

Mr. Barman's Math Suggestions for Curious Students

Does your child like math? Math is fun and full of joy! Since 2019 I have been sharing this document with ideas for math fun and growth. I hope that some of these that I have compiled here may be useful for your family. Warm wishes!

Dilip Barman, June 2019 (last update: January 31, 2026)

P.S. I tweet on BlueSky @dbarman (and triangleMath) about math, but also about veganism and cultural events. If you're on facebook, you might like to follow mathTriangle.

Mathematics Institute of the Triangle: In summer 2022 I became the first teacher at a new math enrichment school in Chapel Hill, NC. Check out trianglemathinstitute.com to see what we offer from a math circle for 1st & 2nd graders through calculus. I tutor ages 3 through college. Visit trianglemathinstitute.com/math for videos and free handouts.



Art of Problem Solving: AoPS has the best math curricula! From 2018-2025 I taught classes through advanced algebra at the Morrisville, NC academy; since 2020 I also teach online through the virtual academy. I love AoPS curricula so much that I brought it to classes at Math Institute! AoPS offers excellent classes and summer camps from 1st grade through high school.

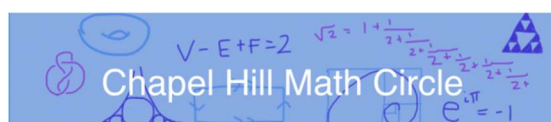
NCSSM Summer Camps: I teach exciting week-long math camps for rising 5th and 6th graders and residential ones for 7th-9th graders in Durham and Morganton, NC at NC School of Science & Math (tinyurl.com/earlyAccelerator). We play math games and learn about calendar math, graph theory, unsolved problems in math, and more. Students research and present on topics like constructions or math history.



Chapel Hill Math Circle: Are you familiar with math circles? They are opportunities for K-12 students who love math to get together to enjoy solving challenging mathematical problems and puzzles. You can read more at bit.ly/MCircleN-OArticle, bit.ly/MCircleEdWk, and bit.ly/MCircleMSRI.



We have one at UNC that meets in the school year mostly every other Saturday. I teach the 10:30-11:30a one for 1st-3rd graders. It's free but you must register at chapelhillmathcircle.org/register.





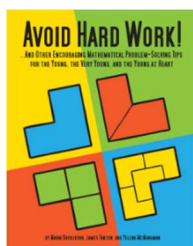
since fall 2022 I teach several sections of 1st and 2nd grade math Tuesdays or Wednesdays from 7:30-8:30p or 8:45-9:45p ET (most but not all of the students are California-based; the times are meant to be shortly after school). Classes fill quickly!

Events: mathcommunities.org lists a number of math events, many of which are free, such as nationalmathfestival.org. I love momath.org - there are many online events, some free, for children through retirees. Don't miss **James Tanton's** programs! You can submit questions and ask him to create related math puzzles for his weekly newsletter at globalmathproject.org/nmf-weekly. numberphile.com has exciting math videos. There are many math tests that are fun including **Math Kangaroo**, for which I also teach; we offer their annual test through Math. Inst. Triangle.



Books: I can recommend some exciting mathematical reading. Do you know about the Mathical Book Prize by the Mathematical Sciences Research Institute? Please visit mathicalbooks.org to take a look at these prize-winning

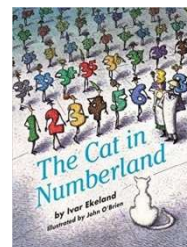
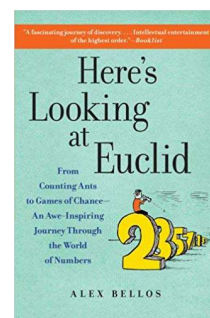
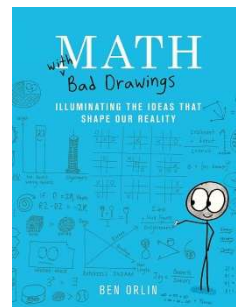
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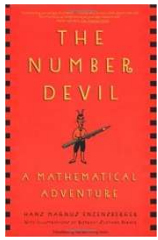


books about math; you might want to check with your local library. Also, especially for younger learners, you may want to connect with Natural Math, in Cary, NC; they have books that approach math from refreshingly broad, creative perspectives (check them out at naturalmath.com).

Here are a few books that I particularly like.

