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Teaching Guide

SEGMENT 1, WEBISODE 11

Please note: Each segment in this Webisode has its own Teaching Guide



Segment Overview

Orville and Wilbur Wright, after years of careful research and planning, fulfilled a dream that had eluded man for thousands of years: they flew. The two brothers, who owned a bicycle shop in Dayton, Ohio, built and flew the world's first manned, power-driven, heavier-than-air flying machine at Kitty Hawk, North Carolina, on December 17, 1903.

The Wrights, who received no corporate or government sponsorship, succeeded where others had failed by persistent, methodical research and experimentation. When they realized through experimentation with gliders that some of the scientific data used by other would-be fliers was flawed, they built a state-of-the-art wind tunnel and conducted over two hundred experiments. After creating the first effective heavier-than-air craft, the 1902 glider, they developed a gasoline engine and designed the 1903 *Wright Flyer*. While the press and public were initially skeptical of their carefully documented accounts, wondering if the brothers were “flyers or liars,” the Wrights eventually received the recognition they deserved. Wilbur died of typhoid fever in 1912, but Orville lived until 1948, long enough to realize they had been fundamentally wrong about only one thing: their flying machine did not bring an end to war.

Teacher Directions

1. Students, in small teams, discuss the following questions.
 - Why do you think people have dreamed of flying since ancient times?
 - Why did the Wright brothers succeed where others had failed?
 - Where did they practice flying, and why?
 - How did people respond at first to the Wright's success?
 - What did the Wrights get wrong?
2. Make sure students understand the following points in discussing the questions.

People have envied the freedom of flight since ancient times, and mankind has tenaciously sought faster and easier methods of transportation. The Wright brothers succeeded after several years of careful research and experimentation. They studied the successes and failures of those who had attempted flight before and even discovered that some of the accepted scientific data was incorrect. They chose Kitty Hawk, North Carolina, for their flights because it had soft sand, steady winds, and no trees. Many



Let's Discuss

Let's Discuss, Cont.



History Sleuth

people—including experts—were skeptical of the brothers' achievements until public demonstrations proved their claims. The Wrights optimistically believed that airplanes would make war obsolete because they would remove the element of surprise. In this they were wrong; flight escalated humankind's arsenal of weapons of mass destruction.

Teacher Directions

Activity One

1. Distribute the Student Sheet: *Wright Flight Activities* and an index card to each team of students. Explain that to better understand the Wrights' achievement and the principle of scientific experimentation, students will conduct two experiments that illustrate an important principle of flight.
2. Allow students several minutes to conduct the experiments. Discuss the results. Ask students.
 - Did these experiments work?
 - How do these principles relate to flight?
 - What if the Wright brothers had never pursued their interest in flight?

Activity Two

1. Distribute the Student Sheet: *Wright Flight—Is it Really True?*
2. After reading the articles praising and doubting the Wright brother's flight, students write and illustrate their own newspaper article. Students may take either the "fliers" or "liars" position.

Teacher Directions

1. Pose the following writing prompt to the students.

Early flight posed many dangers, and several men crashed and died trying to fly. Even after their successful flight, many people did not believe the Wrights could fly. Would you have flown in one of the Wright brothers' early airplanes? Why or why not? Write a journal entry that answers these questions.



What do you
Think?



Moving Toward
Freedom

Teacher Directions

1. Distribute the Student Sheet: *Elwood "Pete" Quesada, Aviation Pioneer*. Working with teammates, students read about this Hispanic aviation pioneer.

When the United States entered World War II in 1941, Quesada played an important role in helping use air power effectively. Quesada believed air power should be used for more than just bombing missions. He pioneered close communication and support between air and ground forces. As a brigadier general in North Africa and as commander of the 9th Fighter Command, he helped American forces defeat Hitler and his allies.

2. Students discuss: How did Elwood "Pete" Quesada help America move toward freedom?
3. Students design a commemorative stamp celebrating the aviation achievements of "Pete" Quesada.

Teacher Directions

Use the following activities with your students.

Language Arts — Students read one or more of the following sources and create a poster commemorating the Wright Brothers: *Cobblestone Magazine*, *The Wright Brothers*; *The Wright Brothers at Kitty Hawk* by Donald Sobol; *How We Invented the Airplane: An Illustrated History* by Orville Wright; or *The Wright Brothers: How They Invented the Airplane* by Russell Freedman.

