



ALMOST UNDERWEAR

HOW A PIECE OF CLOTH TRAVELED FROM
KITTY HAWK TO THE MOON AND MARS

BY JONATHAN ROTH

Teaching Tips

Here is the amazing true story of how a single piece of cloth—originally destined to become underwear—was used in the design of the Wright brothers' *Flyer*, traveled to the Moon with Apollo 11, and is currently wandering Mars on *Ingenuity*. With NASA photos and playful illustrations throughout, here is an incredible slice of hidden history and an introduction to the science of air and space for all ages.

Below are a few activities and strategies for sharing *Almost Underwear* with children.

Interactive Read Aloud

An interactive read aloud models fluency and offers opportunities for children to interact with the text and illustrations. Before reading aloud *Almost Underwear*, pre-read this engaging nonfiction book and place a sticky note on the pages when a question is posed, key vocabulary needs to be defined, and predictions can be made about what might happen next to the piece of cloth. Be sure not to pause too many times as this will disrupt the flow of the story. A few strategies for students to interact might include:

- Turn and talk to another student to answer a question, define a word, or make a prediction.
- Give a thumbs up for yes or thumbs down for no when asked a question from the story such as, "Would it now be made into underwear?"
- Make a facial expression or use body language to show emotion for how the piece of cloth is feeling when it is stuffed into a crate, placed in a museum case, or traveling to the moon.

Investigating Illustrations

Jonathan Roth's illustrations were created digitally by combining artwork with historic photographs and NASA concept art (see About This Book information opposite the title page). Begin with the cover and ask students to identify and discuss if the images are photographs or digital art. Following this investigation, consult the Photo Credits (below the About This Book) and share with students what the photographs portray and where they originated. Conduct a different investigation of the illustrations to locate the images of Orville and Wilbur Wright. What were they feeling and experiencing at the beginning of the story and why were they included in the photographs of the engineers and later waving to *Ingenuity*?

Puzzle Piece Timeline

The events depicted in *Almost Underwear* lend themselves to creating a timeline. Use puzzle pieces to write the date of the event, a sentence explaining what happened, and an illustration of what occurred. The three major events of the Wright *Flyer* (December 17, 1903), Apollo 11 (July 20, 1969), and *Ingenuity* (April 19, 2021) are shown in a triptych near the end of the book. However, numerous other events could be depicted such as the second flight of *Flyer*, the cloth being placed in the museum, and the inclusion of a swatch on several space shuttle missions. Provide small groups of students with connecting puzzle pieces to create a sequenced row of events. Blank puzzle pieces can be purchased for a nominal cost or paper patterns can be accessed online.



This website illustrates how the muslin is attached to *Ingenuity*:

<http://www.collectspace.com/news/news-032821a-ingenuity-mars-helicopter-wright-flyer-fabric.html>

List, Group, Label

This activity supports vocabulary and comprehension development while engaging students in a three-step process to recognize the relationship between words and concepts. After reading aloud *Almost Underwear*, select a topic from the book. Then brainstorm with students and list words they can think of related to the topic. These can be words directly from *Almost Underwear* or words they know. For example, the topic of flying could be used with the words propellers, glider, wings, and airplane from the book coupled with pilot, airport, altitude, and travel as terms students suggest. Review the list and ask students to think about how the words relate to each other and then group them. Finally, invite students to suggest a descriptive label for the groups of words they have generated.

Time and Distance

To assist students in understanding the amount of time *Flyer* was in the air and the distance flown, use a stopwatch to illustrate twelve seconds and then fifty-nine seconds. Use a tape measure to display the distance *Flyer* traveled (you may need to go outside to measure the distance of 120 feet). Since *Almost Underwear* appeals to a wide range of readers, access this excellent lesson plan for measuring the distance, speed, and time of the Wright brothers' first flight. <https://www.nps.gov/teachers/classrooms/distance-speed-and-time-of-the-first-flight.htm>.

Back Matter Matters

In *Almost Underwear*, the back matter offers an author's note about the process of writing the book, provides more background information about the topic, expands on facts highlighted in the book, and offers a glossary of *Perseverance* instruments. Share and discuss the back matter with students including the bibliography of books and websites the author, Jonathan Roth, used in his research. Explore the websites listed and a few others such as:

To learn more about the "Pride of the West" muslin used by the Wright brothers and see a photograph of it, visit these websites:

https://airandspace.si.edu/collection-objects/fabric-aircraft-1903-wright-flyer/nasm_A20090031000

<https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/197460/original-1903-wright-flyer-fabric/>

These Teaching Tips were created by Cyndi Giorgis, Professor of Literacy Education and Children's Literature at Arizona State University.



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