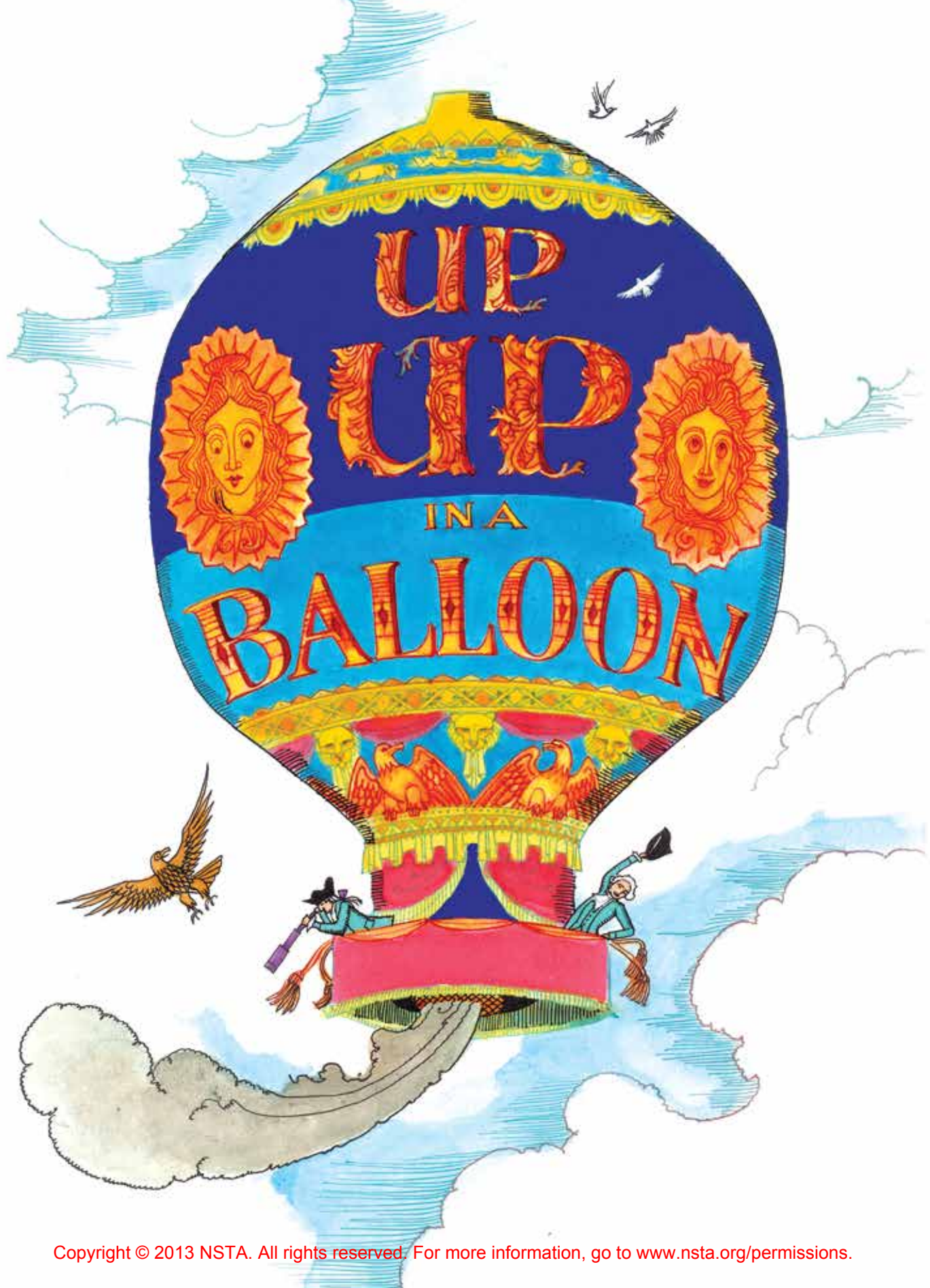
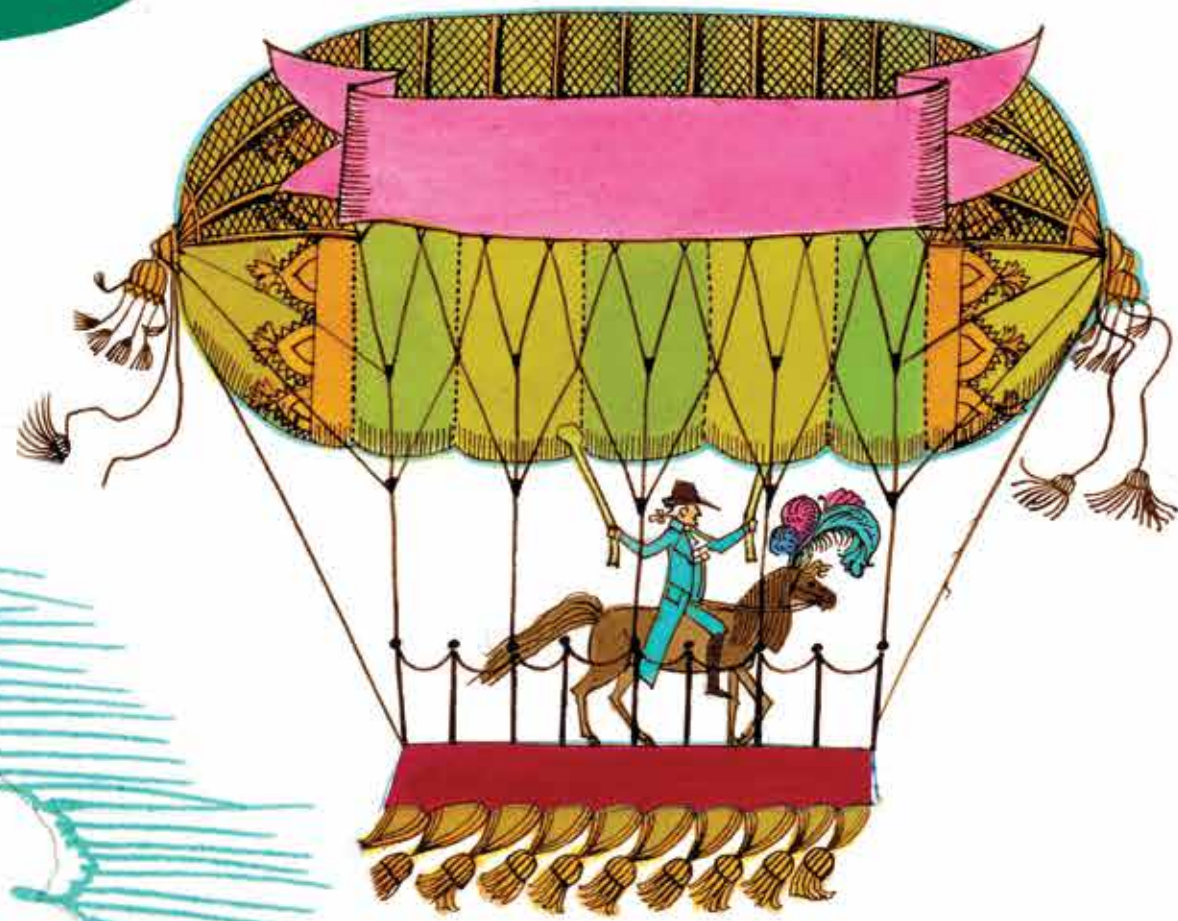
