WLA Computing Vision

The Computing department has a clear vision which is to challenge and inspire our students to thrive in the subject. Every learner should be given the opportunity to develop their knowledge and engage confidently within the area of computer programming. In order to implement this we provide a curriculum that gives students the opportunity to enhance their computing knowledge. We are committed to not only deliver an effective computing curriculum, with the aim to further enhance knowledge with the inclusion of GCSE and A Level Computing, but also develop students who are interested in ICT through the delivery of both BTEC Tech Awards in Digital Information Technology, for Yr10 and Yr11 students, but also BTEC Nationals ICT for Yr12 and 13 students.

Through differentiated teaching, in depth knowledge and contextual situations students can develop analytically and logically in order to fully access the world of computing and how it can be access further in our everyday lives.

Year 13

In Year 13 students are still working through their BTEC National Extended Certificate in ICT course. The students will be looking at two aspects:

Information Technology Systems
Students will explore the relationships between the hardware and software that form an IT system, and the way that systems work individually and together, as well as the relationship between the user and the system. Students will examine issues related to the use of IT systems and the impact that they have on organisations and individuals.

Data Modelling
Students will investigate the fundamentals of the decision-making process. Students will find out how using data modelling provides the computational ability to compare consequences, and determine a preferred course of action. They will develop the skills and techniques necessary to create complex spreadsheets in order to produce accurate information that informs decision making. They will examine a scenario and then design, develop and test a spreadsheet; review spreadsheet models and make refinements based on user feedback, providing an evaluation of the effectiveness of the alternatives produced. The skills developed in this unit are useful for progression to computing or business-related higher education courses and for use in decision making in the workplace.

Year 11

Year 11 students explore the world of digital working practices, where students will explore the digital systems available to organisations and how their features have an impact on the way organisations operate. Students will explore how developments in technology have led to more inclusive and flexible working environments, and how regulation and ethical and security concerns influence the way in which organisations operate. Students will analyse information in a range of vocational contexts so that you develop a greater understanding of the use of digital systems by organisations and so that you are able to make reasoned judgements on the systems. In this component, students will learn about how organisations can use technology safely and about the cyber security issues when working in a digital organisation.

Year 10

Year 10 students begin the BTEC Tech Awards in Digital Information Technology. Learners will develop their understanding of what makes an effective user interface and how to effectively manage a project. They will use this understanding to plan, design and create a user interface. As digital technologies and organisations continue to evolve, each new development offers new and exciting ways of completing tasks and interacting with our hardware devices and opens a new project with a new set of user requirements that needs to be solved. Learners will then move onto understanding the characteristics of data and information and how they help organisations in decision making. They will use data manipulation methods to create a dashboard to present and draw conclusions from information. In order to make decisions, organisations collect vast amounts of data from a range of different sources. They need to use appropriate data-collection methods and ensure that the data is of sufficient quality to enable decision making. Data must then be converted into information to allow it to become useful. Even when data has been converted into information, it will not provide any conclusions on its own. It is up to the data user to be able to look at the information and draw conclusions, so how the information is presented is key to ensuring that effective and accurate decisions are made.

Year 9

In Year 9 the students will further enhance their skills in ICT and computing, and start to get ready to feel confident in the decision of selecting either ICT or Computer Science to take further into Key Stage 4/GCSE. Students will firstly expand on their knowledge with computer programming using textual programming language on Python. Students will then be taken through the world of Cyber Security which is incredibly topical and from this understand the difference between data and information and what we can do with the data and from this understand how to avoid cyber threats and what protection methods can be used. Students will then move onto Data Science, where students will develop their understanding on how data can be used in real world applications from looking and studying at the analysis and correlation, data wrangling and statistics and how this can effect our computer systems. From this students will then explore the world of Project management in order to have a taste of the BTEC Digital Information Technology course, where students will develop skills to manage a project effectively and from this create a user interface. Students will explore project methodologies. Finally, students will be given the opportunity to look into artificial intelligence where students will explore outside the box of Chat GPT and look at how AI is actually enhancing technology, looking deeper into machine learning and image recognition and from this explore how computers and robots can enhance and develop in future years.

Year 8

In Year 8 the students expand their knowledge further in the world of computing and ICT, especially focusing on developing their programming skills. Firstly, the students will develop their ICT skills in Vector Graphics, where the pupils will create an array of media using skills and tools embedded with the software, purely with the creation of shapes. Secondly, the students will develop their media for the web, where students will build on their knowledge of computer programming in Year 7 and further develop their skills, combined with their creativity learnt in Vector Graphics and create their own websites using HTML and CSS coding. From this pupils will understand how a computer works and understand how computers work using Binary and furthermore develop an understanding for logic gates and why this is important in computer systems. Pupils will then enhance their computer programming by developing their skills on text based programming using Python. Students will then be given the opportunity to develop their understanding on how computer and the topic of computing has developed throughout history and finally students will expand and enhance their knowledge on spreadsheet modelling.

Year 7

In Year 7 students are challenged in developing their ICT skills and Computing skills. The students are given this opportunity as the majority of students have perhaps gaps in their ICT or Computing skills before attending WLA. Students start off with engrossing their understanding on how to stay safe online and from this understanding a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and recognising inappropriate content. Students then develop their skills on spreadsheet modelling where they will develop their skills in creating formulae and understanding how spreadsheet models can be used in the real world. We then move onto computer programming where students can develop their computational thinking and use logical reasoning to create a computer program. Lastly, students will then explore the world of computer networks and understand how computers communicate.