COMPUTER SCIENCE CURRICULUM MAP 2025 – 2026

Intent:

Computer Science at Wembley High Technology College balances knowledge and practical application in order to provide students with both specialised and transferable skills that are greatly valued in the marketplace. All students will experience physical computing to develop and hone their ability to code through the completion of increasingly complex programming projects.
The course emphasises three distinct strands within computing extracted from the KS3 National Curriculum: computer science (CS), information technology (IT) and digital literacy (DL). Each component is essential in preparing our students to thrive in an increasingly digital world. Computer science incorporates techniques and methods for solving problems and includes a distinct way of thinking and working that complements other disciplines.

Implementation:

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
7	***Introduction to WHTC Technology & Applications. Internet Safety*** The KS3 Curriculum builds on from KS2 and introduces e-Safety to all classes immediately. Dangers such as sexting, grooming and cyber bullying will be discussed and how to deal with these threats. Students will become aware of how to report concerns about their digital activity using CEOP, Child Line and Thinkuknow.	***WHTC Applications*** Students will also look at how to use computer applications used at WHTC, such as Outlook, MS Teams, and OneDrive. Students will also learn and practice essential skills related to computers, such as file handling, basic troubleshooting, and MS Office Suite	***Hardware & Software Components [1 term]*** Year 7 students begin by deepening their knowledge of computer systems through the analysis of how hardware and software components cooperate and communicate. We start with this topic as it strengthens students' understanding of core elements of computer systems, which form the foundation of all subsequent learning.	***Functions of a Computer System and Networks*** ***Functions of a Compute System*** Students subsequently study the more complex nuances of how a computer system functions focusing primarily on input and output processes. Students use systems to understand how data is input, computation performs and an output response is given. Students learn how data is checked against stored values. ***Computer Networks*** *Building on this, students learn about LAN and WAN as examples of simple networks. Students are then able to apply this knowledge to understand how much larger networks such as the internet operate.*	***Cyber Explorers*** Led by His Majesty's Government Department for Science, Innovation and Technology (DSIT), Cyber Explorers is looking to build the UK's cyber security talent pipeline. Students will explore cyber security using the Cyber Explorers platform, and experience hands-on insights into the essential role cyber security plays in all our lives and discover insights about future career options.	***Programming Concepts*** Students begin python coding using Turing Lab's Farmbot module. Farmbot is an interactive learning environment where students use Python code to control a virtual farming robot. This hands-on approach helps students grasp fundamental programming concepts in a fun and engaging manner.
8	***WHTC Applications*** In Year 8, Autumn 1, students build on their understanding of essential WHTC applications, including email communication, file management, and MS Word. They explore more in-depth topics such as compressed files, file extensions, folder	***Computational Thinking and Algorithms*** Students engage in hands-on projects that develop their computational thinking skills, including abstraction, decomposition, pattern recognition, and algorithmic thinking. They explore how modelling can represent real-world systems or situations by focusing on the essential aspects for a specific purpose while ignoring unnecessary details.		***Data Representation (Logic and Units)*** This topic conveys essential knowledge relating to binary representations. The activities gradually introduce students to binary digits and how they can be used to represent text and numbers. The concepts are linked to practical applications	***Writing Algorithms/ Programming*** Students will become confident and discerning users of technology, selecting, using and combining applications. Students undertake creative programming projects using python turtle, where students will practice programming structures and concepts such as Variables, Integer, Input/Output, Print, Boolean, While Loops and If/Else Statements.	

	organisation, and data security. Students also strengthen their skills in the MS Office suite by learning advanced techniques, including formatting documents, using templates, creating tables, inserting images, and applying styles to produce professional-quality work.	Students also learn to create key algorithms through sorting and searching activities, including Linear and Binary search algorithms. These concepts are reinforced through unplugged activities, allowing students to demonstrate how they design solutions using different sorting and searching methods.	and problems that the students are familiar with. Students experiment with creating and manipulating bitmaps using image-editing programs and complete hand drawn designs of their own BITMAP images. Students learn about image file types and how JPEG images use compression techniques to make smaller files at the expense of some of the finer detail captured in the original bitmap.	
9	***Spreadsheet Modelling & Data Science*** From transmitting data from one device to another, students will begin to confidently develop their spreadsheet skills to model data using spreadsheets. Students will participate in engaging activities to develop an understanding and applying basic formulas to writing their own COUNTIF statements. Students will develop a good set of skills that they can later use in their digital literacy course from Year 9 and in other subject areas. Students will have the opportunity to combine all their skills in a excel project. Here students will collect, interpret, and analyse data, presenting findings in a spreadsheet and creating a dashboard of conclusions.		***Website development (CSS, HTML)*** Students will now explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS. Students will investigate how websites are catalogued and organised for effective retrieval when using search engines. Students will start to understand how web pages are constructed using HTML tags, and how they are modified to resemble the websites they are accustomed to. Students will begin by considering the power of automation for repetitive tasks, before delving into some practical web page formatting activities using HTML tags. This topic will enable students to develop a functional website based on topics related to implications of digital literacy (ethical, environmental, cultural and legal).	***User interface design concept & development*** Students will have the opportunity to express their creativity when designing and implementing a user interface and produce a design using tools from different applications during the course of the project. Students are free to create solutions with the tools they feel are most suitable for the task and create inventive and original solutions that push their specific abilities. At the end of the project, students will evaluate the effectiveness of their solutions in terms of goals and suitability, and reflect on the process they followed, including the software they used. At the end of Summer 2, all computing students will have developed a solid foundation for KS4 computing and become digitally literate in using, expressing and developing their ideas through information and communication technology.

