Math Pictures Books

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This document can be found at <u>http://bit.ly/lennyvpicturebooks</u> <u>Here is a link</u> to a document in a different format that has descriptions of the

books as well as the links to the classroom activities.

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Share your favorite picture book with this <u>form</u> Check out <u>responses</u> Intro Powerpoint

General Strategies for Reading

- <u>Bet Lines</u>--and other ideas when reading to children.
- Notice and Wonder Ideas and strategies.
- Using Stories to Teach Math
- When counting up or down from 10, have students show the numbers with their fingers. Show 6 as 5+1, 4+2, & 3+3. Show 1 as 1+0 and 0+1.
- What do you WONDER?
- 5 + 1 = 1 + 5 use commutative "words mathematicians use"
- Have 2 students use 3 or 4 hands to make numbers.
- To help Pre-K and primary students begin to talk numerically and make the students' world numerical. Use small numbers. Put 4 blocks here, take 3 dishes from the table, 3 students are ready, we need 5 candy bars.
- <u>Finding The Math in Story Books for Young Children</u> with hints when reading to children.
- Mathematizing Children's Literature with Allison Hintz and Antony Smith Math Teacher
 Lounge podcast

Resources:

- Math Book Magic Website Lots of ideas Sign up for email
- <u>Math by the Book</u> K-6 series from Sue O'Connell <u>Blog post</u>
- K-2 Math Picture book padlet from Sue O'Connell, Aslo from Sue Erikson Early Math
- Math Through Stories <u>Website</u> check out resources-book reviews for ideas of how to connect to math. <u>Newsletter</u>
- <u>Mathwire</u> checkout topics
- 10 books to spark a love of math
- 15 books that support children's <u>spatial skills</u>
- <u>31 Math Books for Kids</u>
- Novel Effects Sound effects for children's books. iOS and Android
- List of books by grade level from <u>Marilyn Burns</u>
- <u>4 Children's' Books to Shape Up Geometry Skill</u>
- Ideas from Christopher Danielson <u>Reading and Math at Home</u>



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17 Kings and 42 ElephantsVings as 42 ElephantsUnits as 42 Elephants <td>Bean Thirteen Lovel: Primary & up BEAN FINITE FINITE Classroom Ideas</td> <td>Less Than Zero Lovel: Primary & up Less Than Zero L</td>	Bean Thirteen Lovel: Primary & up BEAN FINITE FINITE Classroom Ideas	Less Than Zero Lovel: Primary & up Less Than Zero L
One is a Snail Ten is a Crab Level: Primary & up	Counting Books Level: Primary & up	Happy Pi Day to You Level: MS & up











https://www.youtube.com/watch?v=VG5EPewQqok





https://www.youtube.com/watch?v=450WhyM0Ubo



https://www.youtube.com/watch?v=CCT7UmJV3I0



https://www.youtube.com/watch?v=mJr1oWMbbCU

Explore money and coins. There are twice as many quarters as nickels.



https://www.youtube.com/watch?v=q8EaQbOJRyk

After 10 stops how many? 20 stops? Etc



\$10 for the whole cake, how much for each piece.



https://www.aliciaburdess.com/ includes Thinking Classroom Problems Link to the slide presentation for the picture books.

Keep in touch on Twitter @BurdessAlicia Or by email aliciaburdess@gmail.com

Resources:

"New Visions for Linking Literature and Mathematics" by David Whitin and Judith Lindfors. What makes a
picture book good? This is an excellent resource from NCTM and NCTE. Not only does this book review and
highlight many different books, one chapter is Criteria for Selecting Math-Related Books.

Literature Links:

- <u>http://www.ksu.ksu.edu/smartbooks/</u> This site has lots of books and lesson plans arranged by subject as well as grade level.
- <u>http://sci.tamucc.edu/~eyoung/literature.html</u> Links by topics to childrens' books
- <u>http://www.lindaslearninglinks.com/MathLiterature.html</u> Links to childrens' books
- <u>http://www.sci.tamucc.edu/~evoung/middle_school_literature.html</u> Middle and High School books
- http://www.thereadingnook.com/math/
- <u>Resources</u> from Marrie Lasater