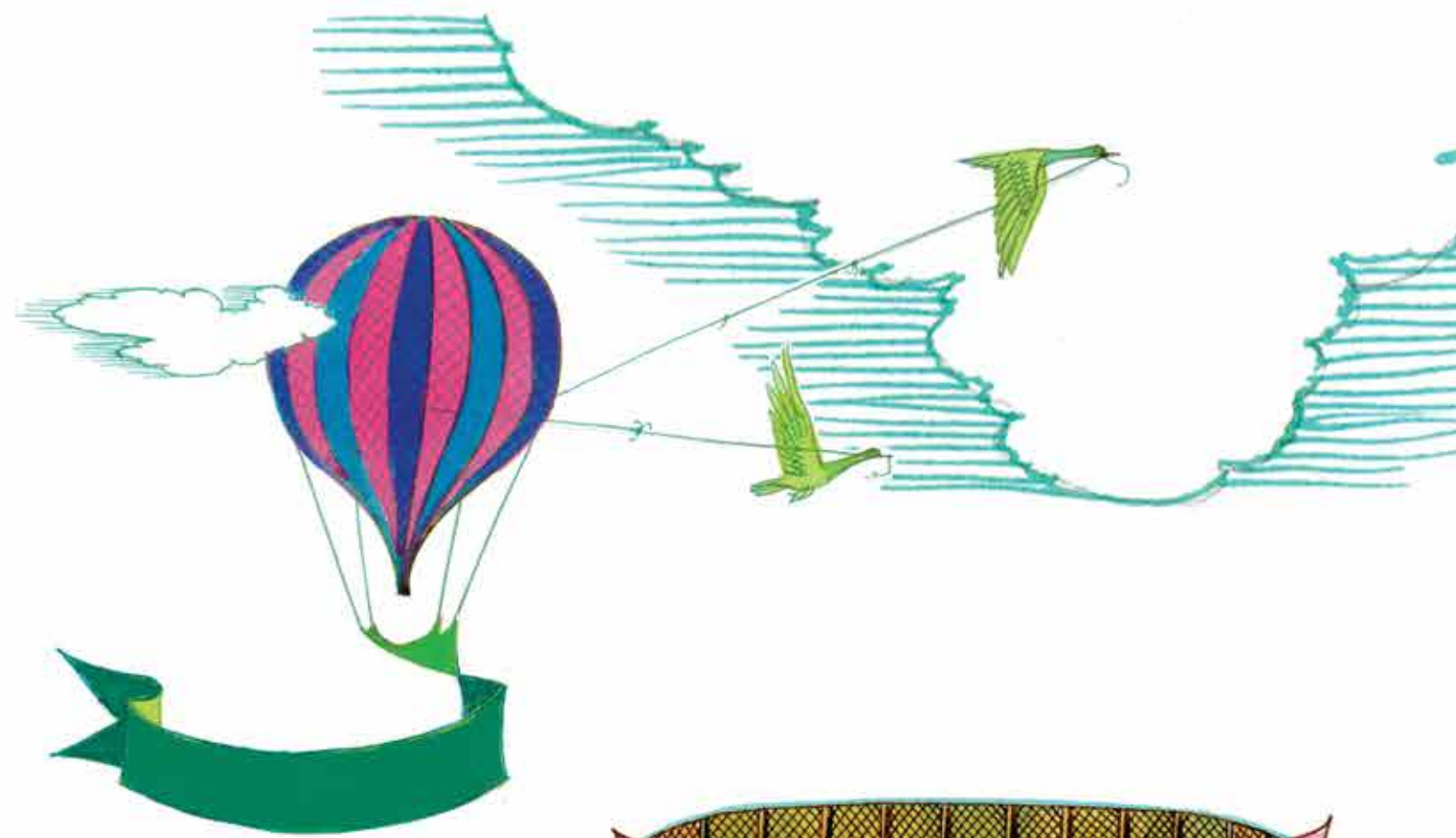


