Teaching Fourth-Grade **Nonfiction Text Features**
Using *Who Invented the Airplane? Wright Brothers vs. Whitehead* from the **STEM Smackdown (Alternator Books™)** Series

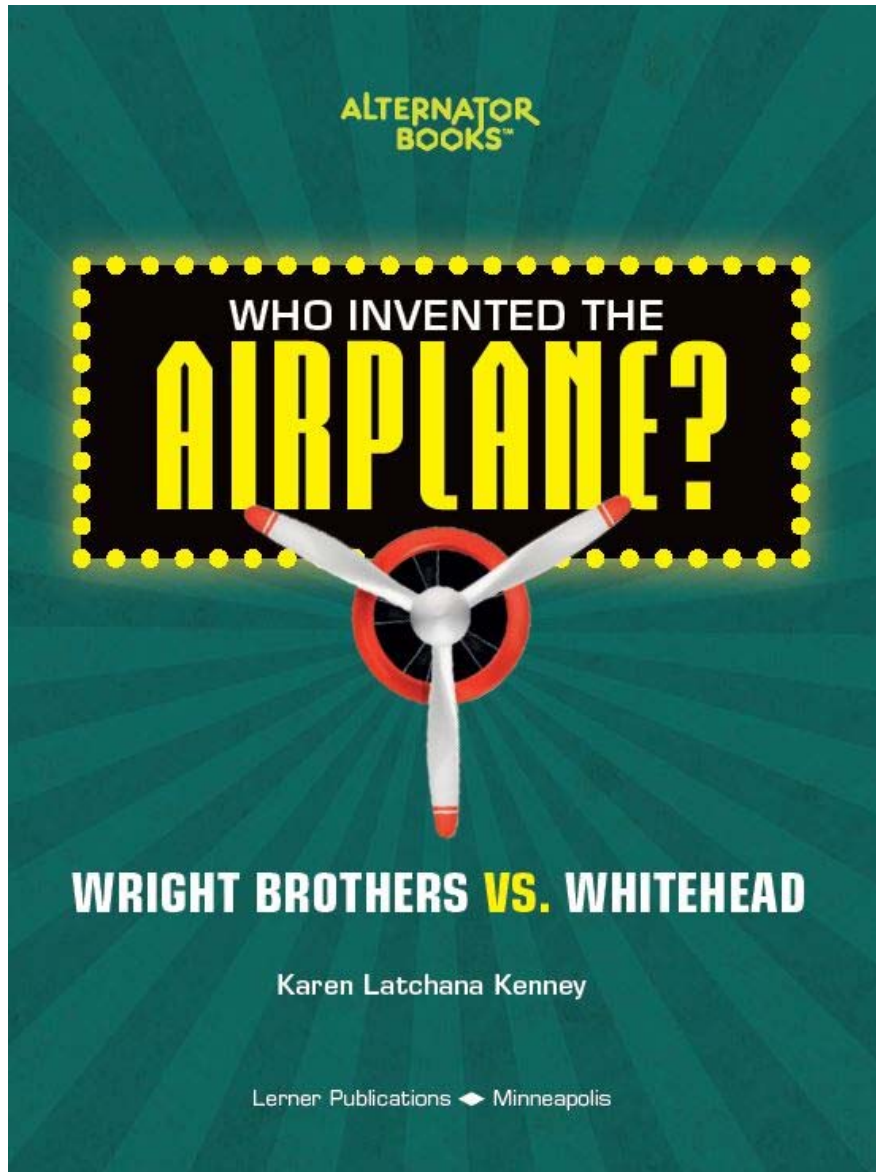### Features that help students understand how an informational text is organized:

FEATURE	PURPOSE
Title page	Confirms title, author's name, and publisher
Contents Page	Identifies the topics to be presented and their order
Chapter name, heading, or subheading	Helps students identify main topics on a quick pass through the text
Glossary	Defines new and important words
Further reading and websites	Helps students expand their knowledge of the topic by listing other informational texts in print or on the Internet
Index	Lists the main ideas in the text, with page numbers to help students find them

Visual aids that help students understand informational texts:

VISUAL AID	PURPOSE
Photo, drawing, or illustration	Shows how something in the text looked or might have looked
Diagram	Gives a more detailed view of a complex topic