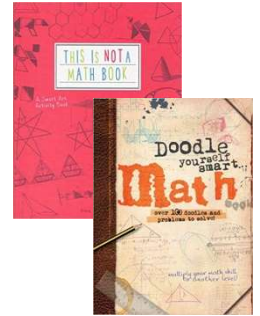
- I love AoPS Beast Academy books.
- *Here's Looking at Euclid* by Alex Bellos, as well as *Math with Bad Drawings: Illuminating the Ideas That Shape Our Reality* by Ben Orlin each makes for fun reading on a wide variety of math topics and math history. They're entertaining and don't require solving problems. I recommend these particularly for adults, but serious middle school and older math students should also enjoy them. Look for other books by these authors, too, like Ben Orlin's 2019 book *Change Is the Only Constant: The Wisdom of Calculus in a Madcap World*.
- *The Cat in Numberland* by Ivar Ekeland discusses notions of infinity that even a 2nd grader (I think I read this with my daughter when she was in 2nd grade, and she loved it) can grasp and find entertaining. Adults may learn a thing or two with this book, as well!



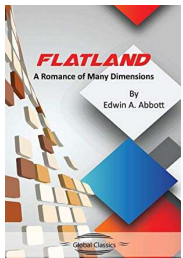


• *The Number Devil: A Mathematical Adventure* by Hans Magnus Enzensberger should delight any 4th – 8th grader, as well as some younger children and most high schoolers and even adults who have some interest in math. Twelve dreams inform a boy, claiming to hate math, about topics such as infinity, Pascal's Triangle, prime numbers, and more.

- *This is Not a Math Book* and *This is Not Another Math Book* (both 2017) by Anna Weltman are remarkable books with engaging activities. Helen Greaves' *Doodle Yourself Smart...Math* (2012) has fun challenging problems to investigate.

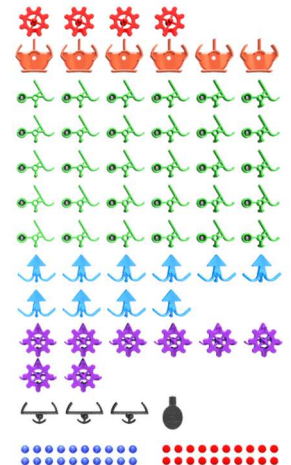
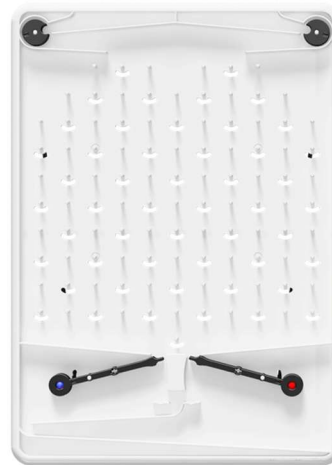


- If you haven't read the classic *Flatland: A Romance Of Many Dimensions* written by Edwin Abbott in 1884, you may enjoy this fable of a 3-dimensional object coming to visit a 2-dimensional land! It goes on to discuss a 1-dimensional land of lines and a solipsistic 0-dimensional point. It gives children and adults insight into what larger dimensions might mean, and is just fun, pleasant reading. There is an accessible 2007 animated movie *Flatland*, as well as a 1965 novel *Sphereland: A Fantasy About Curved Spaces and an Expanding Universe* by Dionys Burger.

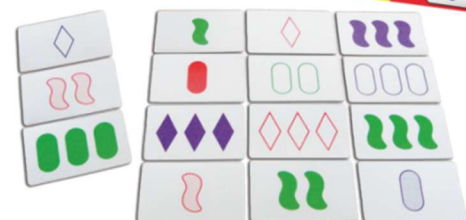
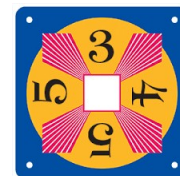
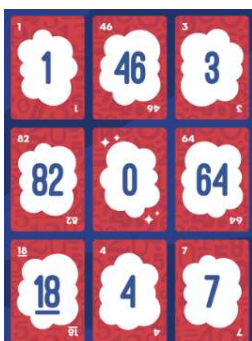


- In a library look for call number 510 (Dewey Decimal System) / QA1-699 (Library of Congress Classification) for math; and 793.73 & 793.74 (Dewey) / QA95 (LC) for recreational math like games and puzzles.

Turing Tumble: In homeschooling my daughter, I am decidedly low-tech for pedagogical and developmental reasons. There is a game that I encourage you to look at called Turing Tumble (turintumble.com) that introduces ideas of computer science and algorithms without technology. Designed by a computer science professor, it presents a series of increasingly challenging projects where one has to place various parts that act as switches, bits, and other logic on a board, then let one or more spheres go through the configuration to end up in a goal state.



