

Welcome to A Level Computer Science!

Introduction

We are going to be studying the OCR A Level Computer Science, H446. You do **not** need to read the specification for this A Level over before September, but if you are curious you can download it from [here](#).

This diagram shows the components of the A Level. The first two blocks list the content of exams. The third of the blocks is a programming project. The project is an excellent opportunity to learn and put into practice your coding skills and create a significant piece of code. Some examples can be found [here](#), including a nuclear plant meltdown simulation, various types of game and even some based on using artificial intelligence. You will get significant amounts of lesson time on which to work on your project in addition to time that you spend in Private Study.

Content Overview	Assessment Overview	
<ul style="list-style-type: none"> • The characteristics of contemporary processors, input, output and storage devices • Software and software development • Exchanging data • Data types, data structures and algorithms • Legal, moral, cultural and ethical issues • Elements of computational thinking • Problem solving and programming • Algorithms to solve problems and standard algorithms <p><i>The learner will choose a computing problem to work through according to the guidance in the specification.</i></p> <ul style="list-style-type: none"> • Analysis of the problem • Design of the solution • Developing the solution • Evaluation 	Computer systems (01) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	40% of total A level
	Algorithms and programming (02*) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	40% of total A level
	Programming project 03* – Repository or 04* – Postal or 80 – Carry forward (2018 onwards)* 70 marks Non-exam assessment	20% of total A level

There is no expectation that students will start this course only if they have completed a GCSE Computer Science course. Things that you need to know will be taught from the beginning.

The Bridging Project

This is our bridging project. I have created this with the hope that it will provide some interesting and useful challenges and information that will allow you to get off to a flying start in September.

If you have any questions during the bridging project, there are some links to online help below. You are also welcome to contact me through the school email address through the summer - I will be around for most of the holiday but will be taking some time away. For this reason, please do not leave the bridging work until the very end of the holiday! Pace yourself through the weeks you have between now and September.

First, please join our computer science classroom at **Seneca** by clicking on the link below:

<https://app.senecalearning.com/dashboard/join-class/te66xvt2ky>

I have set two assignments on Seneca learning. The first of these is an introduction to Python3. We will be using Python3 throughout the course because it is a convenient and very popular language. This assignment should not take more than an hour to complete. You can access this assignment after you have joined the class by clicking here:

<https://app.senecalearning.com/dashboard/class/te66xvt2ky/assignments/assignment/e7f108a6-d3a9-49a5-8233-0a5a0fed1229>

This second assignment is an introduction to some key concepts that will be useful to cover before September. If you have done GCSE Computer Science then this will just be a little revision.

<https://app.senecalearning.com/dashboard/class/te66xvt2ky/assignments/assignment/2710a9e3-b6a0-40d0-8a3c-86b75f5b1be1>

Next, please go to this link to register for **Isaac Computer Science**.

<https://isaacomputerscience.org/account?authToken=Q9PHQD>

If you have already registered on Isaac then go to the Teacher Connections tab and enter the code Q9PHQD. You will see an assigned activity to try. If you have not worked with binary numbers before, you should check the introduction here: <https://www.bbc.co.uk/bitesize/guides/zwsbwmn> .

Once you have done these assignments you can use both of these platforms (Seneca and Issac) to do further work on any topics of your choice.

If you have some experience of coding already, or would like some problems on which to practice the skills you are learning, try these **optional** tasks:

- You can download the official OCR coding challenges booklet from here (<https://www.ocr.org.uk/Images/260930-coding-challenges-booklet.pdf>). This contains a list of challenges that get gradually more difficult.
- Go to <https://projecteuler.net/> and register. Dive into the problem archives and (<https://projecteuler.net/archives>) and try your best. Some of these are very tough, do not be discouraged if you find these too difficult.

Finally, another **compulsory** task: I would like you to prepare a short presentation (either PowerPoint or Slides). This should consist of one or two slides about why you are interested in computer science and any experience you have with particular programming languages and computers. For example, if you have played with an Arduino or a Raspberry Pi, you should include that (if you have not, do not worry: we will be playing with these during Year 12 and 13). If you are looking ahead to a specific university course and/or career, it would be good to see that too.

Please note that I will **not** share the presentation with anyone unless you are happy for it to be shared: consider these presentations to be an opportunity to tell me a bit more about experiences you have and what you want to achieve with a really strong qualification in computer science.

If you do not have any experience with programming languages or platforms, that is perfectly fine too: put that in the presentation because it will help me to help you if I know this in advance - and you will be given loads of opportunity to get this experience during the A Level.

Getting Help

If you are finding any of these tasks to be difficult, you may benefit from using one of the following additional resources:

- Craig and Dave YouTube channel. This channel has lots of short videos that present a lot of the information that you would need in order to pass the GCSE in computer science.
(<https://www.youtube.com/channel/UC0HzEBLIJxlrwBAHJ5S9JQg>)
- CGP revision guide for GCSE. You could also try to pick this up second hand. It is not essential to have the GCSE revision guide, and like I have written already, you do not need to have done the GCSE to be successful on this course. But, like anything else, the more prepared you are the easier things will be when we start on the A Level work.
(https://www.amazon.co.uk/GCSE-Computer-Science-Revision-Guide/dp/178908556X/ref=sr_1_5?keywords=ocr+computer+science+gcse+revision+guide&qid=1656337823&srprefix=ocr+computer+science+gcse+revi%2Caps%2C65&sr=8-5).

As I have said already, you can contact me for help too - but do not leave it until the last minute.

I will provide more information about the textbooks that we will be using before the end of August.

Summary

In short, this is the bridging project:

- Log into our Seneca class and complete the assignments.
- Log into our Isaac Computer Science class and complete the assignment.
- Create a short presentation about your computer experience and aspirations.
- **Optional:**
 - Complete additional topics on Seneca and/or Isaac Computer Science
 - Develop and practise your coding skills using the OCR Coding Challenges booklet and/or solve the problems on Project Euler.

I am really looking forward to seeing you all in September!

Mr Hipperson.