10	**Computer Systems** **Systems Architecture** **Primary & Secondary Storage** Students will recall knowledge and understanding from KS3 and build up on how computers process data, students will recall the architecture of a CPU (von Neumann) and develop a stronger understanding on how specific characteristics affect the performance of a computer system. Students will review different types of computer systems, which are broadly used in the society and learn how they are embedded into larger systems.	**Computer Systems** **Memory & Storage** Having taught students data representation from KS3, new learning will introduce students to a range of storage methods available within a computer system including primary and secondary and will further develop skills to be able to calculate storage requirements for a range of different file types using formulas. This will enable students to apply suitable storage solutions based on key characteristics (capacity, cost, speed, portability, durability and reliability).	**Computer Systems** **Networks & Network Threats** Moving on from standalone computers and understanding how different types of networks exist, students will learn about the key factors involved to accelerate network performance. They will also review what types of hardware devices are used to create a network and the responsibilities of each device. In particular, students will be able to understand how to access the WWW and online storage (cloud storage) through the Internet, students will be introduced to protocols, for example how the TCP/IP stack works which are rules used to send data across a network. From understanding how networks are formed and developed, students will then develop an understanding about external and internal threats to a network during system security and learn how to prevent/overcome such threats.	**Computer Systems** **Operating Systems** From Windows to macOS and Linux, you'll gain hands-on experience navigating various operating systems, understanding their interfaces, and mastering essential tasks. Dive into the world of file management, security protocols, and software installations, all while honing problem-solving abilities crucial for today's tech-driven society. Our dedicated instructors blend theoretical knowledge with practical application, ensuring you're well-prepared for the digital landscape ahead.	**Computational thinking, algorithms & Programming** **Programming Knowledge & Skills** Students will build on from KS3 practical skills and use techniques in a high-level language within the classroom; students will develop a core understanding of each technique and recognise arithmetic and comparative operators. Students will use programming constructs to control the flow of a program (sequence, selection & iteration). Students will be able to build programs and choose suitable data types for data in a given scenario.	**Computer Systems** **Systems Architecture** **Primary & Secondary Storage** Students will recall knowledge and understanding from KS3 and build up on how computers process data, students will recall the architecture of a CPU (von Neumann) and develop a stronger understanding on how specific characteristics affect the performance of a computer system. Students will review different types of computer systems, which are broadly used in the society and learn how they are embedded into larger systems.

Enrichment Opportunities:

A strong focus is targeted for all Year 7 students to drive digital, enterprise skills in line with our programmes of study. Years 7 & 8 have been working towards their Bronze, and Silver Award in iDEA – The Inspiring Digital Enterprise Award, the programme helps students to further develop digital, enterprise and employability skills. The Computer Science department have incorporated iDEA badges to be completed each week in line with the programme of study for Year 7; this year in assembly, we will be celebrating the student awards across Years 7 & 8 during whole assembly to raise achievement in computing. An iDEA ambassador is also selected from each form group to lead the role of pastoral support outside of the Computer Science lesson and to work closely with the Computer Science department to review badges and challenges.

Year 7 Coding Club –Passionate coders opt in to attend weekly coding club sessions taking place in an ICT suite at lunchtimes. The programme is designed to aspire students to develop their text-based programming as well as online simulators. Students work towards completing mini projects which are celebrated in the school during assemblies.

Impact:

KS3 units are adapted and taught purely by topic or with a consideration of underpinning knowledge and skills from KS2, which forms part of the unit delivery from the Year 7 baseline assessment. From this, the programme of study is built on from the previous topic and links to the next topic. Key concepts such as programming, Computational thinking, algorithms and systems architecture are weaved into the KS3 as a starting point to help students familiarise with the technical vocabulary before they start KS4 and build onto complex content.