By **Lawrence F. Lowery**

NSTA Kids
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UP UP UP IN A BALLOON

By **Lawrence F. Lowery**

Illustrated by **Gordon Laite**





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Introduction

The *I Wonder Why* books are science books created specifically for young learners who are in their first years of school. The content for each book was chosen to be appropriate for youngsters who are beginning to construct knowledge of the world around them. These youngsters ask questions. They want to know about things. They are more curious than they will be when they are a decade older. Research shows that science is students' favorite subject when they enter school for the first time.

Science is both *what we know* and *how we come to know* it. What we know is the content knowledge that accumulates over time as scientists continue to explore the universe in which we live. How we come to know science is the set of thinking and reasoning processes we use to get answers to the questions and inquiries in which we are engaged.

Scientists learn by observing, comparing, and organizing the objects and ideas they are investigating. Children learn the same way. These thinking processes are among several inquiry behaviors that enable us to find out about our world and how it works. Observing, comparing, and organizing are fundamental to the more advanced thinking processes of relating, experimenting, and inferring.

The five books in this set of the *I Wonder Why* series focus on Earth science content. The materials of our Earth are mostly in the forms of solids (rocks and minerals), liquids (water), and gases (air). Inquiries about these materials are initiated by curiosity. When we don't know something about an area of interest, we try to understand it by asking questions and doing investigations. These five Earth science books are written from the learner's point of view: *How Does the Wind Blow?*; *Clouds, Rain, Clouds Again*; *Spenser*

and the Rocks; *Environments of Our Earth*; and *Up, Up in a Balloon*. Children inquire about pebbles and rocks, rain and wind, and jungles and deserts. Their curiosity leads them to ask questions about land forms, weather, and climate.

The information in these books leads the characters and the reader to discover how wind can be measured and how powerful it can be, how the water cycle works, that living things need water to survive, and that plants and animals have adapted to different climate-related environments. They also learn how people have learned to fly in the ocean of air that surrounds Earth.

