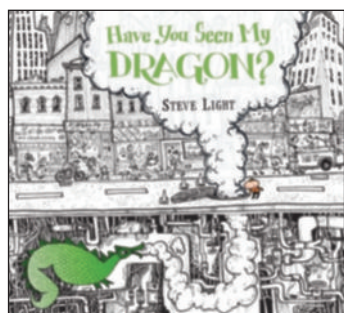


MAKING MATH COUNT: Exploring Math through Stories

Mathical
Books for Kids from Tots to Teens

Great stories are a wonderful way to get young people of all ages excited and interested in mathematics. Now, there's a new annual book prize, *Mathical: Books for Kids from Tots to Teens*, to recognize the most inspiring math-related fiction and nonfiction books that bring to life the wonder of math in our lives. This guide will help you use this 2015 Mathical award-winning title to inspire curiosity and explore math in daily life with the youth you serve.

For more great books and resources, including STEM books and hands-on materials, visit the First Book Marketplace at www.fbmarketplace.org.



HAVE YOU SEEN MY DRAGON?

written and illustrated by Steve Light

In the heart of New York city, among the taxis and towers, a small boy travels uptown and down, searching for his lost dragon. Readers are invited to search with him, counting common objects in each scene along the way.

PRE-K
WINNER

KEY MATH CONCEPTS

Have You Seen My Dragon? focuses on:

- Counting from 1 to 20
- Making quantitative observations in daily life
- Using precise language to make quantitative observations

Identifying quantitative features and patterns and using specific words to describe these things is at the core of all levels of mathematics. As children learn to make quantitative observations, it is important for them to become comfortable using language to describe what they see.

The Mathical: Books for Kids from Tots to Teens book prize, presented by the Mathematical Sciences Research Institute (MSRI) and the Children's Book Council (CBC) recognizes the most inspiring math-related fiction and nonfiction books for young people of all ages. The award winners were selected by a diverse panel of mathematicians, teachers, librarians, early childhood experts, authors and others.



This tip sheet was created by First Book
with generous support from MSRI.

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TALK AND ASK QUESTIONS AS YOU READ

Before reading

The boy in the story has lost his dragon. *ASK: Have you ever lost something? How did you find it? Have you ever found something you weren't expecting while you were searching for something else? Where would you look for a dragon?*

While you're reading

Ask students to point out each of the objects being counted on the page. Encourage them to describe the object and where the object is, instead of just pointing. *ASK: How big is it? How many are there? Where is it on the page? Is the object like something else you see?*

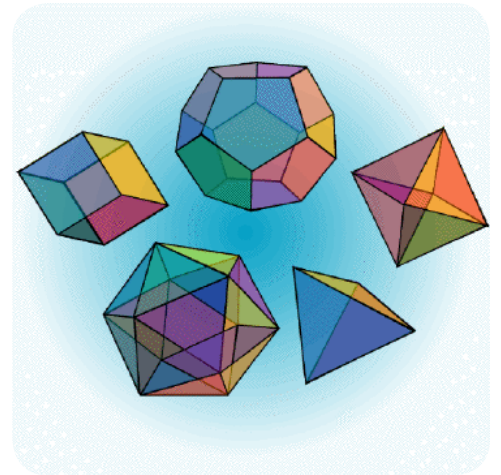
Look for other objects in the scene, other than the ones the author points out. Feel free to spend more time on each page to explore the detailed illustrations for fun surprises.

Draw connections after you read

There are so many things to count in this story! *ASK: How do you think counting helped the boy find the dragon? When do you count? How high can you count?*

The story shows how numbers are all around us. *ASK: What are some things we can count in the room where we're reading? What is an example of something that there's only one of here? What is something that there are exactly two of?*

Share a time from your life when it was important to know exactly how many of something there were, instead of just knowing that there were "a few" or "some." An example could be knowing exactly how many students are in your class!



