and the advantages this new technology could bring to Delaware. Interestingly, the recognition and remembrance of the achievements of Orville and Wilber Wright's historic first flight is quite different than then recognition of the first flight in Delaware.



Photo taken by Ray Ott



Photo taken by Ray Ott

Visiting the location of Orville and Wilber Wright's historic day is a great way to examine how history is remembered. As soon as you enter Wright Brothers Memorial Park a huge monument in the shape of an obelisk sits on a large hill that faces the beaches of Kill Devil Hills, North Carolina. The monument draws your attention quickly. When walking up the hill to the monument many people stand around and take pictures along side the stone memorial that was put there in 2003 in commemoration of 100 years since the first flight, 17 December 1903. The size of the monument has a tendency to confuse many visitors who believe that is the spot of the original flight. Particularly when a life size replica of the event is just beyond the stone monument. They are both beautiful and worthy of visiting but they are not in the exact location of the event.



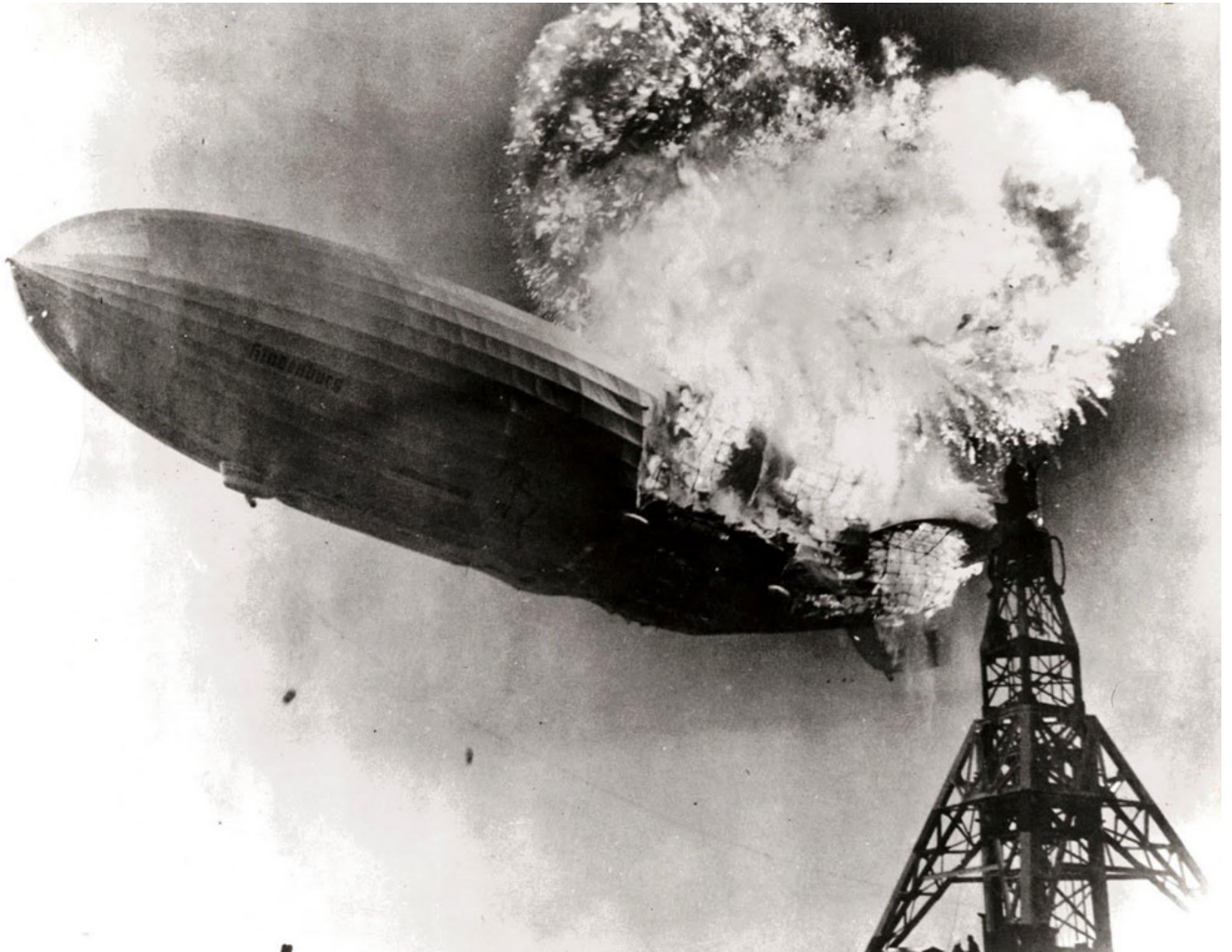


Photo taken by Ray Ott

The actual event took place on a flat stretch of land down the hill from the monument where a large stone mark the location of the first lift off. This stone was placed there in the 1920s and was visited by Charles Lindbergh who kissed the stone in honor and reverence to the men who started it all. The stone marks the actual spot but is dwarfed by the large obelisk tower on the nearby hill. (The included picture has myself on the left and my son, who recently completed his first solo flight, on the right). After the stone are four placards that mark the spots of the four flights that occurred that day. The first one, only 120 feet from the lift off spot, visibly shows that man has come a long way since 1903. In fact, visually seeing the location of the four placards is reminder of how short the four flight actually went! The fourth and farthest flight was only 852 feet. Nonetheless, the placards offer a better historical representation, and certainly are far more relatable, than the giant stone memorial on top of a hill. Unfortunately, more people take time to have a picture of the memorial versus taking the time to kiss the stone.

The First Dirigibles

Experimentation with different types of aircraft continued as the Wright Brothers made their advancements. Competing with the advancement of the fixed-wing aircraft was the dirigible. Perhaps lift attained from a balloon was an easier concept to grasp, many believed the dirigible was the future. Furthermore, they were capable of lifting more weight and going greater distances.



<http://www.historyinanhour.com/2011/05/06/the-hindenburg-disaster-summary/>

A dirigible is simply a balloon with a rigid hull that can be steered. It is not at the mercy of the prevailing wind. It can be guided by a small motor or several motors. This technological advancement is worth teaching students and it is equally important to discuss the commercialization of travel by air. A German company, Zeppelin, started the first successful transportation system for people wishing to cross the Atlantic by air in 1910. (Millbrooke, 1-33) Zeppelin offered travel from major cities in Europe to and from New York City. All of this came to an end when the hydrogen filled Hindenburg went up in flames in 1937 essentially destroying the Zeppelin Company.

I would assign the readings the night before the lesson and then discuss with the class the next day. Questions I have for the class are provided for consideration.

