

COMPUTER SCIENCE A LEVEL AND BTEC IT SUPER-CURRICULAR: AIMING FOR THE TOP AND ASPIRING HIGH

Reading Tasks

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.

Algorithms to Live By: The Computer Science of Human Decisions by Brian Christian and Thomas L. Griffiths *A fascinating exploration of how computer algorithms can be applied to our everyday lives.*

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

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.

Writing Tasks

Quantum Computing

Shor's Algorithm focusses on quickly factorising numbers into primes.

Write a short essay summarising how the birth of quantum computing allowed for efficient integer factorisation.

Listening Tasks

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. Listen [here](#)

Programming Throwdown

[Programming Throwdown](#) offers a general introduction to a wide range of programming-related topics in an interesting and engaging manner.

Watching Tasks

Mysteries of the mind can be solved: A brain in a supercomputer | Henry Markram

Watch [here](#)

Big Data - TedTalk

Big Data: Watch the TedTalk [on The year open data went worldwide](#) | Tim Berners Lee

AI at MIT

Take a look at this fascinating series of lectures on [Artificial Intelligence](#) by Patrick Winston at MIT.

Research 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?

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?

Trips & Visits

The National Museum of Computing

Plan a visit to The [National Museum of Computing](#) (TNMOC), *home to the world's largest collection of working historic computers.*

Student Led Tasks

Advanced JavaScript

Use these [Khan Academy](#) to combine JS, and mathematical concepts to simulate nature in your programs

Project Euler

Test your problem solving and computational thinking skills through a series of challenging mathematical/computer programming problems

Click [here](#) to be challenged