David Schwartz http://davidschwartz.com/

- "G is for Google, A Math Alphabet Book" by David Schwartz is one of his many books with mathematical connections. While this book's reading level is more appropriate for upper elementary, it does create ideas for vocabulary activities for all levels of students. <u>G is for Google.doc</u>
- "If You Hopped Like a Frog" David Schwartz. Have you ever wondered about the jumping ability of a frog? If so, you would discover that "If you hopped like a frog...you could jump from home plate to first base in one mighty leap." The book poses and then answers many questions such as, "If you were as strong as an ant...If you had eagle eyes. Illustrations by James Warhola make the variety of animal characteristics come to life in amazing and amusing human traits. If you hopped like a frog.doc
- "If You Made a Million" written by David Schwartz. What makes "If You Made a Million" special is that there is an error is the book. Challenge your students to find the <u>mistake</u> by having them take a page, a passage, or a picture and verify that it is correct. The error, which was revealed in a presentation by David Schwartz at a NCTM national conference, is found on the page that begins "If you prefer coins, you can have a fife-foot tack of pennies." The error is that "Or you can receive your ten dollars as a 3 1/4 inch pile of forty quarters" The pile would be 2 3/4 inches. If You Made a Million.doc
- "If Dogs Were Dinosaurs" demonstrates how imagination can be used to enhance mathematics. David Schwartz ponders such questions as "If the moon were a marble ..." and "if a submarine sandwich were a real submarine..." and comes up with possible answers like "you could play baseball with the planet Earth" and "a pickle slice could save your life." Illustrations by James Warhola make the book fun to read even for students to young to understand the math. <u>if dinosaurs + immeter.doc</u>
- "How Much is A Million" shows the concepts of a million, a billion and a trillion are made vivid by delightful examples of mins-stretching examples.
- "Millions to Measure" explores the invention of length, weight and volume measurements.
- Other Books
 - "Less Than Zero" by Stuart Murphy, Illustrations by Frank Remkiewicz. It is never too early to introduce students to negative numbers. Winter is a great time for negative numbers and showing them on a number line.
 - "Bean Thirteen" by Matthew McEllicott
 Bean Thirteen activity

Magic Bean, make the 13 beans turn into 12 and solve your remainder problems

- **"The Little Engine That Could"** by Watty Piper has been around for a long time. One of nine instructional strategies in Bob Marzano's book "Classroom Instruction That Works" is reinforcing effort and providing recognition. Have your students divide up 100% into the categories; ability, effort, other people, and luck as to which has the greatest influence on their success. While all of these play a part in what we can accomplish, many students do not realize the importance of believing in effort. <u>The Little Engine that could.doc</u>
- **"Math Curse"** written by Jon Scieszka and Lane Smith is delightful, entertaining, and educational. The book begins, "On Monday in math class Mrs. Fibonacci says, "YOU KNOW, you can think of almost everything as a math problem." On Tuesday I start having problems." Math questions are generated from and connected to the students' world as they go through a typical day. <u>Math Curse.doc</u>
- "Sir Cumference and the First Round Table" written by Cindy Neuschwander and illustrated by Wayne Geehan. What do King Author, Camelot, Lady Di, and Sir Cumference have to do with mathematics? The first hint may come from Sir Cumference, he is not a well know Knight. Add the fact that he is married to Lady Di who comes from the town of Ameter, has a half sized son named Radius, his carpenter is Geo of Metry, their country is being invaded by people from Circumscriber, and King Author is not pleased with his rectangle table. <u>Sir</u> <u>Cumference.doc</u>

- "Sir Cumference and the Isle of Immeter" is another in a series of books written by Cindy Neuschwnader and illustrated by Wayne Geehan. This book begins with Lady Di of Ameter (diameter) teaching her cousin Radius the game of "inners and edges." This game involves finding the area and perimeter of different rectangles. <u>if</u> <u>dinosaurs + immeter.doc</u>
- "Sir Cumference and the Diameter of Pi" is another in a series of books written by Cindy Neuschwnader and illustrated by Wayne Geehan.
- <u>Video with problems</u>
- "The Dot" by Peter Reynolds This delightful book is "Dedicated to Mr. Matson, my 7th grade math teacher, who
 dared me to "make my mark." As teachers we make "marks" on students daily, that is why we are teachers. Our
 interactions help mold students into young adults and ultimately into the person they will become. A related
 activity is provide to estimate the number of dots on a scanned picture that is provided. <u>The Dot.doc</u> Picture to use
 for for the activity <u>The Dot Jacv's Balloon.doc More activities</u> using the dot.
- Students don't care what you know; they want to know that you care. I frequently share this thought as I work with teachers. No matter how old the student, teaching is about building relationships. Peter Reynolds has written and illustrated many books including, "The Dot", "Ish", and the "The North Star." Teaching is a profession where you can make a difference. Children need to develop self-confidence and encouragement. I would challenge you to use one or more of Peter's books with your students this year. Dot+Ish+North Star.doc
- "The 13 Days of Halloween" by Carol Greene This book is similar in format to "The Twelve Days of Christmas". A wide variety of mathematical objectives can be the focus of activities related to the story. In addition to problem solving, counting, ordinal numbers, creating equal groups to lay a foundation for multiplication, recognizing and extending patterns, multiple representations using tables, charts, or equations, and written or oral communication are some that quickly come to mind. <u>13 day of Halloween.doc</u>
- Also see an article "Thirteen Days of Halloween: Using Children's Literature to Differentiate in the Mathematics Classroom, Teaching Children Mathematics, September 2004 p 82-90.
- "A Million Dots" by Andrew Clements and illustrated by Mike Reed This book actually has 1 million dots within it pages. It begins with a picture of 1 dot, then10 dots, 100 dots, 500 dots, 1000 dots and continues with references to numbers in the world around us. Tie 578,504 shoelaces together and they would reach from New York to Boston. Students may try to verify claims made in the book. million dots.doc

Megapenny site provides information for various numbers of pennies; a graphic, weight, value, dimensions of a pile, area if laid flat, height if stacked up.