- Would you ride in an aircraft full of hydrogen?
- Why were flights to Dover not planned?
- How do you think history would have been different if the Hindenburg never caught fire?
- Could you see use for a dirigible in Delaware?
- Could you see the military using a dirigible?

After the discussion I show a famous clip that is available on youtube that is from the point of view of a

newsman who is covering the arrival of the Hindenburg to Lakehurst, New Jersey. The newsman's joyous tone quickly goes to near horror when a fire starts and yet he is somehow able to verbalize the terror. The link is provided however a simple search on youtube with key words *Hindenburg - newsreel - disaster* - will find the short clip. (<https://www.youtube.com/watch?v=F54rqDh2mWA>) This should leave an impression with them on the dangers of lift when hydrogen is used. I also show the pictures from an article in the October 2013 issue of the *Atlantic* called *Airships* (Taylor). It contains a fantastic collection of pictures that walk the viewer through the advances and uses of the dirigible. It even brings the reader to realize that the potential for dirigibles still exist today for commercial use and military use. <http://www.theatlantic.com/photo/2013/10/airships/100607/> You can talk all you want about dirigibles but a picture's worth a 1000 words.

The dramatic burning of the Hindenburg had a huge impact on the world's view of flight via a dirigible. The viewing of the incident will spur conversation from your students. They will be able to relate to the public losing faith with anything providing lift via hydrogen. They will also be able to understand why later dirigibles, filled with helium, were still suspiciously accepted by the public. My students, and yours, will be able to understand how the culture of aviation was influenced by the Hindenburg disaster that may have sealed the fate of dirigibles.

To complete this exercise I have the students find out where the first dirigible flight took place in Delaware. The first state had its first dirigible pass over its air space in 1924 when the Shenandoah passed through en-route to becoming the first transcontinental dirigible flight. (Hiam, 126) Possibly there is an interesting story of the first dirigible flight in your local area. For Delaware, the first dirigible in Delaware was most likely viewed with envy. At the time there were no active flight installations in Delaware whereas New Jersey was busy building a large dirigible installation at Lake Hurst. For Delaware, the influence of aviation on the nation's first state would have to wait.

Charles Lindbergh

He was the Golden Boy of the Golden Age - the new Icarus, a man raised rather than felled by the manufactured wings (Millbrooke, 6-4). Lindbergh's historic crossing of the Atlantic in 1927, marking him as the first to do so while solo without a stop, changed the world. The capabilities of fixed-wing flight quickly made huge headlines. Lindbergh was an immediate hero who was thrust into the public's eye. He was met by thousands in the middle of the night at Le Bourget Field just outside of Paris. The glamour of the accomplishment almost rivaled the significance of the event. Lindbergh proved the reliability, safety and ability of fixed-wing aviation. The military quickly realized the airplane had to be developed as a weapon of war. Despite the fact that the dirigible would be the first avenue for crossing the Atlantic, commercial aviation via an airplane would soon explode when World War II ended. Companies such as Pan American Airways and Trans World Airlines would start airplane travel across the Atlantic in 1947.



