

## Close Reading Activity: Educator Guide

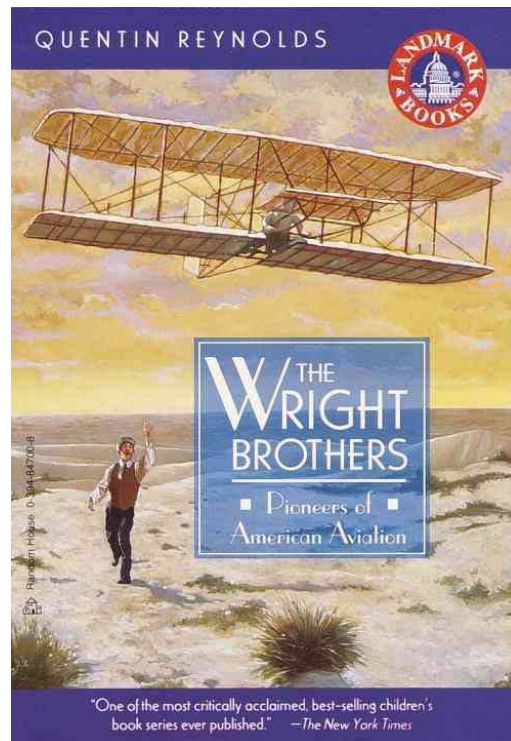
### Quentin Reynolds, *The Wright Brothers: Pioneers of American Aviation*

#### Book Description

Quentin Reynolds has crafted a biographical work about the Wright brothers geared to young readers. The work focuses on the early influences of the Wrights, their early inventions, influences from their parents, and how their childhood was the foundation for their later successes.

**Lexile:** 720L

**Instructions:** Students will answer the following comprehension and analysis questions on the [Close Reading Activity Worksheet](#).



#### Chapters 1 – 5

##### Vocabulary:

swoop: to move through the air in an up or down motion

resistance: the force of opposition put on an object, such as wind or friction

rudder: a movable device used to change the direction of a moving vehicle through water, snow, air, or another substance

swerve: to turn to the side suddenly

friction: resistance created when one substance rubs against another

##### Comprehension Questions:

- What inspired Wilbur to say that he would fly like a bird some day? *He and his brother saw a bird swoop down, pick up a fish, and fly off.* (p. 6)
- Why were the boys upset when they came back from sledding? *They were upset that their father had not built them a sled like the other boys' fathers.* (p. 10)

- Why did Orville and Wilbur’s mother introduce the concept of “wind resistance?” *She was helping them design a sled that would be fast because it reduced wind resistance. (p. 13)*
- What method did the Wrights devise to steer their new sled? *They designed a rudder to attach to their sled (pp. 26–27)*
- What did Mrs. Wright believe was wrong with the boys’ design to attach wheels to their wagon with an axle? *She thought that it would create too much friction. (p. 39)*
- How much did the boys get for their home-made kite? *Twenty cents (pp. 51–52)*

**Analysis Questions:**

- Why does the writer emphasize the story on the sled and wind resistance? *The writer argues that these childhood lessons on wind resistance may have planted the seeds of an interest in aerodynamics that later bloomed during their work on the Flyer. [CCSS.ELA-LITERACY.RI.6.2]*
- What evidence in the book suggests that the kite-flying experience was an important and formative period for the Wright boys? *Orville says, “Maybe we could make a kite big enough to lift us right up into the air.” [CCSS.ELA-LITERACY.RI.6.1]*
- What methods of experimentation did the Wrights use on their kite? *They adjusted the tail length and experimented with the bellyband. [CCSS.ELA-LITERACY.RI.6.1]*

