

The Powers of Flight!

Celebrate 10×10 (that's 100) years since the birth of the airplane using powers of 10.

Ever try to figure out how a toy of yours works? That's how the inventors of the airplane got their start! As kids, brothers Orville and Wilbur Wright had a toy propeller that flew when they twisted a rubber band that was attached to it.

Inspired by that toy, the brothers wanted to build a vehicle that people could fly in and control. As adults, the Wright

brothers built and sold bicycles in the spring and summer in their hometown of Dayton, Ohio. In the fall and winter, they traveled to the windy coast of North Carolina, the perfect place to test their experimental flying machines.

MY TURN!

On December 17, 1903, after years of testing kites and gliders, the brothers flew their first airplane. While other inventors had built powered planes that could get off the ground, the Wrights' craft was the first that also could be steered left, right, up, and down.

In the longest of four flights that day, Wilbur stayed in the air for 59 seconds at an average speed of 10 miles per hour (mph). Thanks to the Wright brothers and later inventors, some of today's planes fly over 1,000 mph! Work with **powers of 10** to learn more about these famous pilots from 100 years ago!

—by Tara Wachter

The Wrights' first flight



WEB WISE

Learn more about the Wright brothers at www.centennialofflight.gov/user/kids.htm



POWERS OF 10

►► When you multiply 10s together, the product is called a power of 10.

►► Powers of 10 can be written in number form or by using exponents, like this:

base \longrightarrow 10^3 \longleftarrow exponent

►► The exponent tells you how many of the base to multiply. (For 10^3 , multiply three 10s.)

EXAMPLE

$$10^3 = 10 \times 10 \times 10 = 1,000$$

WHAT TO DO:

►► Circle the power of 10 below that's equal to the one in the blank. The phrase next to the answer completes the sentence.

1. When the brothers first came to North Carolina, they stayed in a 10^5 .

- | | |
|---------|----------------------------|
| 10,000 | friend's barn |
| 50 | classroom in an old school |
| 100,000 | tent on the sand |

2. On December 14, 1903, Wilbur won a coin toss that let him pilot the first flight. Unfortunately, he didn't get far because 10^2 .

- | | |
|-------|---|
| 100 | he damaged the plane in a short flight |
| 20 | a huge storm stopped him from trying |
| 1,000 | he held off until witnesses could watch |

3. December 17 was a different story. After three shorter flights by both brothers that day, Wilbur had their longest flight: 10,000!

- | | |
|--------------|----------|
| 10^5 | 1 mile |
| 10^4 | 852 feet |
| $10^{1,000}$ | 20 feet |

4. The day after the successful flights, $(10^3 + 10^2)$ newspapers printed the Wrights' amazing story.

- | | |
|--------|-----------------|
| 11,000 | almost all U.S. |
| 10,000 | eleven |
| 1,100 | four |

5. By 1909, many people still didn't believe the airplane was real. To prove that it was, Wilbur flew a Wright brothers plane 1,000,000.

- | | |
|----------------|---------------------------------|
| 10^7 | above the White House |
| 10^6 | around the Statue of Liberty |
| $10^{100,000}$ | over a major newspaper's office |

TESTING 1-2-3

Now try this standardized test-type question!

The experiments leading up to their first successful flight would have cost the Wrights $(10^4 + 10^4)$ today.

- | | |
|--------------|------------------|
| (A) \$2,000 | (C) \$10,000 |
| (B) \$20,000 | (D) \$10,000,000 |

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