**The Mathematicians**

**Literature List**

*Tying mathematics to stories humanises the activity and also gives purpose and meaning to mathematics for both teacher and children. Literature then can provide a link between the complexity of the world around us and the highly structured discipline of mathematics.*

*Books You Can Count On, p5*

**Resources for Teachers**

**Exploring Math With Books Kids Love.**

Kaczmarski, K. (1998) Fulcrum Publishing, USA.

**Read Your Way to Mathematics: Using Literature to Teach Mathematics (Bk 1 – 3)**

Griffiths, R. and Clyne, M. (1996) Adison Wesley Longman Australia

**More than Just Counting Books: Curriculum Challenges for Children.**

Griffiths, R. and Clyne, M. (1990) Thomas Nelson, Australia.

**Books You Can Count On: Linking Mathematics and Literature.**

Griffiths, R. and Clyne, M. (1988) Thomas Nelson, Australia.

*These four books provide lesson outlines based on children's stories and poems. They include overviews showing where the books used fit into the curriculum, and include valuable suggestions relating to planning, classroom organisation and practices, and assessment and evaluation. Extensive bibliographies and further references are included.*

**Teaching Children Mathematics.**

(published by the National Council of Teachers of Mathematics)

*Each issue of this journal for teachers has a feature entitled "Links to Literature."*

**The Wonderful World of Mathematics**

Thiessen, D. and Matthias, M. NCTM (1992).

*This critically annotated list of children's books in mathematics provides clear descriptions of a wide range of children's books related to mathematics. Care should be taken to differentiate between children's literature and the many books on specific mathematics topics.*

**Children's Books.**

The books listed here are just some of the many excellent children's books which have themes related to mathematics. All are recommended both for their literary value and the contribution they make to children's knowledge and understanding of mathematics, and have been included because they are representative of the genre or have special features. The list is a 'work in progress' ‑ I hope that you will add to it as you discover other books that are successfully used in classroom mathematics programmes (Note that the curriculum classifications are a guide only; many of the titles can be used across the different areas of mathematics, and all relate to the mathematical processes.)

**Number / Algebra**

**A** **Cat and Mouse Story** by Michael Rosen. When the mice discover that the cat is getting the better of them, they hatch a clever plan to thwart her. Higher ordinal numbers are used in this story.

**A Pukeko in a Ponga Tree** adapted by Kingi lhaka. This NZ version of the twelve days of Christmas shows the gifts for each day, leaving the showing of the total to the last. Excellent for sharing and dramatizing.

**Amanda Bean's Amazing Dream**  by Cindy Neuschwander. Amanda Bean likes to count anything and everything. Her teacher tries to convince her to use multiplication but Amanda is unconvinced until she has an amazing dream.

**Anno's Counting House** by Mitsumasa and Masaichiro Anno. Ten children move, one by one, to a new house. This highly recommended book is an excellent introduction to the partitioning of ten.

**Anno's Mysterious Multiplying Jar** by Mitsumasa and Masaichiro Anno. Learning about numbers and how they can expand almost without limit (introducing the concept of factorials) is shown in simple means in this book.

**Bunches and Bunches of Bunnies** by Louise Mathews. This rhyming book shows the squares from 1 x 1 to 12x12 and can be used to explore grouping and multiplication.

**Cherry Stones a Book of Numbers** by Sally Heinrich. A counting book that follows the rhyme Tinker, Tailor, Soldier, Sailor through counting from 1 to 13. Each page of illustrations encourages children to find the characters that link to the number eg the Three Little Pigs, the animals entering the ark, and every day objects such as half a dozen eggs. A range of ways the number is represented in both written and spoken language is also included on each page.

**Counting Our Way To Maine** by Maggie Smith. A story that uses the numbers 1 to 20 to tell of a family's holiday.

**Coyotes All Around**  by Stuart J. Murphy. A story about Clever Coyote and Careful Coyote as they use their different strategies to solve how many Road Runners, lizards and grasshoppers there are around their home.

**How Much is a Million?** by David M. Schwartz. A starter to get children investigating large numbers. Concepts of a million, a billion and a trillion are made vivid by delightful examples and the most mind‑stretching scenes.

**Kiwi One! Two! Three!** by Dave Gunson. A counting book that uses numbers 1 – 10, then 20, 50, 100 and 1000. Challenges include counting the kiwi on each page, including the 1000 page. The problem is where are the other 99 kiwi on the 100 page?

**Maths For All Seasons** & **The Grapes of Math** by Greg Tang. Two books that use mind - stretching maths riddles to introduce different counting / number strategies.

**The Best of Times** another book by Greg Tang this time looking at multiplication strategies.

**Millions of Cats** by Wanda Gag A very old man sets off to find a cat for his wife but is unable to resist the many cats he meets. Children enjoy participating in the repetitive part of this story that helps develop concepts about large numbers.

