

**Book list – I own 98% of the books listed here, many others I have currently checked out of the library. All of them have good parts but you may not find each one to be exceptional... it depends on your personal preferences.**

- Education books and authors I have enjoyed:
  - Alfie Kohn
  - Jonathan Kozol
  - E.D. Hirsch (the schools we need, etc)
  - Howard Gardner (though much of his work on multiple intelligences has been refuted with recent research)
  - The game of school – Fried
  - The Closing of the American Mind – Bloom
  - The learning gap – stevenson and stigler
  - The teaching gap – stigler and hiebert
  - Dumbing Down our kids – sykes
  - Research ideas for the classroom – high school mathematics – Patricia Wilson (editor) (NCTM project)
  - Teaching Mathematics for the 21<sup>st</sup> century – methods and activities for grades 6-12 – Linda Huetinck and Sara Munshin
- Ian Stewart (does a lot of Scientific American columns – replaced Martin Gardner)
  - How to cut a cake
  - Math hysteria
  - The story of mathematics
  - Game, set, and math
  - Does God play dice
  - What shape is a snowflake
  - The magical maze
  - Letters to a young mathematician.
  - Another fine math you've got me into
  - Life's other secret
  - Nature's numbers
  - The problems of mathematics
- Raymond Smullyan (logic master – great puzzles to make you and your students think)
  - To mock a mockingbird
  - Alice in puzzleland
  - First order logic
  - Logical Labyrinth
  - King Arthur in search of his dog
  - The tao is silent
  - This book needs no title
  - Some interesting memories
  - 5000 bc and other philosophical fantasies
  - The magic garden of George B
  - Forever undecided – a puzzle guide to godel
  - Chess mysteries of Sherlock holmes
  - The riddle of the scheherazade
  - Satan, Cantor, and infinity
  - The lady or the tiger

- Theoni Pappas (good books for your ADD and ADHD students, as the articles are very short and rather light)
  - The magic of mathematics
  - Mathematics appreciation
  - Math stuff
  - Math-a-day
  - The joy of mathematics
  - More the joy of mathematics
  - Mathematical scandals
  - The music of reason
  - Mathematical Footprints
- Martin Gardner (wrote scientific american column on mathematics for decades, condensed his columns into books, then wrote many others)
  - The new ambidextrous universe
  - My best mathematical and logic puzzles
  - Puzzles from other worlds
  - The colossal book of mathematics
  - The colossal book of short puzzles and problems
  - Penrose tiles to trapdoor ciphers and the return of dr. matrix
  - The last recreations
  - Knotted doughnuts and other mathematical entertainments
  - Wheels, life and other mathematical amusements
  - Aha! Insight (great for teachers)
  - Aha! Gotcha (great for teachers)
  - Time travel and other mathematical bewilderingments
  - Mathematical recreations (written by Klarner) – a collection in honor of Martin Gardner
  - The second scientific american book of mathematical puzzles and diversions
  - Entertaining science experiments with everyday objects
  - Mathematics magic and mystery
  - Fads and fallacies
  - Entertaining mathematical puzzles
  - The magic numbers of dr. matrix
  - Hexaflexagons and other mathematical diversions
  - Perplexing puzzles and tantalizing teasers
  - The unexpected hanging
  - Mathematical carnival
  - Did Adam and even have navels?
  - Martin Gardner's favorite poetic parodies.
  - The relativity explosion
  - Are universes thicker than blackberries?
- Calvin Clawson
  - Mathematical mysteries
  - The mathematical traveler
  - Mathematical sorcery

- Malcolm Gladwell (not math, but do include some good math stuff)
  - Outliers
  - The tipping point
  - Blink
  - What the dog saw
- Keith Devlin (great writer, and the NPR math guy)
  - Goodbye, descartes
  - The language of mathematics – making the invisible visible
  - Mathematics the new golden age
  - Mathematics – the science of patterns
  - The unfinished game
  - All the math that's fit to print
  - The math instinct
  - Life by the numbers
  - The millenium problems
  - The math gene
  - The numbers behind numbers (based on the tv show numbers)
- Robert Wolke (you'll probably enjoy the math and physics here)
  - What einstein didn't know
  - What einstein told his cook
  - What einstein told his cook 2
  - What einstein told his barber
- John Allen Paulos
  - Innumeracy
  - Irreligion
  - Beyond Numeracy
  - A mathematician reads the newspaper
  - Once upon a number
  - A mathematician plays the stock market
  - Mathematics and humor
- Problem solving books of many types for high school students (and yourselves)
 