- **"The Greedy Triangle"** by Marilyn Burns may be a familiar book to many of you and one that you may be using. In this book, students learn about polygon shapes. The unhappy triangle visits a "shape shifter" to increase the number of sides and change shapes. The triangle goes from quadrilateral to pentagon to hexagon and on and on and finally adds so many sides that it becomes a circle. Ultimately, the triangle reverts to its original three sides. Students learn the names for several polygons as well as examples of where students will find these shapes. Three activities related to geometry are included in this article. These activities create a greater depth for student's understanding of properties of polygons. <u>Greedy Triangle.doc</u>
- Sixty seconds, one minute can be a relatively short time or a period of time in which many events can reoccur. Did you know that every minute about 191 cell phones are discarded in the United States? This fact along with many more are contained in the pages of "Every Minute on Earth, Fun Facts that Happen Every 60 seconds." This Scholastic book by Steve Murrie and Matthew Murrie is filled with fun and interesting facts. Each page contains a fact along with a picture and related comments. The rationale or calculations for the facts are not included, which leaves a possible mathematics activity. With over 200 pages, there are many facts that will surprise and amaze you. Ten adult elephants can produce 1 pound of poop per minute. Every Minute on Earth.doc
- Let's begin with an enjoyable book, "**Pigs Will be Pigs: Fun with Math and Money**" by Amy Axelrod with pictures by Sharon McGiniey-Nally. This is one of a series of books "Pigs Will be Pigs." The book tells how a hungry pig family finds an empty refrigerator and then decides to hunt all over the house for money. After finding different amounts of money, they drive to their favorite restaurant, *Enchanted Enchilada*, and order 4 daily specials from the menu. A menu is included in the book. <u>Pigs will be Pigs making sense of money.doc</u>
- "The Inch Boy" by Junko Morimoto is the story of a boy, Issunboshi, who is one inch tall and has an ambition to become a Samurai Warrior. Using a sewing needle as a sword, along with courage, he is appointed special bodyguard to Princess Makiko. After jumping into the mouth of the Red Demon and defeating the giant, Issumboshi begins to grow and grow and turns into a gallant Samurai Warrior and marries the Princess. Other than promoting perseverance against all odds, how can this book be used for mathematical connections? Issumboshi's one-inch size serves as a way to introduce outliers into a data set. Another possibility for a small outlier would be to use the story of Tom Thumb. The article uses the Statue of Liberty as a larger outlier. A worksheet, The Inch Boy and Yao Ming, is available on my website along with the picture book corner articles. Shel Silverstein has written a poem, "One Inch Tall" which talks about what would happen if you were one inch tall. Activities with this poem use proportions to investigate if statements made in the poem are possible and are available on my web site. inch boy.doc Bonus Inch Boy and Yao Ming statistics activities Inch Boy activity.doc

• **Two of Everything** by Lily Toy Hong recounts a Chinese folk tale. The farmer finds a magic pot which doubles everything that is put into it. This humorous story is a great introduction to function machines and input/output tables as teachers make the transition to the "doubling pot" and recording information in an input/output table. This book comes from one of my favorite mathematics web sites Math Wire, http://www.mathwire.com/



• magicpotworkmat.pdf







Magic Pot ideas.pdf



Life By the Numbers from PBS Video for \$100.

Explore the world of mathematics and how its principles play a role in everything from microscopic life to the motion of planets, in this seven-part series hosted by Danny Glover. Included are "Seeing Is Believing: Special Effects," "The Numbers Game: Sports," "Patterns of Nature: Biology," "Chances of a Lifetime: Probability," "Shape of the World: Exploration," "A New Age: Information Age," and "Making a Difference: Education." 6 2/3 hrs. total on seven discs. Soundtrack: English.

http://turnerclassic.moviesunlimited.com/product.asp?sku=D89620

PBS video The Story of 1 The story of the number one is the story of Western civilization. Terry Jones ("Monty Python's Flying Circus") goes on a humor-filled journey to recount the amazing tale behind the world's simplest number. Using computer graphics, "One" is brought to life, in all his various guises, in STORY OF 1 Donald in Mathemagic Land Stand and Deliver

Flatland <u>http://www.flatlandthemovie.com/</u> Powers of 10

Wendy Lichtman, a Bay Area author, has a series out called Do the Math: Secrets, Lies and Algebra, and Do the Math: The Writing on the Wall. These are excellent novels that use mathematical metaphors to provide incidental learning. My school in NYC ordered 150 copies and they were gone in a day! The target age range is from 5th-11th grade. I also wrote an implementation guide available at:

http://www.wendylichtman.com/#/for-math-teachers/4534610186

Just click on "For Math Teachers" and the PDF will download. Really easy activities that I have used both in my classroom for 10+ years and have presented around at conferences with reported great success.

Books for possible Book Studies with Teachers: "What's Math got to do with it?" by Jo Boaler Math is the Second Most Exciting Thing <u>The Math Coach's Field Guide</u> (Math Solutions) Content-Focused Coaching (Lucy West)

Knowing and Teaching Elementary Mathematics (Liping Ma) Sensible Mathematics by Steven Leinwand and his second book, Ten Instructional Shifts That Raise Student Achievement