

Race to Kitty Hawk by Edwina Raffa and Annelle Rigsby takes the reader back to the beginning of the last century, when Wilbur and Orville Wright, two bicycle makers from Dayton, Ohio, became the first people to design, build, and successfully fly an airplane.

The story opens in November of 1903. Twelve-year-old Tess Raney and her older sister, Ellen, are riding in the Orphan Train. They, along with 30 other orphaned children, are leaving New York City, each looking for a new life and a new family. When the train pulls in at Dayton, Ohio, the Raney girls are fortunate enough to meet Miss Harriet, who runs a local boarding house. As it turns out, the girls' new home is on the same street as the Wright family.

Tess and Ellen settle into life in Dayton. They go to school and help Miss Harriet around the boarding house. Tess, who has a passion for kites, wants to buy materials to make one. To pay for her hobby, she gets a job at the local department store. She and Ellen also spend a good deal of time at the Wright home, where Katharine Wright, sister of Wilbur and Orville, tutors them. One day, while Tess is at the Wrights, Orville makes an unexpected visit from his experiments at Kitty Hawk. He and Tess, kindred spirits, strike up an immediate friendship. He helps Tess with her kite sketches and tells her all that he and his brother plan to accomplish with their flying machine. From that day on, kites, flying machines, and learning from Orville are all Tess thinks about. Life is good and exciting for Tess, save for one thing. She believes that one of the boarders at Miss Harriet's isn't really the good-natured photographer he pretends to be, but a wicked man secretly scheming to foil the Wrights' quest for flight. Putting her life in jeopardy, Tess takes great risks to ruin Hardwell's plans.

BACKGROUND

The Raney girls are fictional, but the Wrights were real. From childhood on, Wilbur and Orville Wright were passionate learners, with a special fondness for mechanical things. Before their historic first flight, the brothers had operated a printing press, then created their own press. They even started several local newspapers. They rented and repaired bicycles at their shop, then designed and built their own line of bicycles. But it was their interest in aerodynamics that led to their greatest accomplishment: flight. Recognizing that current data about flight was either incorrect or nonexistent, Wilbur and Orville performed their own experiments on boxes, gliders, and kites. They also tested various wings in a wind tunnel, keeping careful records of their calculations. One of the most useful things they learned is that bending (warping) wings helps control and sustain flight. The Wrights then applied all they had learned to their own manned flight. On December 17, 1903, the brothers flew their gasoline-powered Flyer four times, the longest flight coming in at under a minute. It doesn't sound like much by today's standards, but it was enough to change the course of history forever.

PRE-READING ACTIVITY

Before reading *Race to Kitty Hawk*, discuss with your class what they already know about the Wright brothers' historic flight. After sharing responses, read the title and tell them that much of the story takes place in the Wrights' hometown of Dayton, Ohio,

with the final scenes on Kitty Hawk, North Carolina. Show them these places on a map.

Questions for discussion:

- This story takes place in 1903. What else was happening in America around that time? What other inventions had been made by 1903? How did most people travel? Who was president?
- Do any students know about The Orphan Train? Share with them that The Orphan Train, which "ran" from 1854 to 1939, was one man's attempt to right the wrongs of poverty in New York City. Believing desperately poor and homeless children deserved a second, better chance at life, minister Charles Loring Brace collected funds to relocate poor New York City kids to rural America. Over its 75-year course, more than 100,000 children were sent west.

CURRICULUM CONNECTIONS – Literature • Social Studies • Arts • Writing • Math

After reading a few chapters of the book, discuss historical fiction as a type of literature, one that interweaves real and made-up characters and events. Point out that authors of historical fiction often let readers know in an introduction or postscript which events and characters are real and which are fictional. After students finish the story, be sure they read the postscript to learn about the actual events of this time period.

Engage the students in a discussion about how a reader can discern fact from fiction. Be sure the students understand that facts can be checked in reference books, newspapers, magazines, historical documents, and other official public records, as well as individual accounts such as journals, diaries, sketches, plans, and charts. Official reference sites on the Internet are also a good resource for the researcher.

