



Computer Science Super Curriculum

Contents Page

Website Links:

The Register (EI Reg)

Mysteries of the mind can be solved: A brain in a supercomputer.

Big Data – Ted Talk: The year open data went worldwide.

AI at MIT

Spark

Programming Throwdown

Khan Academy

Project Euler

Book List:

Algorithmic Puzzles

How Google Works

Algorithms To Live By

Super Curriculum Tasks:

No Touch Interfaces

P versus NP Problem

Quantum Computing

The National Museum of Computing



Website Links

<https://www.theregister.co.uk/> - The Register: The Register (nicknamed El Reg) is a British technology news and opinion website. Keep up to date by subscribing and reading news articles regularly.

<https://www.youtube.com/watch?v=LS3wMC2BpxU&index=10&list=PLF7032F8EB1A4F9E2> - Mysteries of the mind can be solved: A brain in a supercomputer | Henry Markram

<https://www.youtube.com/watch?v=3YcZ3Zqk0a8&list=PLF7032F8EB1A4F9E2&index=20> - Big Data: Watch the TedTalk on The year open data went worldwide | Tim BernersLee

<https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-034-artificial-intelligence-fall-2010/lecture-videos/lecture-7-constraints-interpreting-line-drawings/> - AI at MIT: Take a look at this fascinating series of lectures on Artificial Intelligence by Patrick Winston at MIT.

<http://www.cbc.ca/radio/spark> - Spark: Spark is an ongoing conversation about our rapidly changing world. Along with you, host Nora Young explores how technology, innovation and design affects our lives.

<http://www.programmingthrowdown.com> - Programming Throwdown: Programming Throwdown offers a general introduction to a wide range of programming-related topics in an interesting and engaging manner.

<https://www.khanacademy.org/computing/computer-programming/programming-natural-simulations> - Advanced JavaScript - Use these Khan Academy to combine JS, and mathematical concepts to simulate nature in your programs.

<http://projecteuler.net/> - Project Euler - Test your problem solving and computational thinking skills through a series of challenging mathematical/computer programming problems.

Books

Algorithmic Puzzles by Anany Levitin and Maria Levitin The emphasis lies in training the reader to think algorithmically and develop new puzzle-solving skills.

How Google works by Eric Schmidt and Jonathan Rosenberg. How Google Works shines a light on the hiring and operating processes of Google, which have enabled it to come up with great products continuously and stay visionary over the past 17 years.

Algorithms to Live By: The Computer Science of Human Decisions A fascinating exploration of how computer algorithms can be applied to our everyday lives.

Super Curriculum Tasks

No Touch Interfaces: Forbes ranks no touch interfaces within the top five trends that will drive the future of technology. What can you find out about no touch interfaces? How may they benefit future technological developments?



Guilsborough Academy Sixth Form

P versus NP problem: This is a major unsolved problem in Computer Science. If the solution to a problem is easy to check for correctness, is the problem easy to solve? What do you know about P vs NP? Do you think this problem will ever be solved?

Quantum Computing: Shor's Algorithm focusses on quickly factorizing numbers into primes. Write a short essay summarizing how the birth of quantum computing allowed for efficient integer factorization.

<http://www.tnmoc.org/> - The National Museum of Computing - Plan a visit to The National Museum of Computing - Bletchley Park MILTON KEYNES MK3 6EB