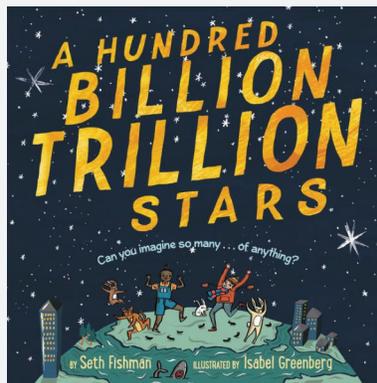


## First Opinion: Fostering Thinking and Imagination through Science, Mathematics, and the Human Experience

Fishman, Seth, and Isabel Greenberg. *A Hundred Billion Trillion Stars*. Fairfax, VA: Library Ideas, LLC, 2018. Print.

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*A Hundred Billion Trillion Stars*, authored by Seth Fishman and illustrated by Isabel Greenberg, begins as a cosmic exploration of the universe and gradually zooms in on our own planet, pointing out its many intricacies and wonders and eventually concluding with a special focus on the reader. Most notable is the way in which Fishman guides the reader through this journey: through a pairing of numbers and words. Using first-person voice, Fishman speaks directly to the reader, opening with, "Let me tell you a secret." After this hook, Fishman moves through the universe by describing the sun, stars, and planets through verbal description paired with numbered description as well. Throughout a two-page spread, the number 100 billion trillion, and its string of zeros, catches the reader's eye as it stretches across the page with a background of stars. This format continues as the focus moves toward earth. The illustrations bring life to our planet's unique features as numbers and words contribute to the reader's thoughts and understanding. After pointing out features, such as the earth's three trillion trees and 2,500,000 cities and towns filled with people, Fishman zooms in on the people who make up the earth. With illustrations highlighting children and families of diverse racial and ethnic groups, more facts and figures fill the pages, ranging from the 7,500,000,000 people who live on the planet, which weighs 13,000,000,000,000,000,000,000,000; that's thirteen million billion billion, the written form of the numerical value, which Fishman helpfully includes at the bottom corner of each page. Fishman continues using numerical values to explain concepts such as distance, time, weather, and nature, all

in relation to the reader. To conclude, he connects back to the vast universe: "I can tell you one more secret about something you can find somewhere among the 100 billion trillion stars. There's only one of YOU. Right here, reading this book." The final pages of the book offer an author's note, in which Fishman addresses how he figured these facts, numbers, and descriptions, including the shortened version of how to qualify through words some of these enormous numbers.

Fishman makes several noteworthy choices that push typical children's book boundaries. To begin, he integrates science and mathematics in a way that closely relates to children and their daily experiences. Many people, and even teachers, often perceive mathematics, science, and English Language Arts as distinct subjects. This is understandable since most policy-related initiatives that heavily shape current schooling decisions and practice, such as standards and high-stakes testing, treat these as distinct subjects. However, each of these content areas are based on sign-systems (languages) cultivated by people out of human experience. This shared experience serves as the anchor to which each of these sign-systems are tied, and thus, inter-related. Additionally, scholars have demonstrated the value of using children's literature in the classroom, particularly through text incorporating mathematics content (Shatzer; Whitin and Whitin). Fishman's merging of quantitative values with qualitative description normalizes numbers as way of understanding the enormity of the universe and the many aspects of life humans experience on a daily basis. There is great potential of fostering an appreciation for, and perhaps even fascination with, numbers, especially when paired with the rich description and scientific facts Fishman provides.

Another standout feature of this book is the illustrations, particularly in providing diverse representation of racial and ethnic groups. Greenburg, a United Kingdom-based illustrator and writer, brings to life the human experience that is shaped by thrilling values and scientific facts that make our world unique. Scholars and educators have long called for increased diversity of representation in children's literature (Bishop; Koss), and the colorful pages present images based on different experiences throughout the world, with children interacting in nature, cities, and outer space. Their attire also varies, representing different styles and choices of dress for children. There are examples of children interacting with the world around them in many ways, such as playing together in different landscapes, walking pets, examining with a magnifying glass, and exploring space as an astronaut.

Finally, the words, numbers, and illustrations move from the abstract, beginning in space with the sun as a giant star, then moving from the universe to the earth and the life experiences of the reader. Guiding the reader in this way offers a means for comparing experiences in different ways as well as comparing values, such as the size of the universe in comparison to the earth and one's place on the earth. Such multidimensional, yet implicit, movement contributes to the reader's experience and understanding of the world, others, and oneself. Overall, Fishman and Greenburg's *A Hundred Billion Trillion Stars* offers compelling insight

through numerical and descriptive values, bringing to life scientific concepts encouraging readers toward imagination and understanding of the world and its many phenomenal facets, including themselves.

### **Works Cited**

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### **About the Author**

**Kelly Johnston** is an assistant professor of literacy education at Baylor University. As a literacy researcher, former K-8 educator, and mother, she is committed to educational efforts that contribute to rich, meaningful, and equitable outcomes for children.