

Resources for Studying at Home

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Due to COVID-19, many kids will need to stay at home for the rest of the school year. Below I list some resources I have found to be useful for teaching kids. Most of these are from personal experiences. Other resources not listed here may be perfectly fine. It is just that I did have experiences with them. I have two sons, the older one is currently in 9th grade, the younger one in 2nd grade. I will use (Dear Son) DS#1 and DS#2 to refer to them below. Together with other parents, I taught several kids competition maths for a little more than two years. I thus browsed and examined more competition math materials that I would have done just as a parent.

Math Curriculums

One advice for teaching kids math (especially young ones) is to be flexible while persistent. Try doing some amount of math everyday, but do not insist that they have to follow one particular curriculum. If the kids got really stuck on one topic, switch to another curriculum, and return to the original after a few weeks or months. Let kids choose what kind of math they want to do. Another advice when using competition math books is to be ready to go through the materials twice. There are occasionally difficult topics, and often more challenging problems associated with a topic. Feel free to skip them in the first pass, and go over it again a second time.

Grades	K	1	2	3	4	5	6	7	8	9	10
Khan Academy	Free. Goes all the way up to AP-level math. Cover the basics. Has videos and exercises. Good addition to any math curriculum.										
IXL	\$79 one year access, \$10 for one month. \$20 per month for Math, Language Arts, Science and Social studies. Discounts for siblings. Many people hate IXL's smartscore model, which requires high accuracy to pass any skill. DS#2 used it on and off for about a year; his experience has been fine. He also likes the Science and Social Science parts. For those who can afford it, I think it is a good choice for the next few months, since it covers more than math.										
Math Mammoth		\$25 to \$43 per grade for Grades 1 to 7. Can buy PDF, and print. I used portions of G1-3 for DS#2 to supplement other sources when he was in 1st grade and 1st half of 2nd grade, and feel it is helpful for beginning math.									

Beast Academy				Grade 2 to 5. About \$100 per grade for physical books. About \$100 for one year online access (to all grades). DS#2's current favorite. Suggest to start in G3 or later with online for one year, which should be enough time to finish almost all the materials.						
AOPS Introductory Series										Standard reference for math competition preparation in the US: suitable for Mathcounts, AMC8, AMC10. Has 5 books: Pre-Algebra, Intro to Algebra, Intro to Counting & Probability, Intro to Number Theory, Intro to Geometry. When using these books, I suggest going over each book twice, skipping difficult topics and/or challenging problems for the first pass. There are free excellent videos accompanying some of the books. The free online Alcumus problem library is a great resource. AOPS has online classes (lectures use text chatting). DS#1 did not gain much from a few online AOPS courses.

Math Problems and Books

	K	1	2	3	4	5	6	7	8	9	10
Sunshine Math	Free. These are worksheets created by Florida Department of Education for Math enrichments. There are 10 worksheets for K, and 25 for each of grades 1 to 8. DS#1 used to like these a lot when he was in grade 3-4. Google "sunshine math" if the link to the left doesn't work.										
Challenge Math Book Series				Books by Edward Zaccaro. Order of the books is Primary Grade, Upper Elementary Grade, Elementary and Middle School, Real World Algebra. DS#1 used to like these in grades 3-5.							
Other Books that are great for starting preparations for math competitions				George Lenchner: Creative Problem Solving in School Mathematics . And Math Olympiad Contest Problems: Vol 1 ; Vol 2 ; Vol 3				J. Batterson: Competition Math for Middle School			
Books from mymathcounts							They have many books, all available in PDF, some in hard copies. The ones I looked at, and recommend, are 50 Mathcounts Lectures, Mathcounts State Competitions Preparation Books, AMC 10 Preparation Books, 50 AMC Lectures. There are a lot of overlaps in them, though.				