Published by AOPS – the art of problem solving

  - The art of problem solving Vol 1 and 2 (Richard Rusczyk)
  - Introduction to Algebra(Richard Rusczyk)
  - Introduction to Counting and Probability (David Patrick)
  - Introduction to Number theory (Matthew Crawford)
  - Intermediate Algebra (Richard Rusczyk and Matthew Crawford)
  - Intermediate Counting and Probability (David Patrick)
  - Precalculus (Richard Rusczyk)
  - Calculus (David Patrick)
  - Introduction to Geometry (Richard Rusczyk)
- I try to find any book with mensa in the title – puzzles, mind boosters, iq tests, strategic games, etc. Any puzzle books, mathemagic, etc. I also like magic books that relate mathematics to magic, and card tricks do that a lot.

- Codes and cryptography
  - The six unsolved ciphers - belfield
  - The science of secrecy – singh
  - Cryptography - smith
  - Secret messages – william butler
  - The code book – simon singh
  - Codes, puzzles and consipracy – dennis shasha
  - In code, a mathematical journey – sarah flannery
  - Codes and ciphers – fred wrixon
  - Crypto – steven levy
  - The puzzle palace – james bamford
- Books to help with math anxiety (whether you believe it is real or not)
  - Conquering Math Anxiety – Cynthia Arem
  - Math is a four letter word! – Angela Sembera and Michael Hovis
  - Fear of Math – Claudia Zaslavsky
  - Overcoming Math Anxiety – Davidson and Levitor
  - Overcoming Math Anxiety – Sheila Tobias
  - Managing the mean math blues – ooten
  - Winning at math – Paul Nolting
  - Mastering Mathematics – how to be a great math student – Richard Manning Smith
- History of Math books
  - Hands on history – a resource for teaching mathematics – Amy shell-gellasch
  - Classics of Mathematics – Callinger
  - A history of mathematics – Boyer and Merzbach (the book I used in college)
  - Men of mathematics – ET Bell
  - Men and numbers – james newman
  - The history of mathematics – WWR Ball
- James Burke (did some dvds called connections, connections 2, and connections 3 – excellent way to tie history into mathematics, science, etc)
  - Circles
  - The pinball effect
  - Connections
  - The day the universe changed
  - Twin tracks
  - Knowledge web
- James Gleick
  - Chaos
  - Isaac newton
  - Faster
  - What just happened
  - Genius

- Ivan moscovich (puzzlers to knock your mind out of your head)
  - Perplexing pattern problems and other puzzles
  - Tough topology problems and other puzzles
  - Sensational shape problems and other puzzles
  - Fiendishly frustrating brain twisting puzzles
  - The hinged square and other puzzles
  - Leonardo's mirror and other puzzles
  - The shoelace problem and other puzzles
  - The big book of brain games
  - Magnetic puzzle pack
  - Deviously difficult mind bending puzzles
  - The monty hall problem and other puzzles
  - 1000 playthinks
- Clifford Pickover
  - The mobius strip
  - Fractal horizons
  - The math book – from pythagoras to the 57<sup>th</sup> dimension
  - Surfing Through hyperspace
  - Computers and the imagination
  - The loom of god
  - Strange brains and genius
  - The mathematics of oz
  - The stars of heaven
  - Calculus and pizza
- Alfred Posamentier (warning – many of his books contain large chunks that are similar to other books or exactly the same as his other books)
  - The fabulous fibonacci numbers
  - Pi – a biography of the world's most mysterious number
  - Math charmers – tantalizing tidbits for the mind
  - Tips for the mathematics teacher – research based strategies for learning
  - Problem solving strategies for efficient and elegant solutions, grades 6-12
  - 101+ great ideas for introducing key concepts in mathematics
  - Math wonders to inspire teachers and students
  - Excursions in advanced euclidean geometry
  - Teaching Secondary Mathematics – Techniques and Enrichment Units (with Beverly smith and jay stepelman)
- Robert Devaney and others (great books for high school students)
  - Fractals
  - Chaos
  - The mandelbrot and julia sets
  - iteration
- Amir Aczel
  - Descartes secret notebook
  - probability 1
  - gods equation
  - pendulum
  - fermat's last theorem
  - The artist and the mathematician
  - Chance
  - The mystery of the aleph
  - The riddle of the compass