<http://science.howstuffworks.com/transport/flight/classic/ryan-nyp-spirit-of-st-louis.htm>

Lindbergh's crossing inspired the beginning of military aircraft in Italy, France and (unfortunately) the beginning of the Luftwaffe in Germany which had to be countered by the Royal Air Force in Great Britain. The aviation world recognized Lindbergh as the subject matter expert for flight. He was awarded the Legion of Honor by France, the Medal of Honor by the US Congress, the Distinguished Flying Cross by President Calvin Coolidge and the Chevalier of the Royal Order of Leopold by Belgian's King Albert. (Millbrooke, 6-8) A reserve officer, he was promoted him to the rank of Colonel. Respected and admired, Lindbergh was actually invited to Germany by the Commander of the Luftwaffe, Hermann Goering, for a review of his country's air power prior to World War II.

My teaching of Lindbergh involves the showing of the 1957 movie "Spirit of St. Louis" by director Billy Wilder. I typically take my time with the movie stopping frequently to discuss many items such as the character of Lindbergh, the nation's view of airplanes, dead reckoning and the role of the US Postal Service. The movie entertains while presenting historical fiction and historical non-fiction. We pause frequently to discuss what the director was trying to project to the viewer. We talk about the historical facts presented and if anything was omitted. I have the students note as they go along every time Lindbergh accomplishes something whether they feel he was luck or talented. After all, his nick name was "Lucky Lindbergh". At the end all of the students are to complete and argumentative essay short writing debating whether Lindbergh was "Lucky" or "Skilled". This question normally results in split results but it does not matter - I just want to see them involved. Include in the conversation another level for consideration by asking them if the the "skilled" or "lucky" debate was intentional by the director.

Pearl Harbor

The distinction that I make about the the Japanese surprise attack at Pearl Harbor on U.S. Military Forces on December 7, 1941 is that it took only 38 years from the Wright Brothers first flight for the power of aviation to grow to a point that it could start a war between nations and almost win it in one fatal attack. Most students will not grasp how short 38 years is so I share with a brief story regarding the forward pass.



In 1876, at a Yale-Princeton football game, a pass by Yale could not be determined to be a legal play by the referees and a coin flip was decided as the decider. The legality of the forward pass would remain in question till a formal rule change in 1906. (Craven) It took 30 years before the forward pass was accepted as a legal and accepted play. But just as the forward pass would transform football, aviation transformed war. No longer would a ground campaign be the focus of war. The futile trench warfare of World War I would be a thing of the past as airplanes flew over the enemy. Just as significance of a ground campaign diminished, the role of the Battleship would come to and end as well. Every battleship the US Navy had in the Pacific was sank or

damaged during that Sunday morning attack. But it did not matter because the precious carriers of the US Navy were not in port. Five months later the US Navy, without a battleship, would confront the Japanese Navy in the Battle of the Coral Sea. For the first time in history airplanes would engage in battle beyond the visual range of the two fighting navies. This would happen again a month later in June of 1942 during the Battle of Midway when the US Navy struck a fatal blow to the Japanese Navy by sinking 4 air carriers turning the momentum in the Pacific to the American forces. All without the support of a battleship. The end of the battleship occurred at Pearl Harbor. Air power had arrived. Please note to your students that the US Navy no longer operates battleships. In fact, there are no battleships in service in any navy today.

The events of Pearl Harbor offer a chance for students to learn that a surprise attack using air power pushed the United States into the war forcing a country that was not prepared for war to enter it. Talk to your class about the fact that the attack took place at 8am on a Sunday morning. This time would offer the best chance to catch the sailors and soldiers sleeping, or attending church or eating breakfast.

I use Franklin Delano Roosevelt's "Day of Infamy" speech to reinforce this point. (Overy, 12) My recommendation is to show the speech three times. (Infamy Speech, Youtube:<https://www.youtube.com/watch?v=8bmYwEFLIg>) The first time have them just listen. Afterwards discuss with your class the words FDR uses; dastardly, peace, confidence. My opinion is that the speech has two parts. The first part he explains to the American people the events that just happened. He states that America was attacked without a formal declaration of war or notice. He then half way through changes his words from information to argumentative. He is determined to persuade the American people that they have no choice but to enter this war and despite the fact the military is not prepared they will find a way to win. It is a brave and powerful speech made by a man stricken with polio. He cannot even walk to the podium to address congress. His son had to escort him to the podium and out of respect to him there is no film of him making that historic walk. You have an opportunity hear to talk to your students about how the media constructs a particular image of FDR for that moment and how it has continued to live in public history when the audience do not see him stricken with polio but a resolute and strong leader of the U.S. I speak to the class how FDR had to grasp the podium and read the notes he wrote literally hours ago. I tell my cadets the fear he must have knowing he could fall and then risk appearing as weak and feeble. I then show the film a third and final time and ask them to listen again? "With confidence in our armed forces — with the unbending determination of our people — we will gain the inevitable triumph". His bravery and ability to lead a nation into war is a leadership lesson that needs to be shared with your students.