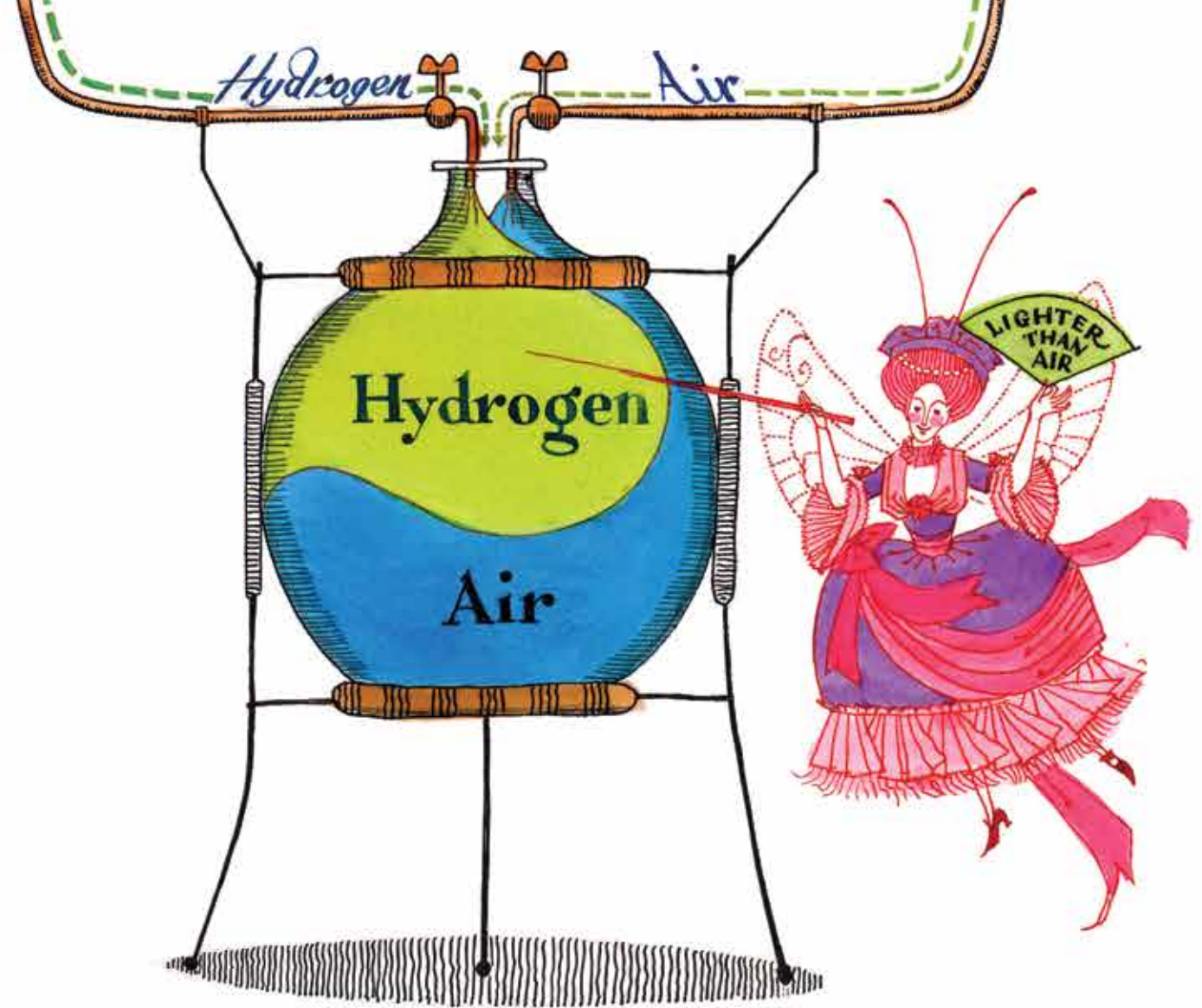
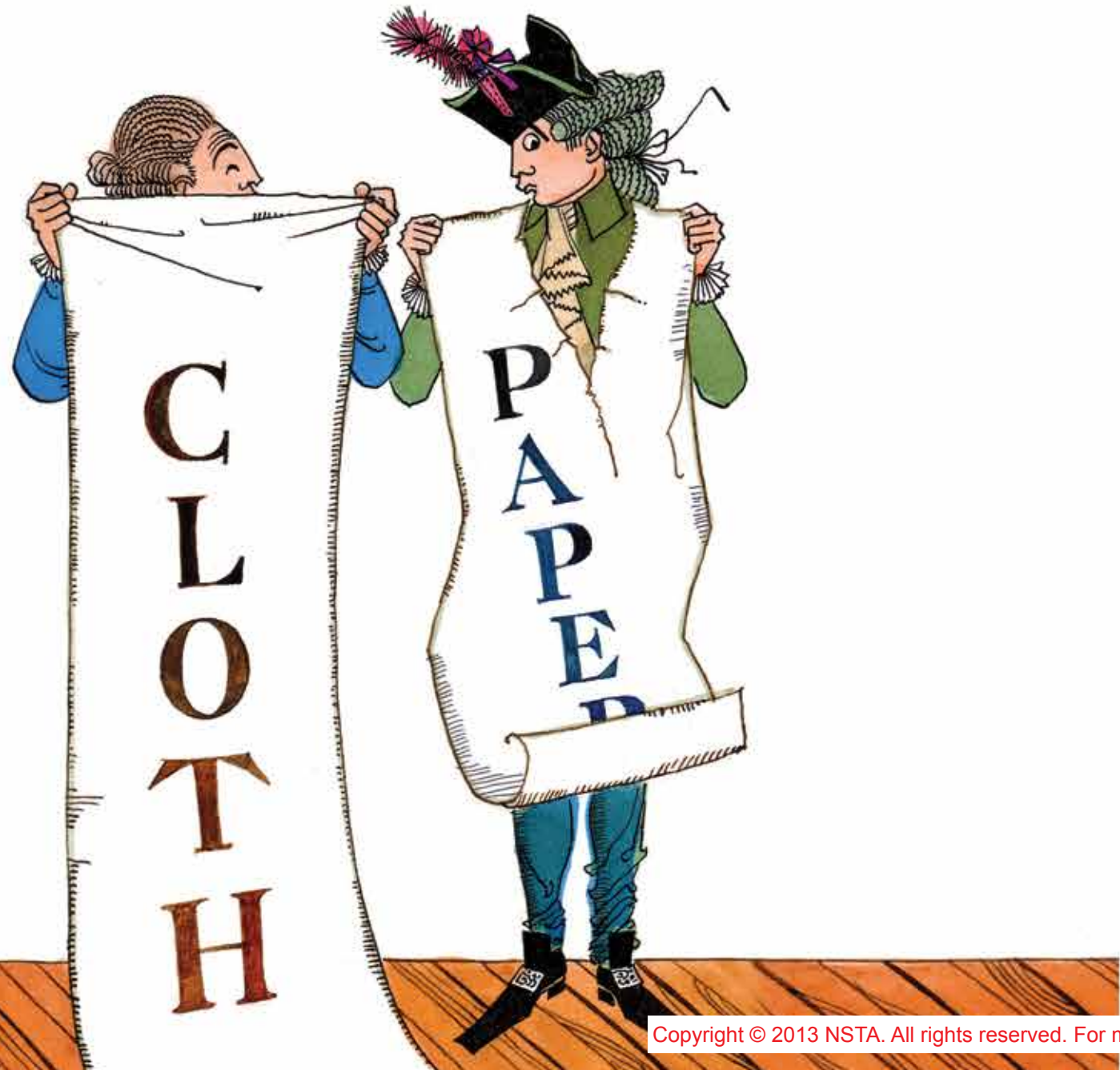
Each book uses a different approach to take the reader through simple scientific information. One book is expository, providing factual information. Several are narratives that allow a story to unfold. Another provides a historical perspective that tells how we gradually learn science through experimentations over time. The combination of different artwork, literary perspectives, and scientific knowledge brings the content to the reader through several instructional avenues.

