

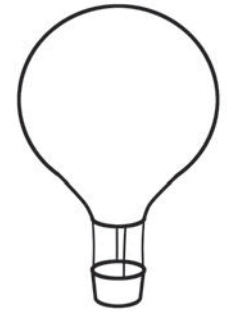
A Short History of Flight

As far back as the year 1500, the inventor and painter Leonardo da Vinci drew airplane-like machines. He never built any of them, but he inspired other inventors.



Hot-Air Balloons

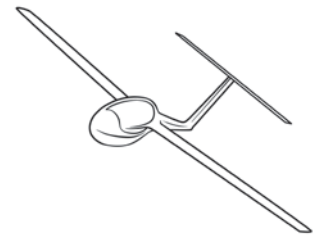
Since about 250, hot-air balloons were used as military signals in China. In 1783, brothers Joseph and Étienne Montgolfier had the idea of sending people up in a hot-air balloon. No one knew if there was air that far above Earth's surface. And, if there was air, was that air safe to breathe? Onlookers were amazed and shocked when it worked.



Bernoulli Principle

The hot-air balloon was a step forward in air travel, but the balloon could only drift in the wind. Inventors wanted a machine they could control. Serious inventors knew of the work of Daniel Bernoulli. In 1738, Bernoulli realized that the way air flows past a curved wing pushes or lifts it into the air.

Using Bernoulli's principle, British experimenter Sir George Cayley designed several gliders. A glider depends on wind to move and stay aloft. A glider has no engine, but it can be steered. In 1849, Cayley launched a glider that carried a 10-year-old boy a short distance. That was the first time a glider had flown with a person onboard.



Cayley's work inspired Otto Lilienthal, a German engineer. By 1896, he had made about 2000 glider flights. Lilienthal added an engine to power his glider, but it crashed, killing him.

Orville and Wilbur Wright

This tragedy frightened off many aircraft builders, but not American inventors Orville and Wilbur Wright. They were determined to add power to their gliders. In 1903, the Wright brothers became the first people to fly in a controlled and powered aircraft.



Better fighter aircraft were needed during World War II. In the early 1940s, airplanes became jet propelled. Today they are used to fly people for business or pleasure. They are also used to deliver goods around the world.



"A Short History of Flight"—Think About It!

1. Complete the timeline below to summarize information from "A Short History of Flight."
(Use bullet points to list accomplishments.)

When	Who	Accomplishment

2. What do you think flight will be like 50 years from now? List your predictions on another piece of paper.

ANSWERS

A Short History of Flight, pages 6–7

1. Sample answer:

When	Who	Accomplishment
250	People in China	- launched unmanned hot air-balloons as military signals
1500	Leonardo da Vinci	- drew airplane-like machines
1738	Daniel Bernoulli	- stated Bernoulli's principle, which explains how wings create lift
1783	Joseph and Étienne Montgolfier	- launched the first hot-air balloon with passengers
1849	Sir George Cayley	- flew the first glider with a person onboard
1896	Otto Lilienthal	- made about 2000 glider flights
1903	Orville and Wilbur Wright	- first to fly in a controlled and powered aircraft