Math Competitions (Links to Past Problems)

	K	1	2	3	4	5	6	7	8	9	10
Math Kangaroo		Math Kangaroo is perhaps the most interesting math competition for kids grades 1-5.									
AMC Problems and Solutions									AMC8 can be taken by students up to and including Grade 8. AMC10 is up to Grade 10.		
Waterloo CEMC Math Competitions									Canadian math competitions, somewhat similar to AMC8 and AMC10.		

Books

The books listed here are definitely influenced by the fact that I am male and I have two sons. Many people are familiar with the recent popular fiction authors for kids, e.g., [Mary Pope Osborne](#), [Ron Roy](#), [Beverly Cleary](#), [E. B. White](#), and other authors for chapter books; [J. K. Rowling](#), [Rick Riordan](#), [Roald Dahl](#), [Eoin Colfer](#), [Suzanne Collins](#), [Christopher Paolini](#), [Brandon Sanderson](#) (DS#1's current favorite YA author), and other authors for YA novels. There are many excellent non-fiction books for kids. The series that came to mind are [Horrible Histories](#) and [Horrible Science](#). (DS#1 liked them when he was in G1-3, DS#2 has not warmed up to them yet.) For older kids (6th grade and up), they may enjoy some of the books on [this list of books DS#1 and I enjoyed together](#).

(Almost) Free Kindle Books

Copyright for books are valid for 75 years. This means that books written more than 75 years ago are often available in e-book form for free, or at very low cost. Below are some of such books I own on Kindle. If there is any author from the past, you can probably find collections of their work for similar prices.

- [World War Z: An Oral History of the Zombie War](#) (\$2.99)
 - This is a recent book, but currently available for a low price. (Price may change.) According to DS#1, what is in the book has a lot of parallel with the current spreading of COVID-19.
- [Beautiful Stories from Shakespeare for Children](#) (\$ 1.99)
- [Read Aloud Classics for First Grade](#) (\$ 1.99)
- [Grammar-Land: Grammar in Fun for the Children of Schoolroom-Shire](#) (\$ 1.99)
- [The Story-book of Science](#) (\$ 0.99)
- [An Island Story](#) (\$ 1.99)
- [The Complete Sherlock Holmes](#) (\$ 2.99)
- [The Complete Makers of History of Jacob Abbott](#) (\$ 2.99)
- [H.G. Wells Collection, Over 50 Works](#) (\$ 2.99)
- [Jules Verne Collection, 33 Works](#) (\$ 1.99)
- [Louisa May Alcott: Little Women, Little Men, Jo's Boys](#) (\$ 3.99)
- [Anne of Green Gables Collection: 12 Books](#) (\$ 1.99)

- [King Arthur Collection](#) (\$ 0.99)
- [Charles Dickens: The Complete Novels](#) (\$ 2.99)
- [The Complete Works of Jane Austen](#) (\$ 1.99)
- [The Novels of R.L. Stevenson \(Complete Collection, 13 Novels\)](#) (\$ 0.99)
- [Mark Twain: The Complete Novels](#) (\$ 1.99)
- [Darwin: The Five Essential Works](#) (\$ 1.99)
- [Thomas Paine Complete Works](#) (\$ 0)

Non-fiction DVDs

Instead of watching movies or playing games for hours, watching non-fiction videos can be both entertaining and learning experiences. The following are some that my sons enjoyed.

- Nature: Planet Earth, The Blue Planet, Planet Earth 2
- Archeology: [Walking with monsters](#), [Prehistoric park](#) (both enjoyed immensely by both DS#1 and DS#2), [Walking with Dinosaurs](#), [Walking with Prehistoric Beasts](#)
- Astronomy: [The History Channel: The Universe](#); The original [Cosmos series with Carl Sagon](#); the new [Cosmos series with Neil deGrasse Tyson](#); [Through the Wormhole with Morgan Freeman](#); National Geographic Video - Asteroids - Deadly Impact; Journey to the Edge of the Universe;
- History: [The History Channel: The Founding of America Megaset](#); [The History Channel: Empires Megaset](#); [Liberty! The American Revolution](#)

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