A very productive way you can relate the attack on Pearl Harbor to your students is to find a military installation, security organization, or a company that was brought to life due to the necessity of WWII. For my students, who reside so close to Dover AFB, it is the story how the base came to be. Many of my students have family members who have supported the mission of the base. It is a great learning experience for them to learn why their family members were assigned duties at the base. Particularly when the construction of the base was directly influenced by the threat of a world war and was accelerated in construction days after the attack at Pearl Harbor. For them I share the story of how Dover AFB came to existence and then ask them to share the story with their family. I have a copy of a pamphlet made for all of my students to read. (History of Dover AFB) It is a short read but very informative. After we discuss the story of how Dover AFB evolved I ask each of them to find someone who once supported one of the many missions Dover Air Force Base has performed. In the rare chance they do not have a family member who has worked on the base I ask them to speak to any prior service member they know and ask them what they did on the base. This exercise will help them understand how large, historical events have an effect on the community they live in. In this case, Dover grew as the mission of Dover AFB grew. In 1939 the government approached the 3 counties of Delaware

regarding the building of a military aviation facility. Kent County declined and the request was forwarded to the City of Dover. After much discussion, the city of Dover agreed to purchase 587 acres of land southeast of the city for the development of an airfield. This purchase would later prove to be the wisest investment the city ever made. (History Dover AFB) Construction began on the base in 1941 but things did not move until the attack at Pearl Harbor. After Pearl Harbor the construction of the facility was accelerated as the U.S. became involved in a World War. The first mission of the base would be coastal patrol as a great concern regarding an attack on the east coast was high on the concern for America.

The Atomic Bomb

Aviation brought the United States into the war with the attack on Pearl Harbor and aviation brought the nation out of the war. The decision to use the Atomic bomb is a separate discussion from the fact that the only way the United States could deliver the weapon is from an airplane. The B-29 was developed by the United States with the intent to take on a strategic bombing role. The word strategic may be new to some students so be sure to provide examples of how strategic can be used in non-military terms so they grasp the basic concept that strategic means large, big or long-term. It is counter to the term tactical which is reserved for smaller goals that support the main objective. My example is that each student should have a tactical goal of passing this course which will support the strategic goal of completing high school.

In the case of the B-29, it was used primarily for strategic bombing. In the war against Japan it was used extensively against its largest cities as the war was coming to and end. It is estimated that B-29's caused the evacuation of 8.5 million people from Japan's cities, injuring 1.3 million people and killed over 900,000. (Millbrooke, 7-64) In order to expedite the end of the war President Harry S. Truman made the decision to use a weapon he was not even aware of till the declining health of President Roosevelt required Truman to be briefed on the atomic bomb. President Roosevelt died 12 August 1945 two days before Japan surrendered on 14 August 1945. My teachings in class revolve around teaching how aviation had advanced to a point where it could reign strategic terror and gravely influence a war. It now had strategic capabilities and would no longer solely support the army with the role of visual identification or tactical targeting.

Date	Name Bomb	Aircraft Type	Commander	Target
6 Aug 1945	Little Boy	Enola Gay	Col. Tibbets	Hiroshima
9 Aug 1945	Fat Man	Bockscar	Maj. Sweeney	Nagasaki

I don't think the dates of the atomic bomb are of grave importance for the student to learn but I do think they should be aware that 8 days after Colonel Paul Tibbets dropped Little Boy at Hiroshima Japan surrendered. I also think that it should be explained that the Soviet Union declared war on Japan the day after the Enola Gay dropped Little Boy. Most likely, the Soviet Union was convinced the end was near and the atomic weapon influenced their declaration. What I think the dates show is that the atomic bomb compressed the timeline towards a surrender by Japan, which they did on 14 August 1945.

It is possible to introduce a debate session in your classroom activities on the use of the atomic bomb. I believe the use of the bomb brought the war to an end. Discussions of the horrible effects of the war should also acknowledge the destruction caused by strategic fire bombings. I am compelled to stress the position taken by General LeMay, the officer who designed and implemented the strategic bombing plan in the Pacific during World War II.