- Robert Banks
  - Towing icebergs, falling dominoes, and other adventures in applied mathematics
  - Slicing Pizzas, Racing Turtles and Further adventures in applied mathematics
- Miscellaneous books
  - Math Olympiad Contest Problems – George Lenchner (elem and middle school, but the middle school problems are often good for your high school students)
  - Visual patterns in pascal’s triangle (dale Seymour)
  - Patty Paper Geometry – Michale Serra
  - Out of the labyrinth – robert and ellen kaplan
  - The contest problem book – books from the american high school mathematics competition (there are around 6 or 7 books) – charles salkind, stephen maurer, etc
  - Mathematics for the nonmathematician – morris kline
  - What is mathematics? – richard courant, and ian stewart
  - How mathematics happened – the first 50,000 years – Peter Rudman
  - Duel at dawn - alexander
  - Euler’s gem – richeson
  - Marvels of math – kendall haven
  - A mathematician’s lament – paul lockhart
  - Problem solving strategies:crossing the river with dogs- ken johnson & ted herr
  - Is God a Mathematician? – Mario Livio
  - Mathematical connections – al cuoco (excellent tie in with our arithmetic sequences, ties in with solving degree 3 equations too)
  - Problem posing – marion walter and stephen brown (3<sup>rd</sup> edition)
  - Yearning for the impossible – stillwell
  - Dr. Euler’s fabulous formula – paul nahin
  - Bridges to infinity – michael guillen
  - Kepler’s conjecture – george szpiro
  - Stalking the reimann hypothesis – dan rockmore
  - Prisoner’s dilemma – william poundstone
  - The reimann hypothesis – karl sabbagh
  - Timid virgins make dull company – dr. crypton
  - Reading between the numbers – Joseph Tal
  - How would you move mount fuji – William poundstone
  - Duelling idiots and other probability puzzlers – paul nahin
  - the great mathematicians - turnbull
  - Fermat’s enigma – simon singh
  - The golden Ratio – story of phi – Mario Livio
  - A mathematical history of the golden number - Herz-Fischer
  - The golden ratio and Fibonacci numbers – RA Dunlap
  - The golden section – nature’s greatest secret – Scott Olsen
  - The divine proportion - Huntley
  - Math and the mona lisa – bulent atalay
  - The mathematical universe – william dunham
  - Journey through genius – william dunham
  - Homage to pythagoras – crichlow, lawlor, macaulay, etc.
  - Euclid in the rainforest – discovering universal truth in logic and math – joseph mazur