Other games: Other games that particularly relate to math include **Set**

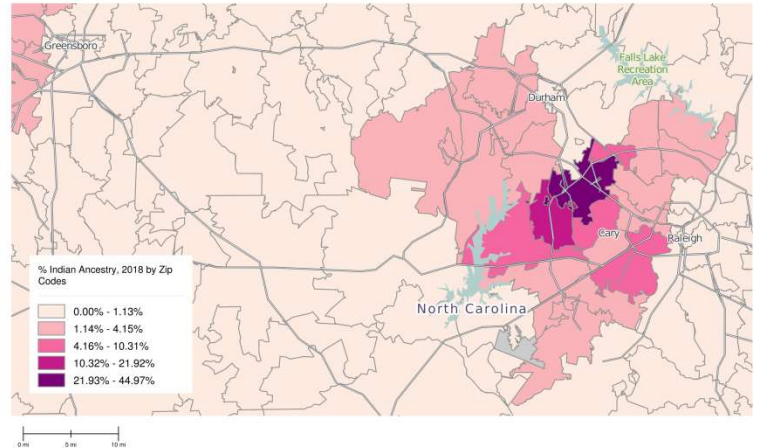




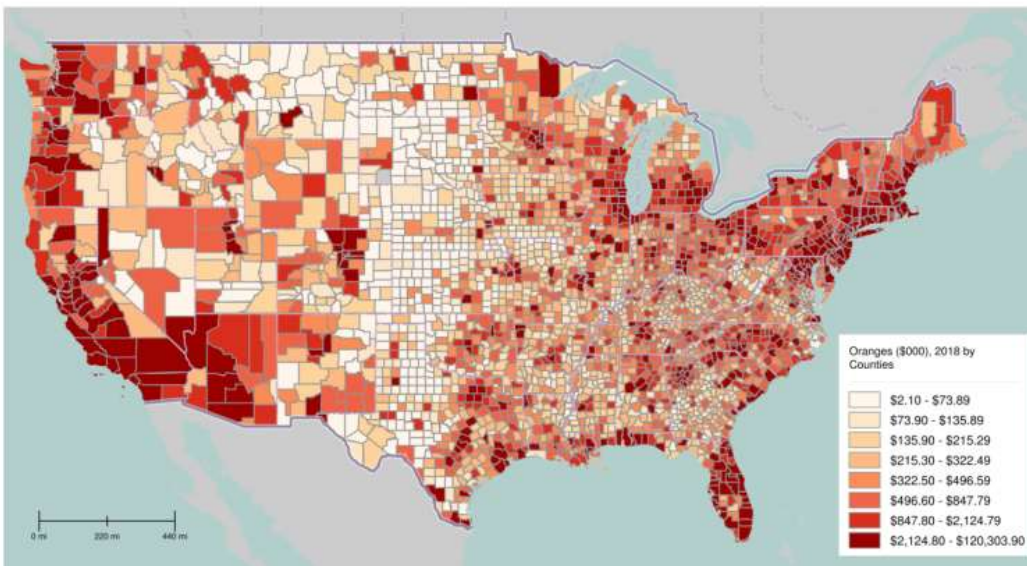
(setgame.com/set), **24 Game** (24game.com), **Prime Climb** (primeclimbgame.com), and **Proof** (proofmathgame.com). Strategy games are good and considering probabilities in games like **Yahtzee**

and card/dice games is fun and relevant for building math skills. You might enjoy the list of Mensa award-winning games at mensamindgames.com/about/winning-games.

The Census Bureau has extensive demographic data that I find easier to access through NC's LINC database (bit.ly/LINCforCensus). I had my daughter look at various cuts of data and concepts like reliability and sampling strategies. SimplyAnalytics (simplymap.com¹) is an example of a visualization tool that can use demographic data - here, for example, I used the tool to show the population density of people whose country of origin is India, and to show, by county, the expenditure on oranges. Your budding mathematicians may find this fun and help them understand issues of using math in the real world (let me know if you want a copy of my 22-page handout on census data I prepared).



I also encourage delving into the arts. Locally in NC I enjoy museums like NC Museum of Art, Duke's Nasher, UNC's Ackland, and NCSU's Gregg, as well as the annual summer American Dance Festival, opening up new ways of looking at things. Most of all, I wish your children, and you, happy, relaxed, and enjoyable times to let academics sink in and to



process and perhaps more deeply understand concepts when they are not necessarily intentionally working on problems. Warm wishes!

Dilip

¹ Through the Durham, NC Public Library, I get free access! Maybe you can, too, through your library?