Incidentally, everybody bemoans the fact that we dropped the atomic bomb and killed a lot of

people at Hiroshima and Nagasaki. That I guess is immoral; but nobody says anything about the incendiary attacks on every industrial city in Japan, and the first attack on Tokyo killed more people than the atomic bomb did. Apparently, that was all right. (Millbrooke, 7-65)

The use of the Atomic Bomb will continue to be debated and makes for worthy classroom discussion, but General LeMay's statement speaks to the necessity of including in our debates the destruction caused by the fire bombs that were dropped on Japan. Possibly General LeMay did understand the destruction. He also offered — "But all war is immoral, and if you let that bother you, you're not a good soldier". (Millbrooke, 7-65)

If too many students feel that the dropping of the Atomic Bomb is not controversial then discuss the use of air power for use in incendiary attacks. Ask them if the ability of air power to attack with great devastation at heights that did not require seeing who was being attacked had made the taking of life easier to do. That question is relevant today as drones are operated by people who are often not in harms way when executing an attack. These are real world issues that students should have an opinion on. Discussing them will reinforce to the student that the birth of the aircraft industry made total war possible. (Cowan, 252) Building on debates over air warfare and the morality and honor of taking a life from the air teachers may further discuss with your students the changes in air bombing from the first bombs dropped from aircraft in World War I. These first bombs were crude and not very powerful. Nonetheless, they were indiscriminate. World War II introduced the concept of wide spread strategic bombing that took lives without the attacker even seeing the enemy. This type of campaign changed warfare forever. Is it easier to fight when you do not have to see your enemy? Discuss how the use of drones is an extension of that concept. Today the rules of armed conflict are debating the use of drones as a lethal force. An operator of a drone can perform their mission while sitting thousands of miles away from the target in a very protected environment. Does this distance make it easier or harder to perform a lethal task? Your students will most likely have much to offer on this topic that started in World War I and continues today.

Delaware Firsts - The first all women military squadron.

The Women's Auxiliary Ferrying Squadron was formed in New Castle, Delaware in September of 1942. This unit supported the mission of the Women's Army Auxiliary Corps which was designed to provide aviation support functions that needed to be completed and were deemed appropriate for women. Men were seen as too valuable for stateside missions and were much more useful overseas. Specifically, in this case, the Ferrying Squadron would fly airplanes that needed to be moved stateside for repair reasons or logistical reasons within the states. Sometimes the Delaware squadron would transport a plane to one of the coasts so a male crew could then accept the plane for service overseas.

Activities to explore for this session may be centered around the role of women in combat and the military today. I also recommend talking about the role of women in America during World War II. A comparison, if further discussion is desired, is the role of women by other countries in World War II. A vast different view of women and aviation was taken by the Soviet Union who had many women fly night bombing raids. A hero of the Soviet Union was Marina Raskova who organized, trained and led night bombing raids on Germany. (Millbrooke, 7-22) Having women fly airplanes in combat was a far contrast to the United States and speaks to the Soviet view point that all were expected to protect the mother land when in a time of need.

Sputnik



<http://writingisfun-damental.com/2014/05/16/dogs-satellites-the-moon-wabac-to-space/>

The space race and the role it played in the cold war are terms most students will have trouble relating to. It will be difficult getting a classroom of students to understand how a round ball approximately the size of a beach ball, weighing about 180 pounds could change the world. However, Sputnik did just that. It was a symbol that the Soviet Union was beating the US in technology and soon would control the space surrounding the world. Its crude radio pulses lasted only 21 days and the satellite itself lasted only 3 months before it started to enter the earth's atmosphere and eventually burn up. However, its effects were long lasting. NASA (National Aeronautics and Space Administration) was created in 1958, in 1961 the United States commence a manned flight program (Project Mercury) and in 1963 President John F. Kennedy made his famous statement that Americans will go to the moon. The American education system came under attack for allowing the Soviet Union to surpass the U.S. The post-Sputnik reforms were put in the hands of scientists, much to the dismay of some educators and concerned citizens who had previously had enormous input on curriculum design. Several of the changes, such as including hands-on laboratory experience, remain in use today. (Powell) The challenge for this lesson is still the same, how to get students to relate to the past. For my students I have the luxury of having the company that builds the equipment for astronauts right in our back yard. Dover's own ILC Dover is a company that was started when the space race began. They have built many of the items worn by astronauts, including the suit worn by Neil Armstrong during his historic 1969 landing on the moon. Currently, ILC Dover is rebuilding the suit Glenn wore because it has been slowly falling apart while sitting in its Smithsonian Institute home. (Brown, 6a) Although a tour of ILC Dover is not possible, we have had presentations from designers who work at ILC. We also have several students who have parents employed by ILC. Students offer their insight into what type of work their parents do and enjoy hearing how it connects with something outside of the community they live in. Possibly there is a company or corporation that contributes to aviation in some capacity in your student's home town. This type of connection helps students understand how their community connects with the world around them.