**Olwen Twelve Pockets** by Fiona MacKay. A story about Olwen who has a pair of overalls which has twelve pockets. Using ordinal numbers we discover what is in each pocket with clues as to what is in the twelfth pocket given as each pocket is discussed.

**One Chocolate Fish** by S.W. Norrie. A New Zealand counting book that uses New Zealand icons as the subjects for each page. Also look out for the landmarks that are incorporated in each picture.

**One Grain of Rice** by Demi. A little girl returns the rice she finds to the King and is invited to specify her reward. This involves doubling which at first seems inadequate but soon reaches astronomical proportions. Excellent for developing estimation. ("King Kaid of India" and "The King's Chessboard" are other versions of this traditional story.)

**One Hungry Spider** by Jeannie Baker Collage techniques are used to illustrate this book in which counting is combined with the story of how a spider makes a web, protects itself and catches food.

**One Hundred Hungry Ants** by Elinor Pinczes. A story about 100 ants who head off to a picnic but travelling in one long line takes far to long so they rearrange themselves into 2, 4, 5, 10 lines.

**One Hundred Shoes** by Tony Ross. When are one hundred shoes too many shoes? When you are a centipede! A story about a little centipede with sore feet who gains then gives away all his shoes.

**One Is a Snail Ten Is a Crab** by April Pulley Sayre and Jeff Sayre. A book that explores the combinations of numbers 1 to 10 then the decade numbers up to 100. This is a counting by feet book so one is a snail, two is a person three is a ???

**Sadako and the Thousand Paper Cranes** by Eleanor Coerr. This story for older children is based on the life of a little girl who lived in Hiroshima from 1943‑1955. It describes her attempt to make one thousand folded paper cranes so that her wish to recover from radiation sickness will be granted.

**Six Dinner Sid** by Inga Moore. This story tells of a cat that had six homes, six beds, six names etc until one day when he is found out.

**Sixes and Sevens** by John Yeoman. This appealing counting book revolves around a river journey with a surprising range of passengers. A very useful big box solves problems along the way.

**Ten Seeds**  by Ruth Brown. Join the gardening countdown - from the planting of ten seeds and watching their progress to the harvesting of ... ten seeds.

**The Biggest Number in the Universe** by Julie Leibrich. Nesta visits Mr Abacus, the grumpy mathematician, to borrow a big number to take to school. She persists until he lends her one but on the way to school she looses it.

**The Doorbell Rang** by Pat Hutchins. Sharing cookies among friends becomes a complicated process as more and more children join in. An enjoyable and realistic introduction to division.

**The Eleventh Hour** by Graeme Base. The story of Horace’s eleventh birthday party. As the story unfolds the illustrations provide codes, ciphers and criptic clues to help in finding the solution to the curious mystery of *The Eleventh Hour.*

**The Great Divide – A Mathematical Marathon** by Dayle Ann Dodds. A race starts out with 80 participants and as the story unfolds they a halved at each obsticale until only one is left to cross the finish line.

**The King's Commissioners** by Aileen Friedman When the King asks his Royal Advisors to count the Royal Commissioners he grows confused and angry when he does not understand their methods. This boisterous tale stimulates children to think about the place value structure of our number system.

**The Twelve Days of Christmas** illustrated by Jack Kent This version of the traditional song shows gifts accumulating as the story progresses. An excellent introduction to the ordinal numbers from 1‑12.

**While You Where Sleeping** by John Butler. The story of animals one to ten and their actions one deep dark night while you were sleeping. Ends with ten penguins meeting their one hundred friends.

# Measurement

**Alexander, Who Used to be Rich Last Thursday** by Judith Viorst. The saga of how Alex spends or loses his money is told amusingly and realistically and provides a good introduction to a discussion about the value of money.

**Big Dog, Little Dog:** A **Bedtime Story** by P. Eastman. Fred and Ted are friends, but the difference in their sizes means that they need different accommodation. Children enjoy predicting what will happen in this simple story.

**Clocks, Clocks and More Clocks** by Pat Hutchins. As he moves from room to room, Mr Higgins notices that his clocks all show different times. While children of all ages will enjoy the story, very young children may have difficulty in understanding the solution.

**Counting on Frank** by Rod Clement. A young child who is fascinated with number investigates; how long a line a ballpoint pen will write before the ink runs out, how many dogs the size of 'Frank ' will fit into his bedroom, how long it will take the entire bathroom to fill with water if he leaves the plug in the bath and the tap running and many more fascinating and amusing facts. This book is a great motivator for investigations on measurement.

**George Shrinks** by William Joyce and **The Shrinking of Treehorn** by Florence Heide are two excellent starters for discussions about comparative size. These humorous stories describe the problems George and Treehom encounter when they suddenly shrink.