## Chapters 6 – 8

**Vocabulary:**

horizontal: parallel to level ground

**Comprehension Questions:**

- How did Wilbur get injured playing hockey, and what was his injury? *He was hit with a stick when another swung and missed the puck. This hit knocked five teeth out and eventually caused an infection that required more teeth be removed. (pp. 55–56)*
- What type of hand-made gift did the Wright brothers make for their mother? *A wooden chair (pp. 59–60)*
- What was the reason for Orville and Ed Sines’s partnership? *They pooled their resources to start a small newspaper. (p. 62)*
- How did the Wright brothers put their inventive minds to work to help their father? *They built a paper-folding machine out of spare parts to fold papers for their father. (pp. 63–65)*
- What toy did Mr. Wright buy for Orville on his trip? *A toy helicopter (pp. 66–67)*
- How did Orville and Wilbur make the money they needed to get their newspaper out? *They hauled groceries around town. (pp. 75–76)*
- How much did Orville and Wilbur make by publishing and selling their newspaper? *They made about 15 dollars a week. (p. 79)*

**Analysis Question:**

- What do the habits and hobbies of the Wright brothers as boys indicate about their interests? *The Wright brothers were most happy when they were designing and fixing machines. They made a kite, a chair, a wagon, and even a printing press. Each time, they challenged themselves to solve problems in the effort. But once they had accomplished their goal and solved the problems, they swiftly lost interest. [CCSS.ELA-LITERACY.RI.6.1, 6.3]*

## Chapters 9 – 11

### Vocabulary:

over-confident: arrogant or reckless

carelessness: insufficient attention

### Comprehension Questions:

- How did Wilbur and Orville convince the bicycle manufacturer to let them sell spare parts for them? *They wrote to a major bike company in Springfield, MA, and impressed the owner. (p. 84)*
- What was the purpose of organizing a bicycle race? *The brothers thought that it would stir up attention for the bicycles they sold. (pp. 86–87)*
- Why did Wilbur tell Orville to stay behind during the first part of the race? *He knew that the riders in front would have to face the wind and would wear themselves out early. (pp. 92–93)*
- What did Wilbur say was the reason why Orville lost the bicycle race? *He claimed that it was “carelessness” that led to the disaster. (p. 96)*
- What name did Orville and Wilbur give their bike? *The Wright Flyer (p. 100)*

### Analysis Questions:

- Why were the brothers eager to get “every bit of dirt out of the hub” of the bike before the race? *They were applying what they learned about wind resistance and friction to bicycle racing. [CCSS.ELA-LITERACY.RI.6.4]*
- What were some of the short- and long-term consequences of Orville losing the bike race? *In the short term, the loss cost them the 10 dollars they spent on the prize. In the long run, the loss hurt their efforts at driving business to their bike shop. [CCSS.ELA-LITERACY.RI.6.1, 6.3]*

## Chapter 12 – 14

### Vocabulary:

typhoid fever: an infectious disease that can be fatal if untreated

fierce: very strong

inoculated: pretreated to prevent illness; vaccinated

delirious: a disturbed state of mind, usually from illness

physics: a branch of science concerned with matter and energy

### Comprehension Questions:

- When Wilbur first became sick, what did he suspect was the problem? *He thought he caught a cold flying the kite in the rain (p. 111)*
- What types of things did Wilbur say while he was home sick? *He said things like “wind pressure” and “vertical air currents,” which meant nothing to his sister Kate. (p. 114)*
- What book did Orville read to Wilbur while he was recovering from his illness? *He read Otto Lilienthal’s Experiments in Soaring. (p. 116)*
- What made Otto Lilienthal’s efforts at mastering flight different from those others attempting the same thing? *People like Professor Langley and Octave Chanute were not flying their machines like Lilienthal was. (p. 123)*

*This activity was funded by a Library of Congress Teaching with Primary Sources Grant.*

- How did the brothers initially find out about Kitty Hawk, NC? *They wrote to the Smithsonian Institution and asked for a list of places that have consistent wind and no trees. (pp. 133–134)*