911 - Aviation as an instrument of terror

Recently, the events of 9/11 were perpetrated by villains who took advantage of the awesome power of aviation. The world we live in is constantly in motion and aviation is part of that movement. I hope this learning experience will offer students a glimpse into how major events have influenced the community they now live in.

A suggestion to having students gain some understand of 9/11 is to have them interview someone on the impact 9/11 had on their life. For those that lived through the events that day, it is hard to find someone who was not impacted by what happened. Particularly for the families of Dover AFB. Many families had service members who had to put in extra hours on the base, fly missions around the world, or deploy to far away locations in support of the War on Terrorism. I share my story to the class about being home on the average of

only 6 days each month for the first year following September 11, 2001. I was a C-5 pilot at the time and suddenly every military unit needed something flown somewhere. Furthermore, at the end of one year I was gone for four months overseeing strategic airlift operations out of Qatar. It was a huge strain on my family.

However, my family is not the only one that was stressed. Many stories regarding the stress of deployments in support of Operation Enduring Freedom and Operation Iraqi Freedom exist all around Dover AFB. I have an article that I share from *Delaware Today* that tells three different stories regarding deployments after 9/11. (Medoff) All three reveal how deployments were very much a part of the families of Dover and still are today. The strain of long separations and frequent deployments are very much a part of the public history of Dover Delaware.

Having your students hear the story of someone in their family or a member of their community will help them learn that events have ripple effects. Possible they will gain a better understanding on how that day changed the lives of the people around them.

Strategies for the Class

Film Usage -

A technique I often use is that after showing a video I ask each student to bring back five questions that they had from watching the film or five facts that they feel are important to learn from the film. Then the next day the class when the class returns the class leader brainstorms with the class on the facts and agrees upon the listing of facts on a huge dry erase board. I have all the facts submitted to me first for participation points and then I forward to the class leader. This process is quick so I can quickly place the responsibility of the lesson back to the class. Often, the film I show is less than five minutes. However, another strategy I use, if time permits, are full length films. For example, the showing of "The Right Stuff" which is based upon Tom Wolfe's novel, is a fantastic video history of the space race. The movie does have a PG-13 rating if you find the newer DVD version. At the time of the original production the PG-13 did not exist. Regardless, I send a form home with the students to gain parent approval since there is a masturbation scene that depicts the requirement for a semen sample from one of the potential Mercury Astronauts. If you have not seen the film before make sure you watch this seen ahead of time so you can evaluate if it is appropriate for your students.

Activities for the Class

An essential part of the unit will be the visit to a museum nearest to the school. At POLYTECH, we have the luxury of having a museum right next to Dover Air Force Base (DAFB). In fact, the Dover Air Mobility Center (AMC) Museum used to be located on DAFB however after the events of 9/11 the fence surrounding the museum was moved and the boundaries of the base no longer include the museum. This was done after so many people complained about access to the museum when the base was decided it was no longer open to visitors after 9/11 essentially removing access to the museum. Now the museum is open to all again. It contains an exhibit that describes the beginnings of Dover AFB as well the development and changing mission

of the base. It also is able to capture how the development of the base and the mission of the base impacted the City of Dover and Kent County Delaware.

Walking Tour

If a tour that is applicable to where your students live then consider the use of a walking tour. After adjusting for weather, time of year, age of your students and other logistical issues, if a tour is possible there may be knowledge to be gained. With the notion that it must be fun or the students will quickly get off track, consider what can facilitate fun for the class. The facilitator of the tour plays a large role so choose wisely. If unable to find the right guide then make clear objectives for the tour and look for a carrot at the end - ice cream? Also, a mission for the students may keep all on track. For example, if a monument or building is being debated for construction in your community then introduce this problem to the students and then explain why the tour will gain knowledge so they can submit a proposal to city officials a suggestion. This forces the class to play a role in a real life problem.

Finally, the unfortunate consideration of logistics needs to be weighed. For example, if a mode of transportation is used that is not available at all times to your students then they will not consider revisiting because a barrier will always be in place. This is important for my AFJROTC classroom because it is crucial that they see themselves as citizens of the community. The awareness of the community that surrounds them makes for a better prepared person and a more knowledgeable citizen.

For my students I am going to coordinate a visit to Wallops Island, VA. Wallops Island is used by NASA for research and rocket launches. It was established in 1945 and since its opening over 16,000 launches have occurred at the facility. Today it is the premiere facility used by NASA for sub-orbital launches employing over 1,000 full time employees. (NASA: Wallops Island) It is located just south of Delaware on the eastern shore in Accomack County, Virginia. It can be reached from my school in less than 2 hours by car. Fortunately, I have the ability to take a school van that holds 8 students and Wallops Island has walking tours available for groups of 8 or more. If my numbers get larger I will seek the support of a parent to drive another van.

