



TRANSITION WORK

COMPUTER SCIENCE

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Computer Science is a challenging A Level subject which includes a combination of theory and practical work. The best computer scientists enjoy thinking about and solving complex logical problems and puzzles: they are good at maths and physics and like to *think* computationally.

At A Level, we continue to use the programming constructs learned at GCSE: sequence; selection; and iteration. Writing code is an essential skill in the modern world, and at A Level, we build upon the foundations laid at GCSE and learn to program in Java, becoming more object-oriented in our approach.

The course covered is **AQA A Level Computer Science 7517**, and the link to specification can be found below.

Reading list (books / academic articles / journals etc.)

Reading is essential. If you do not read, then you are already putting yourself at a massive disadvantage. Students who read regularly and read around the topics covered in class, are much more likely to achieve higher grades.

All these books can be found on Amazon, and occasionally on eBay.

Whilst I respect the environment, it is always recommended to have a hard copy of a textbook (as opposed to an electronic copy or PDF). This way you can always step away from your computer, get comfortable, and **READ**.

Essential Reading

AQA A level Computer Science, Bob Reeves

The Pattern on the Stone: The Simple Ideas That Make Computers Work,
Daniel Hillis

Desired Reading

AQA AS and A Level Computer Science, PM Heathcote

A Level Computer Science for AQA Unit 1, Kevin Bond

A Level Computer Science for AQA Unit 2, Kevin Bond

Above and Beyond Reading

Tackling A Level Projects in Computer Science AQA 7517, PG Online

Documentaries

On Netflix:

The Great Hack (documentary about the Cambridge Analytica scandal)

Inside Bill's Brain (documentary on Bill Gates)

The Social Network (drama on how Facebook was created)

Social Dilemma (documentary about Social Media and smartphone usage)

Imitation Game (drama about Alan Turing's computer during WWII)

Elsewhere:

Lo and Behold (documentary on how the Internet has changed the world)

Silicon Cowboys (documentary about Compaq vs IBM)

Brexit: the Uncivil War (drama about Cambridge Analytica)

For the module *Consequences of Uses of Computing* you must have a good grasp of the ethical, legal, cultural, and environmental impact of technology (both positive and negative), and all the issues that surround it.

Watching documentaries and the news to keep up with the constant changes in technology, the influence technology has on our lives and society, as well as the laws that govern and control how technology is used responsibly is crucial.

Use the *BBC Technology* section as a good starting point for this:

<https://www.bbc.co.uk/news/technology>

Podcasts and Online Resources

Craig n Dave GCSE OCR Spec Order

<https://www.youtube.com/playlist?list=PLCiOXwirraUAvkTPDWeeSqAKty3LAG37->

Craig n Dave A Level AQA Spec Order

https://www.youtube.com/playlist?list=PLCiOXwirraUDUYF_qDYcZV8Hce8dsE_Ho

BBC Bitesize

<https://www.bbc.co.uk/bitesize/examspecs/zmtchbk>

Isaac Computer Science

<https://isaaccomputerscience.org/>

Seneca Learning

<https://senecalearning.com/>

BBC Technology

<https://www.bbc.co.uk/news/technology>

GCSE OCR 276 Spec

<https://www.ocr.org.uk/qualifications/gcse/computer-science-j276-from-2016/>

A Level AQA 7517 Spec

<https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517>

Written Work Required

In order to prepare to “*hit the ground running*” in September, you must be confident in all the topics already covered at GCSE, including the topics (from *OCR J276 Spec*) we covered during the lockdown period, listed below:

2.3 Producing Robust Programs

2.5 Translators and Facilities of Language

2.6 Data Representation

All the tasks below are to be completed before September, and the two completed documents emailed to rherbert@guildfordcounty.co.uk and meleftheriadi@guildfordcounty.co.uk. All four tasks will take you a minimum of 10 hours. **Remember:** the best students study consistently, over a long period of time, and consistently put the effort in! *The sooner you start, the better.*

Task 1

Copy your current *Class Notebook* notes (or other notes) into a Word document, so that they are all in one place, and readily accessible next year. Put the sections in the same order as they are on the J276 specification (link above) and create an indexed contents page.

Task 2

Starting with 2.3 *Producing Robust Programs* (as above), please spend **at least 2 hours** on each section, making detailed notes using the same Word document from *Task 1*. Use a combination of research from your GCSE CGP textbook, Craig n Dave videos (playlist above), BBC Bitesize, and any other suitable online resources. If you have the CGP textbook, then for each section, answer the exam questions and check your answers. Copy your results into the Word document.

Task 3

Check your emails for an invitation to *Isaac Computer Science* and follow this link to create an account. Complete all the assignments that have been set to test your knowledge learned from *Task 2*.

Task 4

Complete the *Introduction to JAVA* document

(2-3 hours)