Name: _____ Date: _____

Twelve Seconds at Kitty Hawk

Reading level 8 (4th grade) · 720 words

Look at an old photograph from December 17, 1903. A strange wooden machine has just left a rail on a beach. It is a little way above the sand. Orville Wright is the pilot. His brother Wilbur stands by the wing and watches. A man named John Daniels took the picture. That morning, an engine carried a pilot through the air.

Wilbur and Orville came from Dayton, Ohio. In 1892 they opened a bicycle shop there. They sold bicycles and rented them. They sold parts, too. The National Park Service says they were more than lucky mechanics. It says they got there by study and by experiment.

In 1896 the brothers built a bicycle of their own. They named it the Van Cleve. They made the wheel hubs themselves and bought most other parts. By 1900 they had built about 300 bicycles. In 1898 they made a coaster brake with a machinist named Charlie Taylor. He would help with something much bigger later.

A story often told goes like this. In 1899, Wilbur twisted an empty cardboard box in the shop. It was the long, thin kind that held a bicycle inner tube. He pressed two opposite corners. The other two corners moved the other way, and the box kept its shape. Twisting the tips of a wing the same way could help a flying machine turn.

The brothers tried the idea on a kite. Control lines let a person on the ground twist the wing tips. In late July 1899, Wilbur flew the kite, and it worked. Pulling the lines made it move from side to side. Next, they wanted a machine big enough to carry a person.

They chose Kitty Hawk, North Carolina. It had strong, steady winds that blew in from the sea. It also had sand dunes, which made a soft place to land. Their newest machine was called the Flyer. It was too big to put together in Dayton, so they shipped the parts to the beach.

The Flyer was a biplane, with two wings, one above the other. It was made of wood and covered with thin cloth called muslin. From tip to tip it was about 40 feet. Two propellers sat behind the wings. The brothers built the engine with Charlie Taylor. The engine alone weighed about 200 pounds. The whole Flyer, with no pilot, weighed 605 pounds.

The morning of December 17 was cold and windy. Wheels would sink in the soft sand. So the Flyer sat on a 60-foot wooden rail. When the engine was running, the brothers let go of the Flyer. It slid down the rail until it lifted into the air.

Orville flew first. The flight lasted 12 seconds and went 120 feet, about three times the width of the wings. The Flyer rose to about 10 feet. Orville found the front control hard to handle. The machine dove toward the ground. The Park Service calls them the first powered, controlled flights of a machine heavier than air.

Wilbur flew next. He went about 175 feet in 12 seconds, by Orville's estimate. Then Orville flew again, for 15 seconds and 200 feet. A strong gust lifted the left wing as high as perhaps 14 feet. Orville twisted the wing tips and used the other controls to bring it down. The twisting idea was at work.

The last flight was Wilbur's, at about noon. It lasted 59 seconds and went 852 feet, about 21 times the width of the wings. After a few hundred feet, Wilbur had better control. Then it pitched near a small hump of sand and hit the ground. The front frame broke. The main frame was fine.

How fast was that? Divide 852 feet by 59 seconds, and you get about 14 feet a second. That is close to 10 miles an hour over the ground. The brothers flew straight into the wind. So the air was rushing past the wings at 30 to 35 miles an hour. That rush of air is what held the Flyer up.

Back at camp, a gust of wind caught the Flyer on the sand and flipped it over. It was badly damaged. The Smithsonian's National Air and Space Museum says that it never flew again. The Flyer had flown four times, in one morning, on a cold beach.

Questions

1. What did the brothers do in Dayton, Ohio, before they flew?

A. They sold and built bicycles
B. They sailed small boats on the lake
C. They ran a farm with many animals

2. In the story, what could twisting the tips of a wing help a flying machine do?

A. Land on water without any sand
B. Carry much more fuel than before
C. Turn and stay balanced

3. Why did the Flyer sit on a rail?

A. The rail was there to block the cold wind
B. Wheels would sink in soft sand
C. The brothers wanted the Flyer to look taller

4. In "A strong gust lifted the left wing," what does gust mean?

A. A loud noise from the engine
B. A cold drink at camp
C. A sudden push of wind

5. How long was the longest flight of the morning?

A. 12 seconds
B. 59 seconds

C. 15 seconds

Words to know

muslin: thin cotton cloth
gust: sudden wind
kite: flying toy
propellers: spinning blades
rail: launch track

Answer key: Twelve Seconds at Kitty Hawk

1. A. They sold and built bicycles
2. C. Turn and stay balanced
3. B. Wheels would sink in soft sand
4. C. A sudden push of wind
5. B. 59 seconds