Features that point out important or additional information:

FEATURE	PURPOSE
Copyright page	Tells students how current the information in a book is
Pull quote	Highlights an important main idea or quotation from the text
Bold print	Tells students a word is new and important; sometimes a glossary term
Italic Print	Tells students the word is supposed to stand out. It may be for emphasis or because it is a book name, newspaper, movie title, foreign word, or the directional for a photo or illustration.
Caption	Points out what's in a photo, a drawing, or an illustration and relates it to the informational text; often gives more information
Label	Identifies important points of interest in a diagram or photograph
Sidebar	Boxed or other highlighted bits of information that relate but are not the same as the main informational text; likely not a main idea
Source Note	Tells the student where the quoted material came from

ALTERNATOR BOOKS™

WHO INVENTED THE AIRPLANE?

WRIGHT BROTHERS VS. WHITEHEAD

Karen Latchana Kenney

Lerner Publications ◆ Minneapolis

TITLE PAGE: This page tells you the title, author, and publisher of the book.

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COPYRIGHT PAGE:
This page tells you the year in which the book was published. This may be important for report writing when you need up-to-date information. On this page, you can also find the address of the publisher.

CONTENTS PAGE:
This lists the chapters by chapter title and the pages on which they begin. It also lists features, such as a glossary or index, that are in the back of the book.

CONTENTS

CHAPTER TITLE: This tells you what topic will be discussed in the chapter. Chapter titles often give you the main ideas of the book.

PHOTOS:
The photos or pictures in a book show what the words, or text, describe. Looking at photos can help you understand the meaning of the text.

INTRODUCTION
THE AERONAUTS

Sitting in your airplane seat, you can't stop smiling. The airplane speeds down the runway and lifts. It climbs higher. Soon you're cruising at 35,000 feet (10,670 m). It's time to recline and watch a movie on your personal screen. Just think—in a few hours, you'll be in Hawaii!

Traveling by airplane is how most of us get to faraway places. But in the early twentieth century, flight was still a dream. Many tried to get into the air—and many failed. Inventors like Octave Chanute and Otto Lilienthal created **gliders** in the nineteenth century. They were the first aeronauts, a new group of people who had traveled by air. Some gliders lifted people into the sky and traveled a short distance.
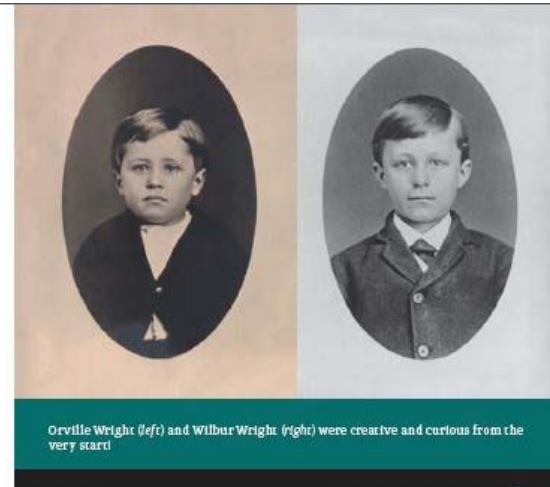
To many people these days, flying seems like no big deal. But in the Wright brothers' time, it seemed extraordinary!

CHAPTER 1

CHAMPS OF FLIGHT

f it was mechanical, the young Wright brothers from Dayton, Ohio, were interested in it. Toy flying machines, **gyroscopes**, and even sewing machines fascinated them. Born in 1867, Wilbur Wright was smart and careful. His brother Orville, born four years later, was a risk-taker. He seemed to be a natural-born inventor, taking things apart to see how they worked. The combination of their personalities led to a perfect partnership—one that led them into business together.

Gyroscopes like this toy from the mid-twentieth century, fascinated the Wright brothers when they were growing up.

Orville Wright (left) and Wilbur Wright (right) were creative and curious from the very start!

