

Computer Science KS3 Top 10 Reading List

Top Reads

- Beginning Programming All-in-One Desk Reference For Dummies by Wallace Wang- Recommended by Mrs N.Vasudeva- This book covers the basics of computer science. It's very easy to read through and understand the concepts as it goes delves through every detail about HTML and CSS and coding and a lot more.

Easy Reads

- "Personal Computers" -"In addition to explaining the parts of computers and the way they work, this book provides a brief history of the computer."
- "Internet & Computer Ethics for Kids" -"It covers just about every issue involving appropriate and safe internet and computer behavior—like spamming, piracy, and privacy."
- "Game Programming For Teens" -"Using a programming code called BlitzPlus and following the directions in the book, a teen (or adult) can make their own video game."

Enrichment Reads

- **The Little Schemer** - By Daniel P. Friedman, Matthias Felleisen, Duane Bibby (Illustrator), Gerald J. Sussman (Contributor) - Recommended by *Miss Phlora* - The authors' enthusiasm for their subject is compelling as they present abstract concepts in a humorous and easy-to-grasp fashion. Together, these books will open new doors of thought to anyone who wants to find out what computing is really about. *The Little Schemer* introduces computing as an extension of arithmetic and algebra, things that everyone studies in grade school and high school
- Alan Turing: The Enigma by Andrew Hodges This is a great biography. A fascinating insight into the early history of computing.

Challenging Reads

- "Career Ideas for Kids Who Like Computers" -"This book will help your gifted child learn about all the possible careers for computer-lovers, and how to get on track."
- Nine algorithms that changed the world does just what it says on the tin.
- Code: The Hidden Language of Computer Hardware and Software, Charles Petzold, 2000. Petzold's epic journey from two ten-year old's communicating by torches, through logic and switches, to microprocessors and operating systems. Or as Jeff Atwood describes it another love letter to the computer.
- Computer Organization and Design MIPS Edition, Fifth Edition: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design) 5th Edition by David A. Patterson, John L. Hennessy: To learn how to build a processor, learn some Assembly and how do the processor process the commands.

Computer Science KS4 Top 10 Reading List

Top Reads

- Data Structures and Algorithms in C++ 4th Edition by Adam Drozdek: To learn how to create data structures, and how to use them.

Easy Reads

- Algorithmic Puzzles, Levitin & Levitin, 2011. Quite original, includes some of the most classic puzzles in Computer Science and contains special sections on problem-solving techniques.
- Clean Code: A Handbook of Agile Software Craftsmanship. by Robert C. ...
- Code Complete: A Practical Handbook of Software Construction. by Steve McConnell.

Enrichment Reads

- **Inventive Minds: Marvin Minsky on Education** (2019) - Recommended by Ms Forde - It is based on five essays Marvin Minsky (a father of AI) wrote a dozen years ago along with a great introduction to a Logo book from 35 years ago. There is a good deal of new material in the form of responses to the essays written by Alan Kay, Hal Abelson, Gary Stager, Brian Silverman, Mike Travers, Walter Bender, and Pat Winston. Cynthia Solomon and Margaret Minsky start and end the book with insightful biographical essays. It is illustrated in a witty manner.
- **Tools For Thought**, Howard Rheingold. Written in 1985 and available online. Recommended by Ms Forde - This is a history that focuses on ideas rather than dry facts. As the author says, "You can't understand where mind-amplifying technology is going unless you understand where it came from." Of particular interest for educationalists will be Chapter 11 'The Birth of the Fantasy Amplifier', which charts the trajectory of Alan Kay (developer of Squeak, amongst many other things), and the influence of Papert and Minsky on his development.

Challenging Reads

- Computers Are Your Future Complete (12th Edition) 12th Edition by Catherine Laberta: A good introductory to computers.
- Object-Oriented Programming in C++ (4th Edition) by Robert Lafore: To learn how to program in C++.
- Data Structures & Algorithm Analysis in C++ 4th Edition by Mark A. Weiss: To learn about data structures and algorithms used in building them, actually this book, and Adam Drozdek's one discussing a lot of common topics, but I believe that Adam's one is stronger.
- Introduction to Algorithms, 3rd Edition (MIT Press) 3rd Edition by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest: To learn more and more about algorithms, how to build them, how to study them, different techniques and algorithms.
- The Algorithm Design Manual 2nd Edition by Steven S Skiena: it's a very good algorithms reference I believe that it's stronger than CLRS.

Computer Science KS5 Top 10 Reading List

Top Reads

- The Innovators: How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution, Walter Isaacson
- The Self-Taught Programmer by Cory Althoff

Easy Reads

- Introduction to Java Programming, Y.D. Liang
- Introduction to Algorithms by Thomas H. Cormen

Enrichment Reads

- **The Chip: How Two Americans Invented the Microchip and Launched a Revolution, T.R. Reid** – recommended by *Miss Phlora* - I loved this book. It explained in clear, precise language how innumerable barriers were overcome by innovative and insightfully brilliant individuals to create a device that revolutionised our lives.
- **Superintelligence: Paths, Dangers, Strategies, Nick Bostrom- The Prospect of Superintelligence – Brief Summary** - At Dartmouth College in the summer of 1956, a group of scientists sat down to chart a new course for humankind. They began with the notion that machines could replicate aspects of human intelligence. Their effort evolved in fits and starts. Rule-based programs, or “expert systems,” flourished in the 1980s, and the promise of artificial intelligence (AI) seemed bright. Then progress waned and funding receded. In the 1990s, with the advent of “genetic algorithms” and “neural networks,” the idea took off again.
- **Hackers: Heroes of the Computer Revolution, Steven Levy**
- **Computational fairy tales:** by Jeremy Kubica, introduces dozens of aspects of computational design. This is recommended by Ms Forde- This book gives an overview of these aspects, whetting the appetite to learn more. Using analogies from fairy tales, Mr. Kubica inspires readers to take in each concept and then extend their learning on their own. The book gives a starting point for kids to learn more about the parts that interest them. Available [here](#). Chris Leach wrote a [unit of work for Year 6](#) based on it. There is a sequel book [Best Practices of Spell Design](#) by the same author.

Challenging Reads

- **Advances in Cyber Security: Technology, Operations and Experiences, Frank D. Hsu**
- **Cracking the Coding Interview By Gayle Laakmann McDowell**
- **The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies, Erik Brynjolfsson and Andrew McAfee** – recommended by *Miss Phlora* – This is a fascinating book, both uplifting and worrying. Takes the reader on a roller coaster ride - upbeat in terms of explaining how advances in computing are leading to machines doing tasks which only a few years ago we thought were impossible for machines and portrays a future where the rate of change increases exponentially.