A Level Computer Science

Y11 to Y12 Bridging Work

Thank you for taking an interest in studying Computer Science A Level at All Saints. We have been teaching A Level Comp. Sci. since 2015 and every year we get a wide variety of pupils taking the subject in Y12. Many pupils will have studied GCSE Computing but do not worry if you have not, it is a great subject that combines practical programming with relevant theory content such as Networks, Security, PC components and Legal issues.

Many of our pupils continue to study the subject at University and we are proud of the aspirations our leavers have. It helps a lot if you have a wide range of knowledge about computing such as news stories, ethical issues such as white hat hacking, what the different programming languages are for, career opportunities in the industry or even understanding what all the technical specifications of a device such as an iPhone or a Playstation means. Below is a list of places to go and things to see…

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| **Programming and Software** | In terms of programming, we use Python as our main programming language in school but the A Level specification does say that you need a basic knowledge of HTML, CSS and SQL. If you have a laptop/desktop computer at home then I would recommend installing Python/IDLE or if you prefer, Visual Studio is an IDE that you can code different languages on. Go here for either of these…  Python/IDLE – <https://www.python.org/downloads/>  Visual Studio – <https://visualstudio.microsoft.com/downloads/>  In the A Level course you are expected to produce a piece of coursework similar to the GCSE NEA (but this time worth 20%). 90% of our past students have used Pygame to create a 2D game in the past. The pygame library install instructions are here - <https://www.pygame.org/wiki/GettingStarted> |
| **Textbooks** | Main Textbook we use –  Making Games in Python and Pygame - <https://inventwithpython.com/pygame/>  (not available in printed format anymore) |
| **Coding Challenges** | GCSE level – <https://www.ocr.org.uk/Images/202838-20-code-challenges.pdf>  A Level Part 1 and 2 – <http://www.belpercomputing.com/wp-content/uploads/2015/06/260930-code-challenges-for-a-level-1-20-teacher-guide.pdf> and <https://www.ocr.org.uk/Images/269433-code-challenges-for-a-level-21-40-.pdf> |
| **Places of Interest to visit** | The National Museum of Computing, Milton Keynes - <http://www.tnmoc.org/>  Bletchley Park, Milton Keynes - <https://bletchleypark.org.uk/>  The UK Computer Museum, Cambridge <http://www.computinghistory.org.uk/>  National Video Game Museum, Sheffield – <https://www.thenvm.org/>  Arcade Club, Leeds - <https://www.arcadeclub.co.uk/leeds/> |
| **YouTube Channels** | Craig & Dave - [https://www.youtube.com/channel/UC0HzEBLlJxlrwBAHJ5S9JQg/pla ylists?shelf\_id=10&sort=dd&view=50](https://www.youtube.com/channel/UC0HzEBLlJxlrwBAHJ5S9JQg/playlists?shelf_id=10&sort=dd&view=50)  Computerphile - [https://www.youtube.com/user/Computerphile/videos?view=0&sort =dd&flow=grid](https://www.youtube.com/user/Computerphile/videos?view=0&sort=dd&flow=grid)  Introduction to Computer Science I", Harvard OpenCourseWare - <https://www.youtube.com/watch?v=z-OxzIC6pic&list=PLvJoKWRPIu8G6Si7LlvmBPA5rOJ9BA29R>  Tom Scott –  <https://www.youtube.com/user/enyay>  Linus Tech Tips –  <https://www.youtube.com/user/LinusTechTips>  thenewboston (Pygame playlist)  <https://www.youtube.com/watch?v=K5F-aGDIYaM&list=PL6gx4Cwl9DGAjkwJocj7vlc_mFU-4wXJq> |
| **MOOCs** | Introduction to Computer Science  <https://www.edx.org/course/introduction-computer-science-harvardx-cs50x>  Intro to Computer Science & Programming Using Python  <https://www.edx.org/course/introduction-computer-science-mitx-6-00-1x-10> |
| **News Articles** | BBC Click - <http://www.bbc.co.uk/programmes/n13xtmd5>  MIT News - <http://news.mit.edu/topic/computers>  CNET - <https://www.cnet.com/news/> |
| **TV Shows** | Mr. Robot – Amazon Prime  Silicon Valley – HBO  Black Mirror (Some episodes) – Netflix  Episodes related to computing are S2E01, S3E01, **S3E05, S3E06, S4E02**, S5E02, S5E03  Please check age rating on some episodes of Black Mirror. Most are 15 but a small number are 18. These are the ones in **bold**. |