They started a printing press and then moved to bicycles, opening the Wright Cycle Company. By about 1896, the brothers had a new interest—gliding. They read about Lilienthal's experiments and learned of his fatal crash in 1896. Wilbur wondered whether they could pick up where Lilienthal left off.
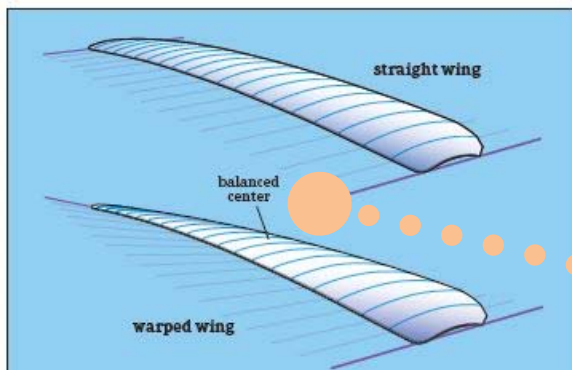
ENTERING THE RING
In 1899 the brothers researched gliding experiments. This was the beginning of their training. They began thinking of ways to solve the problems that had taken others out of the competition.

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HEADINGS AND SUBHEADINGS: These separate the main text into smaller chucks of information. A heading tells you what the section is about.

TEXT OR MAIN TEXT: These are the words on a page that describe the main ideas of the book. Main text is usually smaller that chapter titles or headings.

DIAGRAM: This is a drawing that gives a simpler view of complex information. Short labels point out important parts of the drawing.

Two big problems were control and balance. To turn a glider, its wings had to be unbalanced. One side needed to be higher than the other. How could a glider stay balanced when its wings weren't? The answer came from a bicycle inner tube box in 1899. Wilbur twisted the box and saw that one corner went up while the opposite corner went down. It led to the brothers' wing warping idea. They built a kite with a device to warp the wings.

straight wing

balanced center

warped wing

The bottom wing in this drawing is warped, or bent in such a way that one end goes up while the other goes down. The other wing is a straight wing. Wing warping allowed the Wright brothers' glider to turn while keeping its center balanced.

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LABELS: These are words on a diagram or photo that point out important parts of the diagram or photo. On a map, labels name important features, such as rivers or cities.

See Back Cover!

POPULAR AVIATION

JANUARY 25¢
In Canada 30c

Bristol Fighters
See Page 40

Popular Aviation brought Whitehead into the spotlight in a very big way.

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ITALIC: This type is slanted to make a word or phrase stand out. Italicized words may be names of books, newspapers, movies, ships, or foreign words. They may also tell you which caption goes with which photo.

CAPTION: These words tell you what is in the picture on the page. A caption is usually close to the picture it describes. Sometimes a caption will tell you if the picture is a photo or a drawing. A caption may also give you additional information that is not in the main text.

SIDEBARS:

These are short bits of text with their own headers. They are usually boxed and separated from the main text and highlights it in some way, such as by enlarging the type.