Media/Dramatic Arts — Students watch video clips from *The Wright Stuff*, *The American Experience* (PBS) or *America 1900* (PBS). Students create a skit dramatizing the achievements of the Wright brothers.

Technology/Library — Students visit web sites devoted to the Wright brothers and view brief movie clips of early flights.

Writing — Students write a news flash about the first flight of the Wright brothers.



Connections

Wright Flight—Is it Really True?



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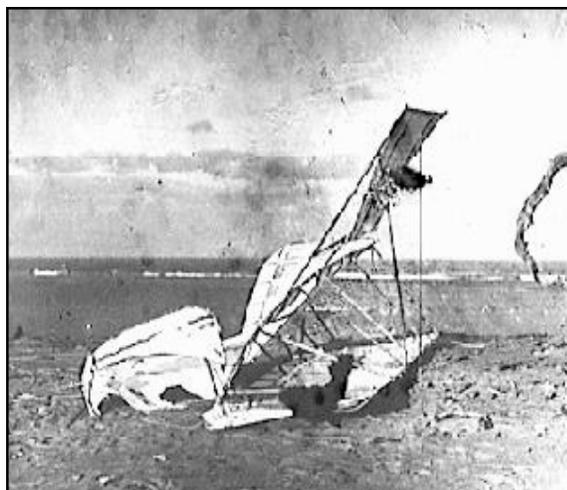
Even after the Wrights carefully documented their flights with diaries, photographs, letters, and eyewitnesses, many people doubted their achievement. And some people didn't realize how tremendously important their discoveries were! When they sent a telegram home to their father announcing their successful flight and ending with a note that they would be home for the holidays, the local paper only reported that "the Wright brothers will be home for Christmas."

The first published reports of their flight appeared in a most unlikely place: a beekeeping magazine! The editor of *Gleanings in Bee Culture* wrote,

Dear friends, I have a wonderful story to tell you—a story that, in some respects, outrivals the Arabian Nights fables... God in His great mercy has permitted me to be, at least somewhat, instrumental in... introducing to the great wide world an invention that may outrank electric cars, the automobiles, and all other methods of travel...It was my privilege, on the 20th day of September, 1904, to see the first successful trip of an airship...that the world has ever made...there was not another machine equal to such a task as I have mentioned, on the face of the earth.. (It was) the grandest sight of my life.

On the other hand, the famous magazine *Scientific American* doubted that the Wrights were telling the truth, even after the brothers held several demonstration flights outside their hometown of Dayton, Ohio. A reporter for the *Scientific American* wrote,

It seems that these alleged experiments were made at Dayton, Ohio, a fairly large town...If such sensational and tremendously important experiments are being conducted in a not very remote part of the country, on a subject in which almost everybody feels the most profound interest, is it possible to believe that the enterprising American reporter... would not have...published them... long ago?



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Elwood “Pete” Quesada, Aviation Pioneer



Elwood “Pete” Quesada

Photo courtesy of the American Forces Press Service

“Pete” Quesada was born just a few months after the Wright brothers flew at Kitty Hawk, North Carolina, to a Spanish father and an Irish-American mother. As a teenager, he saw how the demands of World War I led to faster, more complex planes. At the beginning of the war, planes were used only to scout enemy positions, but as the war progressed, planes were armed with bombs and rockets. Improvements were made to allow planes to travel further distances. But pilots faced a persistent problem: a plane could only fly as far as its fuel tank would allow. Pilots had to keep one eye on the fuel gauge to keep from running out of fuel.

Quesada entered the Army Air Service after his high school years, and learned to fly. After a few years, however, the army had no job for him, so he returned to civilian life, playing professional baseball for the St. Louis Cardinals.

But he longed to return to the air, and received a commission in the army in 1927. He was stationed at Bolling Air Force Base, an exciting place at that time. At Bolling, outside Washington, D.C., pilots and engineers were developing important and exciting new aircraft technology. They wanted to solve that problem of flying only as far as the plane’s fuel tank would allow.

With two other men, Quesada helped develop an air-to-air refueling system. They outfitted a plane on January 1, 1929, called the *Question Mark*. They didn’t land until January 6--- five days later! For five days, the three men took in fuel, oil, water, and food from another plane that passed a hose in flight. The crew made thirty-seven mid-air transfers and flew 11,000 miles without stopping. Today, air-to-air refueling is almost routine.

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