I have always wanted to take a small group to this NASA facility and this unit has motivated me to make the arrangements. I will arrange for the trip to occur at the end of our unit when we are discussing space exploration. Prior to leaving we will look at the facility and the location on google maps and discuss why that location was chosen by NASA. I do know that is not a very populated area. The entire county of Accomack VA, is just over 33,000 and has not changed much from that number since World War II. It is also not too far from Naval Air Station Norfolk VA so possibly there is some military support involved. It is also not too far from support agencies at Washington, D.C. Hopefully the trip will reveal more about the location selection and its involvement with the community it resides in. My students are very active and after walking the facility I plan on stopping in town for lunch to learn more about the community around Wallops Island and see if my students observe any connections.

Oral History Exercise

This has proven to be a challenging element in the unit. For many students this will be their first time interviewing a subject matter expert. Create 8 to 10 questions and conduct a practice session with other students. In the end someone must be interviewed - keep questions open ended because you are not sure where the interview will go.

Guidelines:

Development of questions - Start with a brainstorming session whereas students offer questions they would like answered. This will help your students to start think about the project. Write on board and see how many are offered. Afterwards try to whittle the list down to 8 to 10 questions that the class agrees upon. Help steering the questions but make sure they are from the class and not you.

Who is interviewed - This is a critical part if you do not live near a military base. If you live near a military facility chances are many of your students have a story to tell on why they live where they do. For those that do not have a prior service member in the family I suggest finding someone in the community who moved their due to a military incident. However, if the community involved is NOT near a military facility then different course of actions must be taken. Possibly an interview can be done a family member with the intent on finding out they history of their own family and why they live in the community they live in. Another suggestion is emailing the public affairs officer at a military base and requesting service members that the student could email for an interview. A simple 'google' of Public Affairs Office at any military installation will result in a contact that can help. In the end, the person interviewed should be someone that can talk about how aviation events effected where they now reside.

Final Product - Ultimately each teacher can decide what they want as a final product. My suggestion is a typed product that has each questioned listed with a response. Then a summary paragraph by the student that captures what was learned by the experience. Finally, each student should take a five minutes to brief what they learned to their fellow classmates. The chance to verbalize their findings will help students articulate and possibly facilitate a discussion in class. In my AFJROTC classroom leadership development is critical. Being able to speak to their peers and lead a discussion helps students become a better leader. The experience can be enhanced by inviting parents to the event. Another option is a short film by each student that can be shown to the school. Lastly, each student could produce a short video of themselves explaining the experience they had which could be shown at any time and saved as a collection of classroom history. Latitude is certainly in place hear but the opportunity to share for future students while capturing personal history is fundamental to the exercise.

Test? Certainly not mandatory however this is my process

When I teach these events I go through each event one at a time. I do not test them on the knowledge until the unit is complete. Then I have the entire class involved in a test building session. This is process that my AFJROTC cadets are very familiar. It involves the class leader asking for facts from the class that they think every student of aviation should know and then put the fact on a dry erase board. My expectation is that if the

fact is on the board then the students are responsible for knowing it. I then take a photo of the board and print a copy for each student. Students are also allowed to take a picture themselves. The following day I simply hand out a sheet with the major events listed and the list of agreed upon facts. Most of the students do very well because they took ownership of the test. In fact, a score of 100% is very common. I am not concerned about the inflated grade. I make the test building day fun by handing candy to the best facts and for the most enthusiasm. I also have the class vote on facts that are suggested that I think are weak and almost every time the students dismiss the easy fact that was suggested. My class loves the process and in the end they are more knowledgeable about aviation.

Summary of Unit

Enduring Understandings Students will strive to make a connection with major aviation events and the community they live in.

Additionally, students will focus on a Common Core Standard:

- *Common Core Social Studies/Literacy Standard CCSS.ELA-LITERACY.RH.11-12.9.*

Your students should be able to:

- *understand how if the community they live in was shaped by aviation*
- *visit a local museum to explore local history*
- *define major aviation events of the last century*
- *explain the impact of major historical events and the consequences to the community they live in*

Questions for the students of POLYPTYCH

- What are the major aviation incidents of the last century that have had an impact to the development of Kent County Delaware?
- Do you personally have hereditary linkage to someone who was affected by a major aviation incident?
- Do you reside in Delaware due to a military relocation?
- How do large aviation events effect smaller movements in local communities?

Suggested Reading List

Title	Author
Aerospace: the Journey of Flight	Jeff Montgomery, ed.
Aviation History pp 7-50 to 7-55, 7-62 to 7-66, 8-56 to 8-58	Anne Millbrooke
Journey into Aviation History	Linda Sackie, ed.
History of Dover Air Force Base	Kennard Wiggins
The Dream of the Dirigible The Atlantic Monthly, pp 1-30	Megan Garber

Bibliography

Air University. *Mission Statement*. Retrieved from <http://www.au.af.mil/au/holmcenter/AFJROTC/AboutJROTC.asp>, 2014.