ASSIST

Even if Whitehead wasn't the first to fly, he contributed to aviation by getting others interested in it. Other aviators also assisted in promoting flight. Brazil's Alberto Santos-Dumont was one of them. And many Brazilians believe *he*—not the Wrights or Whitehead—was the first to fly.
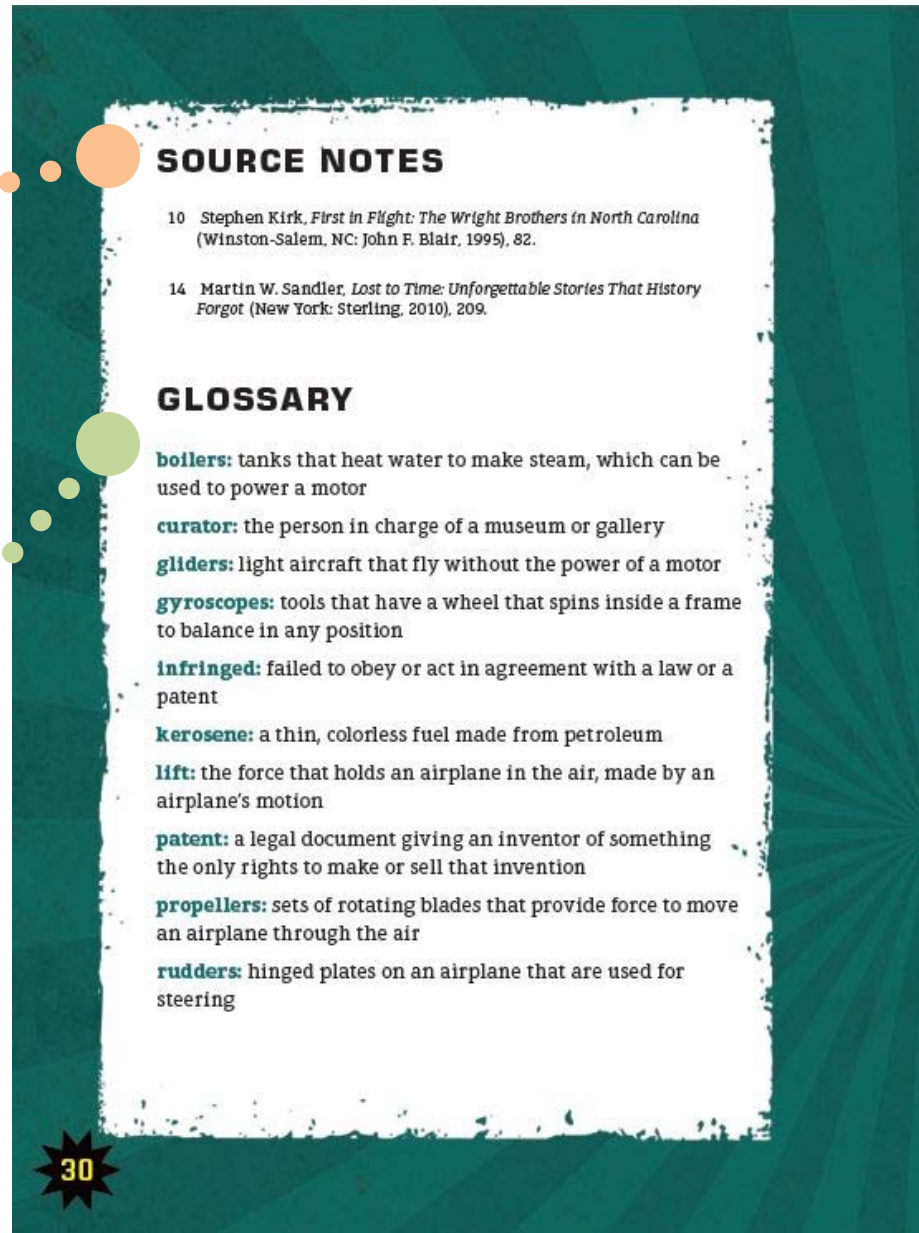
Santos-Dumont first flew in 1906. So why do Brazilians claim he beat the Wrights? It's because the Wrights used a launching rail in their first flight. Santos-Dumont did not. This leads some to say that Santos-Dumont flew the first "real" plane.
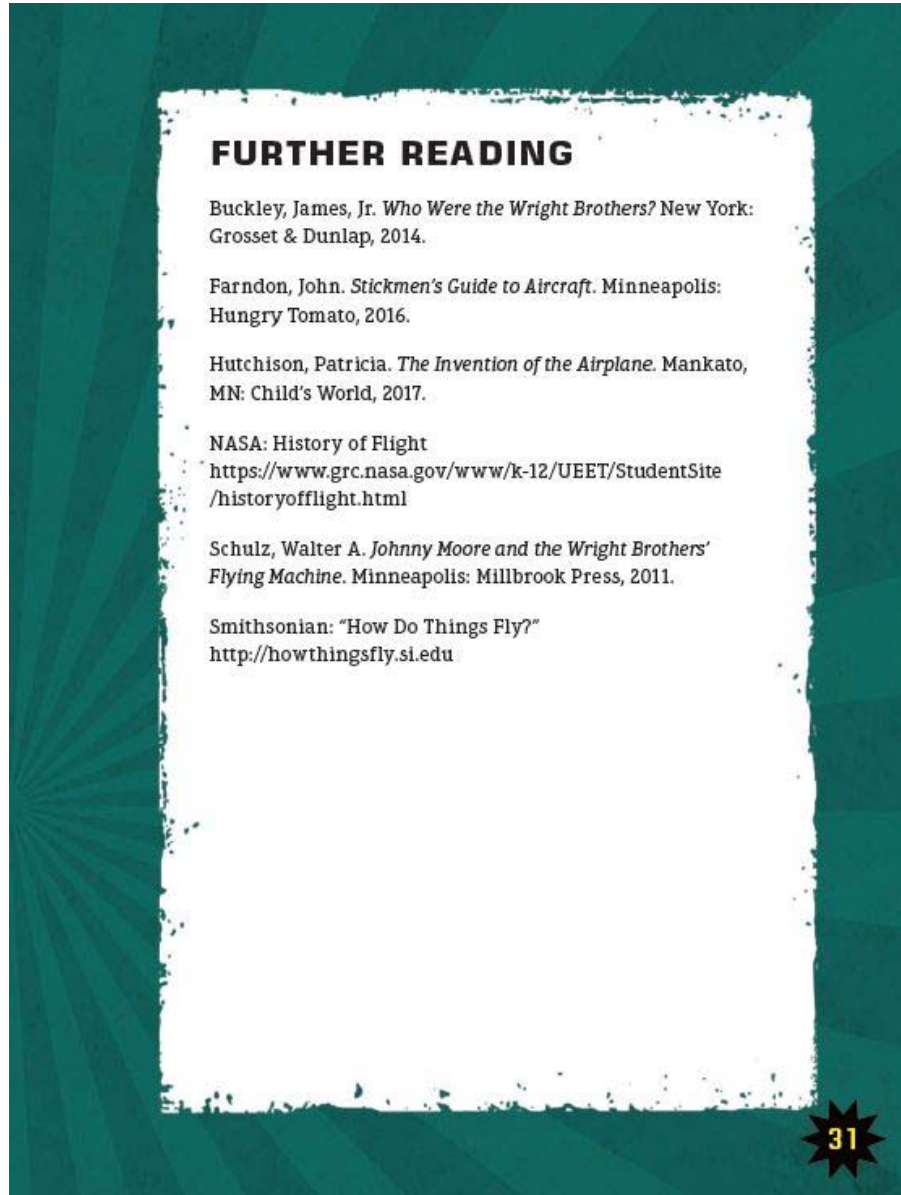
Santos-Dumont sits behind his plane's controls in this 1907 photo.