In addition, the content in these books correlates to criteria set forth by national standards. Often the content is woven into each book so that its presence is subtle but powerful. The science activities in the Parent/Teacher Handbook section in each book enable learners to carry out their own investigations that relate to the content of the book. The materials needed for these activities are easily obtained, and the activities have been tested with youngsters to be sure they are age appropriate.

After students have completed a science activity, rereading or referring back to the book and talking about connections with the activity can be a deepening experience that stabilizes the learning as a long-term memory.

Some people felt it would be safer if the balloons were made of cloth. Cloth, after all, was stronger than paper.

Other people thought it would be safer if the air did not need to be heated. No one would have to worry about the air cooling off and the balloon falling.



Around this time, a gas lighter than air was discovered. The name of the gas was hydrogen. Hydrogen was just the right thing for a balloon. It did not have to be heated. It rose above air naturally.

Back in their town, Joseph and Jacques may or may not have heard of the gas. If they did, Joseph probably said, “Great!” and Jacques, “Terrific!”—unless Jacques said, “Great!” and Joseph, “Terrific!”



Someone made a balloon out of cloth and filled it with hydrogen gas. Up it went—but not for long. The cloth leaked! Gas came out through tiny holes in the cloth. Perhaps no one would ever get to ride in a lighter-than-air balloon!

Then someone thought of rubber. If they put a thin coat of rubber on a cloth balloon, the holes in the cloth would be plugged. This would stop the gas from leaking out of the balloon. Perhaps someone would get to ride in a lighter-than-air balloon after all!

A large, rubber-coated balloon was made and filled with hydrogen gas. Another demonstration was held. Hundreds of people waited to see what would happen. Joseph and Jacques were there too.



I Wonder Why

UP UP IN A UP BALLOON



Young scientists will get both inspiration and giggles from this humorous but true tale of early experiments with flying. The book tells how the first successful venture into human flight came about because of two French brothers, several paper bags, heated air, leaky cloth, hydrogen gas, frightened farmers, a duck, a rooster, a sheep, and a brave friend of the French king. In addition to introducing scientific processes and principles of flight, *Up, Up in a Balloon* may prompt budding inventors to try, try again—just as the Montgolfier brothers did when they launched the first hot air balloons more than 200 years ago.

Up, Up in a Balloon is part of the *I Wonder Why* book series, written to ignite the curiosity of children in grades K–6 while encouraging them to become avid readers. These books explore the marvels of geology, land forms, weather, environments, and other phenomena related to science and nature. Included in each volume is a Parent/Teacher Handbook with coordinating activities. The *I Wonder Why* series is written by an award-winning science educator and published by NSTA Kids, a division of NSTA Press.

Grades K–6

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