- The calculus wars – bardi
- How to dunk a doughnut – Len Fisher
- What’s math got to do with it – jo boaler
- About teaching mathematics – marilyn burns (anything by her is pretty good including “a collection of math lessons”, I hate math book, etc)
- What are the odds – mike orkin
- The honors class – yandell
- Statistics without tears – Derek rowntree
- Probability without tears – Derek rowntree
- 50 challenging problems in probability with solutions – Frederick mosteller
- Calculated risks – gerd gigerzner
- Brainwashed – ben shapiro
- Five equations that changed the world – michael guillen
- To infinity and beyond – maor
- Hilbert – constance reid
- Fearless Symmetry – Avner Ash
- All the mathematics you missed but need for graduate school – thomas garrity (in case you choose to come back for a masters in mathematics or more)
- The triumph of numbers – cohen
- Unfolding mathematics with origami boxes – tubis
- Advanced origami – lafosse
- How to solve it – george polya
- The heart of mathematics – starbird and burger
- Sacred mathematics – fukagawa and rothman
- The alberta high school math competitions 1957 – 2006 (edited by andy liu)
- Hidden connections and double meanings – david wells
- Puzzling adventures – dennis shasha
- A transition to advanced mathematics – smith, andre, st andre (perhaps my favorite book on the introduction and learning of proof)
- The drunkards walk – how randomness rules our lives – leonard mlodinow
- A smoother pebble- mathematical explorations – benson
- A mathematicians apology – g.h.hardy
- The broken dice – ivar ekeland
- Feynman’s rainbow – leonard mlodinow
- Mathematics and the unexpected – ivar ekeland
- Imagining numbers - Barry mazur
- Figuring – shakuntala devi
- Go figure – brookhart
- The mathematical experience – davis and hersh
- Descartes’ dream – davis and hersh
- The number sense – stanislas dehaene
- One two three... infinity – gamow
- The story of mathematics – richard mankiewicz
- Godel, escher, bach - hofstadter
- Group theory in the bedroom and other mathematical diversions – brian hayes
- Calculus made easy – silvanus thompson and martin gardner

- Garbage pizza, patchwork quilts, and math magic - ohanian
- Numbers – david boyle and anita roddick
- Beyond coincidence – martin plimmer
- Incompleteness – rebecca goldstein
- The universe and the teacup – k.c.cole
- The master book of mathematical recreations – schuh
- The golden ratio – mario livio
- The rainbow of mathematics – ivor grattan-guinness
- The divine proportion – huntley
- What is random – beltrami
- Chance and chaos – ruelle
- Mathematical mountaintops – john casti
- Taking chances – john haigh
- 13 the story of the world's most notorious superstition – nathaniel lachenmeyer
- Decoding the universe – charles seife
- Mathematical byways – hugh apsimon
- Imaginary numbers – frucht
- The world's most famous math problem – marilyn vos savant
- Poetry of the universe – robert osserman
- Infinite ascent – david berlinski
- $E = mc^2$  – david bodanis
- From 0 to infinity – constance reid
- The nothing that is – a natural history of zero – kaplan
- Descartes' error- damasio
- Infinity and the mind – rucker
- Playing with infinity – peter
- Pi in the sky – john barrow
- Equations of eternity – david darling
- Mathematics and the imagination- kasner and newman
- Miracle math – lorayne
- 200% of nothing – dewdney
- Beyond reason – dewdney
- Hashi – the bridges problem – alastair chisholm
- Metamaths – gregory chatin
- Symmetry – marcus du sautoy
- Charles seife – zero
- Great feuds in science – hellman
- The man who knew infinity – robert kanigel
- A beautiful mind – sylvia nasar
- My brain is open- schechter
- Ingenious pursuits – liza jardine
- Mathamazement – yablun
- The art of the infinite – robert and ellen kaplan
- Mathematical journeys – schumer
- Zero to lazy eight – alexander humez
- Alpha and omega – charles seife



- Where do I put the decimal point – ruedy and nirenberg
- The number devil – hans magnus enzensberger
- Math magic – scott flansburg
- The jungles of randomness – ivars petersen
- Chances are... michael and ellen kaplaan
- Prime obsession – john derbyshire
- Problem solving through recreational mathematics – bonnie averback
- Reality rules – john casti
- Mathematicians are people too (book 1 and 2) – Reimer
- Great feuds in mathematics – hellman
- Why flip a coin – lewis
- The golden section – garth runion
- everything and more - David foster wallace
- divine proportion – hemenway
- the saga of mathematics - lewinter
- An imaginary tale the story of  $\sqrt{-1}$  - paul nahin
- The king of infinite space – siobhan roberts
- Chaos and harmony – trinh xuan thuan
- The chicken from minsk – chernyak and rose
- Mystery of numbers – schimmel
- The lady tasting tea – salsburg (great book on history and development of statistics... you may even like stats after reading it)
- The arithmetic of life – george shaffner
- A mathematical mystery tour – dewdney
- Anything by richard feynmann – great teacher and writer of physics.
- A new kind of science – stephen wolfram
- Mathematics from the birth of numbers – gullberg
- The universal history of numbers – Ifrah
- Scientific Genius - glenn
- Conned again watson – colin bruce
- Trigonometric delights – eli maor
- Countdown – steve olson
- Trigonometry – gelfand (part of a skinny set that is expensive but very good!)
- Pythagoras' trousers – margaret wertheim
- e – the story of a number – eli maor.
- Islands of truth – ivars peterson
- The mathematical tourist – ivars peterson
- Why do buses come in threes? – eastaway and wyndham
- The man who loved only numbers – paul hoffman
- Archimedes revenge – paul hoffman
- Secrets of mental math – art benjamin
- Infinity – brian clegg
- Mathematica thought – kline
- The universal book of mathematics – darling
- God created the integers – hawking
- The man who counted – tahan