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LERNER ❧ SOURCE™

SOURCE NOTES:
This is a list of all the books, magazines, and other resources from which the author borrowed specific quotations.

GLOSSARY:
This is a list of the book's unfamiliar or important words or phrases with a definition after each term.

SOURCE NOTES

10   Stephen Kirk, *First in Flight: The Wright Brothers in North Carolina* (Winston-Salem, NC: John F. Blair, 1995), 82.

14   Martin W. Sandler, *Lost to Time: Unforgettable Stories That History Forgot* (New York: Sterling, 2010), 209.

GLOSSARY

boilers: tanks that heat water to make steam, which can be used to power a motor

curator: the person in charge of a museum or gallery

gliders: light aircraft that fly without the power of a motor

gyroscopes: tools that have a wheel that spins inside a frame to balance in any position

infringed: failed to obey or act in agreement with a law or a patent

kerosene: a thin, colorless fuel made from petroleum

lift: the force that holds an airplane in the air, made by an airplane's motion

patent: a legal document giving an inventor of something the only rights to make or sell that invention

propellers: sets of rotating blades that provide force to move an airplane through the air

rudders: hinged plates on an airplane that are used for steering

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FURTHER READING

Buckley, James, Jr. *Who Were the Wright Brothers?* New York: Grosset & Dunlap, 2014.

Farndon, John. *Stickmen's Guide to Aircraft*. Minneapolis: Hungry Tomato, 2016.

Hutchison, Patricia. *The Invention of the Airplane*. Mankato, MN: Child's World, 2017.

NASA: History of Flight
https://www.grc.nasa.gov/www/k-12/UEET/StudentSite /historyofflight.html

Schulz, Walter A. *Johnny Moore and the Wright Brothers' Flying Machine*. Minneapolis: Millbrook Press, 2011.

Smithsonian: "How Do Things Fly?"
http://howthingsfly.si.edu

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FURTHER READING: This is a list of books and websites on the same subject as the book you just read. This list is at the end of your book. It can be helpful in doing research for reports.

INDEX

PHOTO ACKNOWLEDGMENTS

INDEX: This is a list of the main ideas in the book, with page numbers to tell you where to find them.