**Analysis Question:**

- What observations did Orville and Wilbur make in the period after Wilbur’s recovery that convinced them that powered flight might be possible? *They began to realize that the wings of birds were not flat like their kites, but rather curved in a special way. They also began to see smaller and smaller engines used on automobiles. [CCSS.ELA-LITERACY.RI.6.1]*

## Chapter 15 – 18

**Vocabulary:**

horsepower: a unit of measure to describe the pulling power of an engine

**Comprehension Questions:**

- Which of the two brothers was the first to pilot the glider in Kitty Hawk? *Orville (p. 138)*
- What convinced the brothers that they should lie down on the wing rather than sit up, as Lilienthal had done? *They remembered what their mother taught them about wind resistance and what they learned from bike racing. (p. 138)*
- Where did the Wrights attach the rudder they designed, and why? *They attached the rudder to the front of the glider so that the pilot could easily operate it. (p. 143)*
- Why were the Wrights reluctant to climb high up in the air with their glider? *They knew that falling from 10 or 20 feet would be dangerous but not nearly as dangerous as falling from 100 feet. (p. 152–153)*
- Why did the Wrights feel that many people would not take their efforts seriously? *Many people were still saying that manned flight was not possible. (p. 156)*
- How did the Wrights test the ability of their flyer to hold the weight of an engine? *They added a 100-pound sack of sand. (p. 157)*

**Analysis Question:**

- What does the author mean when he says that the glider the Wrights designed was “the first glider that had conquered the air”? *The statement means that the Wrights had designed a glider that could change direction by manipulating how the air flowed around it. [CCSS.ELA-LITERACY.RI.6.4]*

## Chapter 19 – 20

**Vocabulary:**

hysterical: in a state of great excitement

**Comprehension Questions:**

- Why were the Wright brothers famous in Europe before they were famous in their hometown of Dayton? *Many people did not believe that flight was possible, but Mr. Chanute had made efforts in Europe to convince them that the Wrights had actually flown. (p. 171)*
- What did the English and French men who wanted to purchase the flying machines plan to do with them? *They wanted to use them for military purposes. (p. 175)*
- What did the generals and other officers that attended the flying demonstration in Virginia think of the Wrights’ invention? *They were very impressed and eager to use the machine. (pp. 180–181)*

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**Analysis Question:**

- What do the reactions of the military men suggest about their intentions? *They were very excited about the airplane and what it was capable of. This suggests that they saw military applications for the airplane from this early date.* [CCSS.ELA-LITERACY.RI.6.1, 6.3]

## Using Sources

In this activity, students are encouraged to learn more about the sources Reynolds uses in his book. You might want to consider giving an in-class explanation of primary and secondary sources. The student edition has a short explanation, but reinforcing this with additional examples and explanations would help.

Students have been directed to select a page from Reynolds's book that has some quotes or references primary sources like letters from the Wrights, journal entries, or even newspaper articles. It is best to have them select pages that discuss events that occurred no earlier than 1900, as these will have the most documentation. Then, students will research the extensive collection of primary sources in the [Wilbur and Orville Wright Papers at the Library of Congress](#) to find the original primary sources themselves. Finally, they will draft a short paragraph summarizing the entire source.

Strong students may need little extraction for this activity, but weaker students will need help. Consider reviewing the site beforehand and putting together a short list of primary sources that you think are interesting and are referenced in the book.

## Essay Questions

Students should select one of the following prompts and write a brief essay that uses the reading to address the prompt. To do this, they should reference the primary sources Reynolds uses. Encourage them to review the original sources themselves if they are located in the [Wilbur and Orville Wright Papers at the Library of Congress](#). Also, encourage them to fill in any gaps in their research by reviewing available secondary works listed in the bibliography at the end of the book.

- How does the author use the early life of the Wright brothers to emphasize specific qualities of theirs that ultimately helped them succeed?
- Throughout the book, the author notes how different observations the Wrights made during their lives contributed to their successes at Kitty Hawk. What were these different observations, and how did these observations contribute to their success?