QUESTIONS FOR DISCUSSION

- Wilbur and Orville Wright lived in Dayton, Ohio, yet they traveled all the way to Kitty Hawk, North Carolina to test out the Flyer. Why?
- The brothers had said they wanted their invention to work in the service of peace. Discuss the ways in which this hope came true. (Examples: travel and leisure; allowing peoples of various, distant cultures to learn about each other firsthand; further aeronautic developments, including helicopters, jets, and space travel.) Discuss how the airplane facilitated war. (Examples: dogfights in WWI; air raids/bombs; military transports; guided missiles.)
- What other inventions/technological advancements of the past century can students name? Have them list both positive and negative results of each.

SUGGESTED ACTIVITIES

1. Students will need a map and scale of miles to answer the following questions. Have them use a piece of paper or a pencil to measure the distances, then use the scale to estimate the number of miles.
 - How many miles is New York City from Dayton, Ohio?
 - If Tess's train traveled at 50-miles-per-hour, how long would the trip take? (Use the equation $\text{Time}=\text{Distance}/\text{Rate}$.)
 - How many miles is Dayton, Ohio from Kitty Hawk, North Carolina?

STUDY GUIDE

Race to Kitty Hawk

- If a person today were to fly from Dayton to Kitty Hawk, and the plane traveled at an average of 500 miles per hour, how long would the trip take? (Use the same equation.) Comparing the two numbers, discuss how the speed of air travel revolutionized business, travel, and leisure.
2. The Wright brothers received little or no press coverage of their experiments until years after their first flight. Editors were apparently skeptical of the claim that anything heavier than air could fly. Some journals, including *Scientific American* and *The New York Herald*, went so far as to call the Wrights' flights hoaxes. Have students pretend they are reporters in 1903. What arguments would they use to convince their bosses to run a story about the first flight . . . on the front page?
 3. The Orphan Train has a mixed legacy. Some point to the success of its mission. (Two of the children grew up to be state governors—North Dakota's Andrew Burke and Alaska's John Brady.) Others say it was a tragic social experiment, wrenching street kids from the world they knew. Have students consider their thoughts on the matter, then write a diary entry of a child their age riding the Orphan Train in 1903.
 4. Tess did things that stretched the boundaries of good behavior, such as entering Mr. Hardwell's room without permission. She even went beyond the bounds of self-preservation, risking her own safety by traveling to North Carolina alone. Ask students if there are situations when they think it would be okay to break a school or family rule. Would they break the rule anyway, even if they knew they would be punished? As a class, make a list of situations where students think it might be okay to break a rule. Divide students into small groups to perform skits about their ideas.
 5. The Wright Brothers Aeroplane Company and Museum of Pioneer Aviation (<http://www.first-to-fly.com/>) has information about various model kits, as well as free, downloadable plans for those who wish to make a Wright glider and kite. As these plans may well prove daunting for classroom application, try making old-fashioned paper airplanes instead. Decide on two or three airplane designs. (For those with access to the Internet, putting the phrase *simple paper airplane design* into the Google search engine will bring up plenty of good sites.) Settle on two or three designs, then divide the class into as many groups. Have students chart the distance of their planes, making whatever modifications they consider might give better results, such as adding paperclips to the nose or streamlining the overall design.
 6. Look at a North Carolina license plate and you'll see the motto, "First in Flight." Ohio's reads, "Birthplace of Aviation." For years, the two states have wrangled over just where aviation was born. A 2003 resolution by the United States Congress naming Dayton the winner of that debate left some North Carolina lawmakers pretty steamed. Said one, "The Wright brothers made their first flight at Kitty Hawk. The last time I checked, Kitty Hawk is still in North Carolina, not Ohio." Have students choose which state they think deserves the title. Then have them make oral arguments to the rest of Congress (the class), as to why a bill endorsing their view should be passed.



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