Brown, Jeff. *Restoration work to begin on Delaware's historic Apollo 11 spacesuit*. The Dover Post. Dover, DE, 29 July, 2015.

Bulach, C. R. *A comparison of character traits for JROTC students versus non-JROTC students*. Retrieved from <http://www.westga.edu/~cbulach/>, 2014.

Common Core: States Standards Initiative. *Implementing the Common Core State Standards*. Retrieved from <http://www.corestandards.org/>, 2014.

Cowan, Ruth S. *A Social History of American Technology*. Oxford University Press. New York, NY, 1997.

Craven, Joseph. *The Forward Pass*. Retrieved from <http://theboat.net/2011/10/26/the-forward-pass/>. October 2011.

Delaware Today.

<http://www.delawaretoday.com/Delaware-Today/February-2013/Seaford-Nylon-Plant-Pioneered-Parachute-Innovation-During-World-War-II/>, retrieved July 2015.

Garber, Megan. *The Dream of the Dirigible*. The Atlantic Monthly. Retrieved from

<http://www.theatlantic.com/technology/archive/2012/05/the-dead-dream-of-the-dirigible/256758/>

Mitchell, Naomi. *Leadership Education I: Introduction to Air Force Junior Reserve Officer Training Corps (AFJROTC)*. Maxwell AFB AL: Air Force Junior ROTC, 1998.

Haulman, Daniel L. *One Hundred Years of Flight: USAF Chronology of Significant Air and Space Events*. Air Force History and Museums Program, Air University Press, Maxwell AFB, 2003.

Hawk, Alan. *Delaware Birdmen: The Wilmington Aero Club and the Deplane, 1910-1912*. Delaware History. <https://www.academia.edu/2323388/>

Hiam, C. Michael. *Dirigible Dreams: The Age of the Airships*. University Press of New England. Lebanon NH, 2014.

Medoff, Theresa G. *Delaware At War*. Delaware today.com. Retrieved from:

<http://www.delawaretoday.com/core/pagetools.php?pageid=6268&url=%2FDelaware-Today%2FJanuary-2007%2FDelaware-At-War%2F&mode=print>,

Anne. *Aviation History*. Jeppesen. Englewood, CO, 2006.

NASA:Wallops Island. Fact Sheet. Retrieved from

<http://www.nasa.gov/sites/default/files/files/WD13-065-001WallopsFactSheet2014.pdf>

Orna, Mary V. *Polymers*. Department of Chemistry. Retrieved from http://chemmovies.unl.edu/chem_source_pdf/POLY.pdf. College of New Rochelle. New Rochelle, NY. 1994.

Overy, Richard. *1941-1945 War in the Pacific*. Carlton Books Limited. London, England. 2010.

Powell, Alvin. *How Sputnik Changed US Education System*. Harvard Gazette. Retrieved from <http://news.harvard.edu/gazette/story/2007/10/how-sputnik-changed-u-s-education/>, Linda, ed. 2007.

Aerospace Science: A Journey into Aviation History. Boston, MA: Pearson Custom Publishing, 2007.

Taylor, Alan. *Airships*. The Atlantic. Retrieved from <http://www.theatlantic.com/photo/2013/10/airships/100607/>

The First Nylon Plant. American Chemical Society. Retrieved from

<https://www.acs.org/content/dam/acsorg/education/whatischemistry/landmarks/carotherspolymers/first-nylon-plant-historical-resource.pdf>

History of Dover Air Force Base and the Heritage of the 436th Airlift Wing. Genealogy Center, Fort Wayne, IN http://www.genealogycenter.info/military/directories/viewpage_doverairbase.php?realpage=30&display=06

Trimble, William F. *High Frontier: A History of Aeronautics in Pennsylvania*. University of Pittsburgh; Pittsburgh, PA: University Pittsburgh Press, 1982.

Wilder, Billy. *Spirit of St. Louis: The Movie*. DVD. Directed by Billy Wilder. Los Angeles, Warner Bros., 1957.

Wolfe, Tom. *The Right Stuff*. The Movie. DVD. Directed by Philip Kaufman. Los Angeles, Warner Bros. 1983.

<https://teachers.yale.edu>

©2023 by the Yale-New Haven Teachers Institute, Yale University, All Rights Reserved. Yale National Initiative®, Yale-New Haven Teachers Institute®, On Common Ground®, and League of Teachers Institutes® are registered trademarks of Yale University.

For terms of use visit https://teachers.yale.edu/terms_of_use