*Illustration courtesy of New South Wales
Department of Education and Communities,
<http://www.curriculumsupport.education.nsw.gov.au/primary/mathematics/>*



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Have you Seen My Dragon? shows how numbers and patterns are all around us. These two activities will help you show students how math is present in their everyday environments by counting objects in your space together and observing patterns. The ability to observe and describe numbers and patterns is at the heart of all mathematics.

WHAT'S IN THE ROOM?

MATERIALS

- White board/chalkboard or large sheet of paper
- Marker or chalk
- Dedicated room/area



1. Brainstorm

- Invite students to list of the types of things they see in the room. Write the list on the board/sheet of paper at the front of the room.
- Brainstorm objects by different categories, such as “things on the walls” or “things that are green.”

2. Predict and count

- Estimate how many of each object you think you will find and write that prediction on the board/paper.
- Ask each student to count one of the things you brainstormed in the room and report back on what they've found.
- Repeat until the whole list is finished.

3. Review and make connections

- Discuss what you discovered together. Compare the actual number to what the students estimated.
ASK: Were you surprised at how many [name a particular object] we found? Why or why not? What did you think we would find more or less of?
- Using the observations to make predictions. *ASK: If we count again tomorrow, would the counts for any of the objects we found change? Which ones? Why?*



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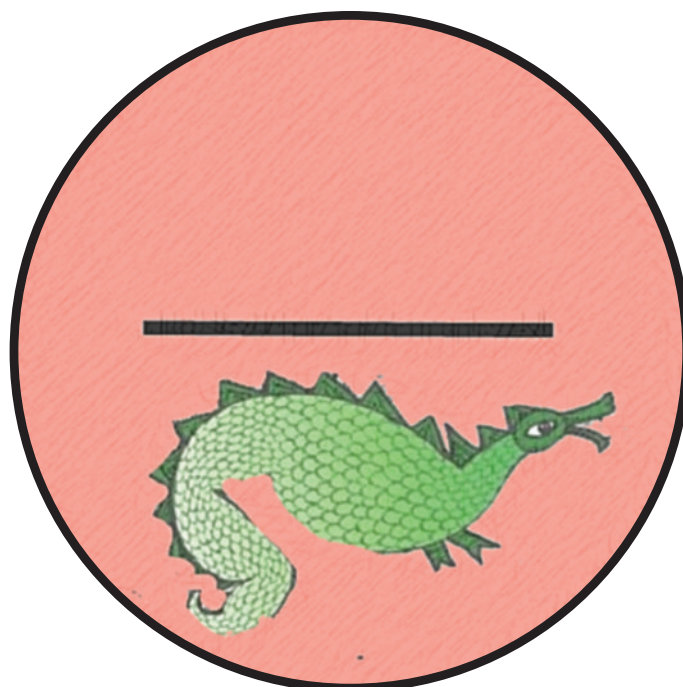


ACTIVITY 2

DRAGON HUNT

MATERIALS

- 20 dragon circles – you can use this template, or you can have students draw their own dragons
- Tape
- Dedicated room/area



1. Prepare

- Number the dragon circles 1 through 20 (one number on each circle)
- Hide the dragon circles in your space. Think about hiding them in some sort of pattern, such as:
 - Low numbers close to the ground, larger numbers higher up
 - Underneath something else
 - All on things that are red

2. Go hunting!

- Let the students search for the dragon circles. Have everyone share what number they found and describe where they found their dragons.
- Display the dragons in numerical order, and count together to figure out which ones are missing.
- Keep hunting until all of the dragons are found. Give hints on where to find missing circles.

3. Review and make connections

- Once the students find all the dragons, *ASK: Tell me how and where you found your dragon circle. Was it easy or hard to find?*
- Identifying patterns is essential to building math skills. *ASK: Can you tell me what all of the dragon circles had in common? How did we know which ones were missing? Can you show me other patterns you see in this room?*



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