

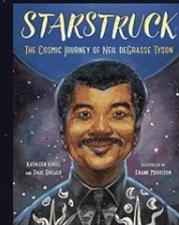
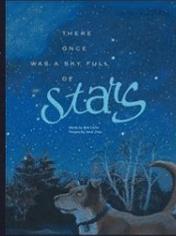
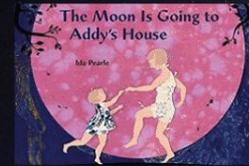
Representations of Astronomy in Children's Storybooks

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INTRODUCTION

Storybooks are widely used with early elementary learners at home, in school, and in informal learning environments, such as museums and libraries, as an entry point into science learning and discovery. The Next Generation Science Standards (NGSS) proposes that children learn through content integrated with science practices, therefore this should be reflected in children's storybooks if these storybooks are to provide an accurate representation of how scientists do science and are being used as tools for educators when preparing students for more than factual knowledge of science through textbooks. Storybooks allow children to engage in scientific discovery, career exploration, and gain a better understanding of natural phenomenon in the world around them, therefore we sought to understand the landscape of astronomy-based storybooks for young children.



RESEARCH QUESTIONS



- To what extent are science practices represented in the most common children's storybooks?
- To what extent are the text and illustrations scientifically accurate?
- Who are the main characters in children's astronomy storybooks?

METHODS



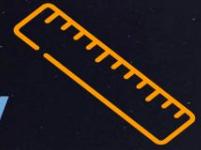
Content analysis of children's storybooks in astronomy ($N=32$) was conducted using criteria:

- Published between 2001-2021
- Reading level for ages 3-8
- Narratives and biographies (excluding topics on blackholes, astronauts, & space travel)
- Selected from notable book lists (i.e., WorldCat, ALA, Diverse Book Finder)

Storybooks were coded to understand:

- Scientific accuracy (text & illustrations)
- Engagement in science practices (using the NGSS Framework)
- Characteristics of characters (human/animal, gender, age, race)
- Author & illustrator's use of own voice

FINDINGS



Science Practices

Very few books showed characters engaged in investigations of science practices (noticing, asking questions)

- **3 storybooks had characters engaged in investigating astronomical phenomenon through the entire narrative**
- 4 engaged for parts of the story
- 10 presented phenomena without an investigation and 12 were fact based

Character Representation



- **Humans** were the main character of **23 storybooks**
- **16** storybooks featured **females** compared to **13** with **males** (5 storybooks we could not identify gender)
- **25 storybooks** had a **child** as the main character

Scientific Accuracy

23 storybooks were coded with accurate text

- 3 partially accurate (1-3 inaccuracies)
- 6 not scientifically accurate

17 storybooks coded with accurate illustrations

- 10 partially accurate
- 5 not scientifically accurate

	White	Black	Asian	Latinx	Person of color	Unclear
Full sample (n=23)	9	5	3	2	3	3
Without DBF (n=16)	9	3	1	0	2	2

Without the Diverse Book Finder storybooks, the sample of characters is less diverse (see table above).

CONCLUSION

Children's astronomy-based storybooks are limited to the extent in which they model science practices or represent science investigations throughout the book. In some of the most common astronomy-based storybooks, there are inaccuracies to the text and/or illustrations, which could lead to misconceptions in teaching and learning at home and in the classroom. In addition, storybooks from DBF, which featured the most diverse characters are not frequently found in libraries, nor on lists of notable storybooks.

We recommend publishers work with authors and members of the science community to create narratives that feature diverse characters that are engaged in scientific investigations around natural phenomena.

Diverse Book Finder

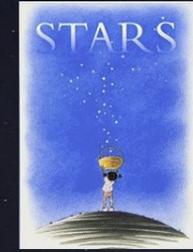
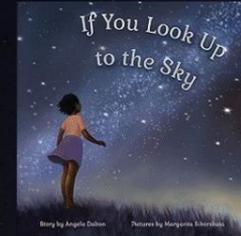
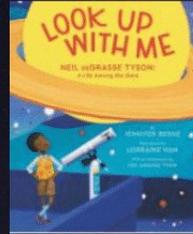
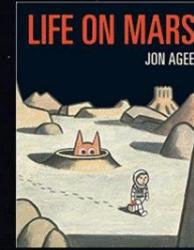


WorldCat



WHAT'S NEXT

While we continue to be interested in investigating the extent to which astronomy storybooks align to the goals of NGSS, and to what extent storybooks have a diverse set of characters to which students can relate and see themselves as scientists, there were limitations to our storybook sampling and analysis. We continue to be interested in how teachers can leverage storybooks to create hands-on, scientifically accurate, investigations where students engage in and investigate with natural phenomena.



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REFERENCE

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