



'Bridging the Gap'

A LEVEL COMPUTER SCIENCE





Preparation for A Level Computer Science

Syllabus

<https://www.cambridgeinternational.org/Images/502962-2021-2023-syllabus.pdf>

Introduction

Learning to program is one of the fundamental skills that underpin success in Computer Science. Before you start you will need to make sure you have the right development environments installed on your own computer. The computer science course at Taunton School focuses on the use of Python and Java.

Preparing Your Programming Environment

- Python Version 3.8 <https://www.python.org/downloads/>
- Java VM <https://www.java.com/en/>
- Visual Code Studio <https://code.visualstudio.com/docs/languages/java>
- Introduction To The Command Line
- Once you have your programming environment set up one of the most important things to learn is how to use the command line. An excellent guide can be found here. <https://learnpythonthehardway.org/python3/appendixa.html> work through the exercises to become a master of the command line.

Introduction To Python

For those of you completely new to programming and Python, a great starting point are the following courses: <https://www.codecademy.com/learn/learn-python-3> Free Trail available Another great resource to help develop your understanding is the W3Schools <https://www.w3schools.com/python/default.asp> great to use to double check that you have understood how a particular block of code works.

If you have used Python before the following course is an excellent way to brush up on your skills prior to starting the course in September <https://learnpythonthehardway.org/python3/preface.html>

Introduction To Java

For those of you new to programming with Java, a great starting point is the following course <https://www.codecademy.com/learn/learn-java> Another great resource to help develop your understanding is the W3Schools <https://www.w3schools.com/java/> great to use to double check that you have understood how a particular block of code works.

Broadening Your Horizons

Things To Watch

Watch this talk, from Dame Stephanie Shirley, which explains how she set up an all-female software empire under the name 'Steve'. Why do ambitious women have flat heads? TED Talk – Dame Stephanie Shirley https://www.ted.com/talks/dame_stephanie_shirley_why_do_ambitious_women_have_flat_heads

Watch this talk on the impact that artificial intelligence and robotics will have on jobs in the future. The jobs we'll lose to machines - and the ones we won't TED Talk – Anthony Goldbloom https://www.ted.com/talks/anthony_goldbloom_the_jobs_we_ll_lose_to_machines_and_the_ones_we_won_t?referrer=playlist-what_happens_when_the_robots_take_our_jobs#t-3590



Watch this talk from a successful start-up founder, where he explains the surprising result of his research. The single biggest reason why start-ups succeed TED Talk – Bill Gross

https://www.ted.com/talks/bill_gross_the_single_biggest_reason_why_start_ups_succeed?referrer=playlist-what_makes_businesses_work

Watch this talk which explores some of the philosophical ideas surrounding artificial intelligence. What happens when our computers are smarter than we are? TED Talk – Nick Bostrom

https://www.ted.com/talks/nick_bostrom_what_happens_when_our_computers_get_smarter_than_we_are?referrer=playlist-what_happens_when_the_robots_take_our_jobs

Things To Listen To

Listen to this radio interview with software pioneer Dame Stephanie Shirley. Life Scientific BBC Sounds

<https://www.bbc.co.uk/sounds/play/b05pmv18>

Listen to this radio programme which explores whether computers can beat humans at games. Seriously...Game over humans BBC Sounds <https://www.bbc.co.uk/programmes/m0001qjj>

Things To Read

Read this article about whether students should learn how to code or not – start a debate with friends about whether you agree or disagree! Teaching children coding is a waste of time The Telegraph

<https://www.telegraph.co.uk/education/2019/02/21/teaching-children-coding-waste-time-oecd-chief-says/>

Read this article about the future of teaching in the world of AI. Intelligent machines will replace teachers in ten years The Independent <https://www.independent.co.uk/news/education/education-news/intelligent-machines-replace-teachers-classroom-10-years-ai-robots-sir-anthony-sheldon-wellington-a7939931.html>

Things To Try

Complete this course which provides an introduction to social media and marketing. Create a social media and marketing campaign Institute of Coding and the University of Leeds

<https://www.futurelearn.com/courses/create-a-social-media-marketing-campaign>

Complete this course which is ideal for those who would like to set up a coding club for younger students when school is back open. Prepare to run a coding club Code Club and Raspberry Pi

<https://www.futurelearn.com/courses/code-club>

Complete this course which explores how the way we work will change in a world of automation. The future of work - preparing for disruption Open Learning Campus <https://www.edx.org/course/the-future-of-work-preparing-for-disruption-2>