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Go to [www.aopa.org/path](http://www.aopa.org/path) for student worksheets.

**CORE SUBJECTS: HISTORY, SOCIAL STUDIES, RESEARCH**

**EVERY STUDENT NEEDS A HERO**, someone to look up to, someone who can teach them the lessons of life by tackling its adventures and overcoming its challenges. As a teacher, you do that every time you step into a classroom. Exploring the world of aviation also provides ample opportunities to highlight the extraordinary pioneers—scientists, mathematicians, inventors, builders, and of course, pilots—who laid the groundwork for modern flyers.

**STUDENTS CAN FIND OUT MORE ABOUT THESE PILOTS AND PIONEERS AND THEIR INDIVIDUAL ACCOMPLISHMENTS AND CONTRIBUTIONS TO AVIATION FROM YOUR SCHOOL LIBRARY OR ON THE INTERNET.**

**Leonardo da Vinci (1452-1519)** was the first person to study the problems of flight scientifically. He was fascinated with flapping-wing aircraft called ornithopters, which use the same principles of flight that birds use. He also conceived potential designs for helicopters, propellers, and a parachute.

**Sir Isaac Newton (1643-1727)** developed theories of motion that formed the basis for principles of flight centuries later.

**Daniel Bernoulli (1700-1783)** developed one of the underlying principles of airplane wing design, the Bernoulli Effect, in which any increase in the velocity of a horizontal fluid flow results in a decrease in the static pressure.

**Sir George Cayley (1773-1857)** is known as the “Father of Modern Aviation.” He formu-

lated the basic principles of aeronautics upon which modern flight is founded. Cayley built and flew the world’s first practical and successful airplane—a model glider—in 1804.

**Wilbur (1867-1912) and Orville Wright (1871-1948)**, with the availability of the internal combustion engine, designed a control system for airplanes. The brothers’ accomplishment marked the first time that lift, power, and control were combined to enable the first controlled and sustained flight—which took place using their *Wright Flyer* in December 1903.

**Florence “Pancho” Lowe Barnes (1901-1975)** organized the Women’s Air Reserves in 1934 to fly aid to victims of national emergencies; she also established the Civilian Pilot Training program.

See an expanded list of aviation pioneers at [www.aopa.org/path](http://www.aopa.org/path) under “Classroom Tools”.

**Harriet Quimby (1875-1912)** became the first American woman to earn a pilot's license and was the first woman to fly across the English Channel.

**Charles Lindbergh (1902-1974)** was best known for accomplishing the first solo, non-stop transatlantic flight from New York to Paris in 1927. He covered the distance of 3,610 miles in 33 hours, 30 minutes.

**Amelia Earhart (1897-1937)** was the first woman to fly solo across the Atlantic Ocean, and the first woman to fly nonstop across the U.S..

**Bessie Coleman (1892-1926)** was blocked from learning to fly in the U.S. so she went to Europe. In 1921 "Queen Bess" became the first black woman ever to earn a pilot's license. She returned to the U.S. and began to teach other African-Americans how to fly.

**Clyde Cessna (1879-1954)** launched the aircraft manufacturing company bearing his name in 1927. Cessna produced its 150,000th single-engine piston aircraft in July 2004.

**William T. Piper (1881-1970)**, was considered "the Henry Ford of aviation," he mass produced affordable aircraft and popularized the use of airplanes as a method of transportation.

**Chuck Yeager (b. 1923)** was the first pilot to exceed the speed of sound in level flight, which he accomplished in a Bell X-1 in 1947.

**Willa Brown (1906-1992)** was an aviator, educator and activist, she helped establish

the first all-black flying school – which helped train pilots for World War II. She was the first African-American woman to earn a commercial pilot's license.

**The Tuskegee Airmen**, or the 99th Fighter Squadron and 332nd Fighter Group, were composed of African-American pilots who fought with great success in World War II—they never lost a bomber under their escort to enemy fighters.

**Elwood R. "Pete" Quesada (1904-1993)** developed the concept of close air support for military ground forces and literally wrote the book in 1943 for the Army on how to employ air power. He was the first head of the Tactical Air Command and one of its few Hispanic three-star generals. Quesada was the first head of the Federal Aviation Administration.

**Neil Armstrong (b. 1930)**, a civilian test pilot and NASA astronaut on the Apollo 11 mission, was the first person to set foot on the moon, in July 1969.

**Alan (b. 1962) and Dale Klapmeier (b. 1963)** founded Cirrus Design aircraft company in 1984, which would go on to certify, in 1998, the first single-engine production airplane to have a whole-aircraft parachute recovery system.

**Eileen Collins (b. 1956)** was the first woman to pilot a space shuttle, and the first to be selected as commander of a space shuttle mission.

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**ACTIVITY:** Who in the aviation world?

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**TEACHERS:**

Use the names below as sample subjects when teaching students basic research skills. Add pilots or aviation innovators to your lesson plan for different periods in history. See an expanded list of aviation pioneers at [www.aopa.org/path](http://www.aopa.org/path) under “Classroom Tools”.

Leonardo da Vinci  
Sir Isaac Newton  
Daniel Bernoulli  
Sir George Cayley  
Florence “Pancho” Lowe Barnes  
Wilbur and Orville Wright  
Harriet Quimby  
Charles Lindbergh  
Amelia Earhart  
Bessie Coleman  
Clyde Gessna  
William Piper  
Chuck Yeager  
Willa Brown  
The Tuskegee Airmen  
Elwood R. “Pete” Quesada  
Neil Armstrong  
Alan and Dale Klapmeier  
Eileen Collins

**MATERIALS:**

Internet search engines, school library or media center resources, magazines, newspapers, any and all research sources available.

**WHAT TO DO:**

- ▶ Have each student identify a pilot or aviation pioneer in whom they have some interest.
- ▶ Ask each student to research that individual and provide an oral or written report back to the class.

**DEVELOP A LIST OF QUESTIONS FOR STUDENTS TO ANSWER. YOU MAY WANT TO INCLUDE THE FOLLOWING:**

- ▶ What aviator did you choose to research?
- ▶ What contribution did this person make to aviation?
- ▶ Why did you select this person? What personal qualities or actions did you find most worthwhile?
- ▶ Did this person overcome some obstacle to accomplish whatever they did? If so, what was it?
- ▶ For inventors, how is whatever this person invented or discovered used in flying today?
- ▶ If you could invent something, what would it be and why?
- ▶ If you could be first in doing something, what would you do and why?
- ▶ Think of an idea in aviation and explain its benefits and challenges.