- Mathsemantics – edward macneal
- Mathematics for the imagination – peter higgins
- The joy of pi – david blatner
- Kingdom of the infinite number – bunch
- Number 9 – cecil balmond
- A brief history of infinity – paolo zellini
- A beautiful math – siegfried
- What is mathematics, really – hersh
- Fantasia mathematica – clifton fadiman
- The enjoyment of math – rademacher and toeplitz
- The advent of the algorithm – david berlinski
- The prism and the pendulum – robert crease
- Rainbows, curve balls, and other wonders – ira flatow
- The music of the primes – marcus du sautoy
- Unknown quantity – john Derbyshire
- Origami from Angelfish to Zen – Peter Engel
- Origami Design Secrets – Robert Lang (excellent book about the math of origami)
- Roses, Origami, and Math – Toshikazu Kawasaki
- Coincidence, Chaos, and all that math jazz – Burger and Starbird

#### Websites

- <http://www.cut-the-knot.org/> (excellent stuff for teachers and math folks)
- <http://www.mathsolutions.com/> (marilyn burns website)
- <http://www.nctm.org/> (your spot for national curriculum updates and journals)
- <http://www.purplemath.com/>
- <http://www.khanacademy.org/> (10 minute clips on just about everything math related – from an MIT graduate who quit his job to teach online)
- <http://mathworld.wolfram.com/> (great reference – but written at a very high level)
- <http://www.wolframalpha.com/> (awesome reference for math, equation solver, etc)
- <http://mathforum.org/dr/math/> (tons of solutions, occasionally the teachers/professors are incorrect (slightly) so make sure you read all responses)
- <http://ocw.mit.edu/courses/mathematics/> (math open courseware – watch the actual MIT professors teach courses you wish you knew more about. If nothing else... it's free!)
- <http://www.math.cornell.edu/~GoodQuestions/materials.html> (a list of great calculus questions – mostly based on stewart's calculus)
- <http://shodor.com/interactivate/> (from Jeromy)
- Google docs has spreadsheets that can perform functions – just need a google account and no software other than a browser (from Jeromy)
- Youtube.com has tons -- <http://www.youtube.com/watch?v=Bfq5kju627c> (this is the ma and pa kettle math video for example) <http://www.youtube.com/watch?v=8Vb8CWI-Ho&feature=channel> (this is tom Lehrer singing about how to subtract  $342 - 173$ ... quite fun)
- <http://www.artofproblemsolving.com/Store/alltitles.php> this is a place with all the art of problem solving books and solution manuals, as well as other books on math competitions, help for you in preparing a team for math Olympiads, and national math contests

### Journals for you teachers

- TOMT – the oregon math teacher. Inexpensive and pretty good. Plus, you can contribute your articles without excessive wait times of the national journals.
- Mathematics Teacher (NCTM) – for high school teachers
- Teaching Mathematics in Middle School (NCTM)
- Teaching Children mathematics (NTCM)
- College Math Journal (MAA)
- Horizons (MAA)
- Others include online versions of the Australian Math Teacher, For the Learning of Mathematics, Mathematics Teaching (British), etc.