**How Big is A Foot?** by Rolf Myllar. A cautionary tale about the perils of using non-standard measurements.

**How Much, How many, How Far, How Heavy, How Long, How Tall Is 1000?** by Helen Nolan. A book that explores how the number 1000 can be a lot or a little depending on what is being counted – and who is doing the counting.

**If You Made a Million** by David M. Schwartz. To earn a dollar, ten dollars, ten thousand dollars, how big a job will you have to do? What might your pay look like ‑ if you spend it, what could you buy, if you save it, how much will it grow ‑ and yes, what would you do if you made a million dollars? An excellent starter for an investigation into large amounts of money.

**In The Next Three Seconds** by Rowland Morgan. A factual book about what will happen, on Earth, in the next three: seconds, minutes, hours, days, nights, weeks, months, years, decades, centuries, thousand years, million years,

**Is A Blue Whale The Biggest Thing There Is?**  by Robert E Wells. Starting with the blue whale this book discusses something that is big, something that is bigger and something that is beyond measure.

**Jim and the Beanstalk** by Raymond Briggs. This delightful version of the old fairy tale opens up many opportunities for a range of measurement activities.

**Mr Archimedes Bath** by Pamela Allen. This delightful story describes Mr Archimedes' discovery of measuring volume by water displacement.

**Mr Gumpy's Outing** and **Mr Gumpy's Motor Car** by John Burningham Two stories about Mr Gumpy and all his animal friends when they decide on an outing. Both books provide a humorous story that can be used as a starter for discussion of measurement concepts.

**The Giant Jam Sandwich** by J.Lord and **The Biggest Cake in the World** by Joy Cowley are two books about large amounts of food and could lead to investigations about quantities required and problems to be overcome in catering for large numbers.

**Who Sank the Boat?** by Pamela Allen and **The Great Big Enormous Turnip** by A Tolstoy are two humorous stories that are useful starters for discussion of measurement concepts. Did the smallest animal really bring about the consequence?

**Shape and Space (Geometry)**

**A Cloak for the Dreamer** by Aileen Friedman. This warm and perceptive tale introduces the concept that some shapes tessellate but some don't. The problem with Misha, the dreamer, was that he wanted to make a cloak out of circles but it left lots of gaps.

**Bears in the Night** by B Berenstein, **Rosie's Walk** by Pat Hutchins **The Shopping Basket** by John Burningharn These three delightful stories clearly illustrate many of the terms associated with location, and can be used as the basis for models and maps.

**Flat Stanley** by Jeff Brown. Stanley's bulletin board falls on him during the night, flattening him. This story about his adventures is a humorous introduction to the differences between two and three dimensional shapes.

**Reflections** by Ann Jonas. You read the book, turn it upside down and continue the story. In each full coloured picture there is another picture reflected. A particularly inventive book that children love.

**Sir Cumference and the Knights of Angleland** by Cindy Neuschwander. A story about Radius, the son of Sir Cumference and Lady Di of Ameter who ventures out on a quest to save King Lell.

**The Greedy Triangle** by Marilyn Bums. A triangle got tired of doing the same things and decided it wanted more sides and angles. This is a witty introduction to the features of two‑dimensional shapes*,* presenting them in a combination of real‑world and imaginary contexts.

**Novels**

**Alice in Wonderland** and **Alice Through the Looking Glass** by Lewis Carroll. An favourite classic. In Alice in Wonderland Alice falls asleep and finds herself falling down a rabbit hole into an adventure where is at first too big and then too small. While in Alice Through the Looking Glass she finds herself in a land that is set up like a chessboard and she moves from square to square like a pawn in the game meeting all the other chess piece characters.

**George’s Marvellous Medicine** by Roald Dahl. The story of how George makes a potions to get rid of his Grandmother but ends up with all sorts of things happening.

**Gulliver’s Travels** by Jonathan Swift. Another classic that finds the main character, Gullier, shipwrecked and cast adrift. He wakes up to find himself on Lilliput, an island inhabited by little people. As his journey continues he meets the crude giants of Brobdingnag, the abstracted scientist of Laputa, the philosophical Houyhnhnms and the brutish Yahoos.

**The BFG** by Roald Dahl. The story about a little girl who meets a big friendly giant and together how they save the people of the world from being eaten by not so friendly giants.

**The Curious Incident of the Dog in the Night – Time** by Mark Haddon. A story written from the view point of Christopher, a fifteen year old autistic boy, who starts out to solve the murder of the dog across the road. Christopher uses mathematics to help overcome difficult situations.

**The Young Man and the Sea** by Rodman Philbrick. The story of an twelve year old boy who works to save his father fishing boat when it sinks. How he goes about getting the money to pay for repairs he cannot do himself.

**And finally .....**

**Maths Curse** by Jon Scieszka and Lane Smith. Do you ever wake up to one of those days where everything is a problem? You have ten things to do but only thirty minutes until your bus leaves, you have three shirts and two pairs of pants, can you make one decent outfit? This is a young girl's story of how that curse can be broken.