Formative assessment is an integral part of our approach to Teaching and Learning. Over the course of their study, all lessons use and apply formative assessment using questions, which is displayed, on the board or on paper, class teacher observation and recall retrieval activity/consolidation of learning. Examples of formative assessment, which is used, is self and peer assessment, different forms of questioning, quizzes to support learning and self-explanations or rubrics for assessing projects. Carefully chosen questions (diagnostic questions) are used to reveal student's misconceptions about the key principles and helps the Computer Science teacher understand the students' conception of the key topic. During practical programming lessons, multiple choice questions are used to assess programming skills by using snippets of block/text based code, which students will need to read and work out what the outcome of the running the snippets will be. Questions like these highlight that it is important for students to engage in code comprehension and code reading activities when learning to program.

Students will also sit a summative assessment at the end of each topic or unit at the end of the term. This assessment will be cumulative and will assess not only what the students have learned over the previous term, but also their understanding of all relevant material previously taught. Summative assessments consist of vocabulary to ensure students can speak the 'language' of Computer Science, students can fill in a missing component in a block of code or determine the output of a block of code and finally students can find and correct errors. Staff are supported to mark these accurately and post assessment moderation takes place to ensure the validity of the data. All data is analysed centrally (not by teachers) and the CS Subject Leader is given a report outlining the areas of strength and weakness. This is then used to inform future planning, pedagogical action/support with additional interventions and set changes.

Homework will be set for students using a combination of online as well as paper-based activities on the current and previous learning content with the addition of written extended exam questions at KS4.

DIGITAL INFORMATION TECHNOLOGY CURRICULUM MAP 2025 – 2026

Intent:

At WHTC, all KS4 students study and complete a digital practical qualification in BTEC L2 Tech Award in Digital Information Technology from Years 10-11. Students will learn a strong mix of creative design and technical knowledge. This is a digital qualification that gives students a real insight into the modern fundamentals of IT with an external assessment structured to be relevant to IT. The structure of the course has been designed to explore, develop and then apply to allow students to build on and embed their knowledge. This will enable our students to grow in confidence and then put into practice what they have learned.

Implementation:

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year 10	**Component 1: Exploring User Interface Design Principles and Project Planning Techniques (Controlled Assessment) Submission: December** **Task 1 – Project Proposal and Plan** Learners create a project proposal and plan using the brief. They identify the target audience, user needs, accessibility requirements, and constraints, applying tools such as Gantt charts and task lists to manage time and milestones effectively. **Task 2 – Designing the User Interface** Learners design four screens for a user interface that meet user and accessibility requirements. They apply design principles such as layout consistency, colour.	**Component 1: Exploring User Interface Design Principles and Project Planning Techniques (Controlled Assessment) Submission: December** **Task 3 – Developing the Prototype** Using suitable software, learners build a working prototype based on their designs. They apply design principles consistently, ensuring clear navigation and accessibility throughout, demonstrating technical accuracy and creativity. **Task 4 – Review and Evaluation** Learners evaluate their final interface and project plan, commenting on how well it meets user needs and design criteria. They identify strengths, weaknesses, and suggest realistic improvements to enhance usability and effectiveness.	**Component 2: Collecting Presenting and Interpreting Data (Controlled Assessment) Submission: May** **Task 1 – Data Collection Methods** Learners analyse two data collection methods used by an organisation. They explain their suitability, strengths, and weaknesses while considering reliability, accuracy, and the impact of data on individuals.	**Component 2: Collecting Presenting and Interpreting Data (Controlled Assessment) Submission: May** **Task 2 – Data Manipulation and Dashboard Creation** Learners use digital tools such as formulas, functions, and charts to process and present data in a dashboard. They produce clear, accurate summaries and visual displays to support decision-making. **Task 3 – Drawing Conclusions and Reviewing Data Presentation** Learners interpret their dashboard to identify patterns and trends, drawing reasoned conclusions. They evaluate how presentation choices affect understanding and suggest improvements for clarity and accuracy.	**Component 3: Effective Digital Working Practices** Aim: A Modern Technologies Students will revisit and explore how modern information technology is evolving. They will explore how IT professionals work with digital solutions to integrate them into organisations and their activities.	**Component 3: Effective Digital Working Practices (Exam: Jan 2026)** Aim: B Cyber Security Students will understand what cyber security is and how to safeguard against it. Students will further explore from Year 9 why systems are attacked and understand the types of internal and external threats. Students will be able to describe what steps an organisation must take to minimise their risk of threats.

Year 11	**Component 3: Effective Digital Working Practices** Aim: C Draw conclusions and review data presentation methods Students will now use their dashboard they created last term and draw conclusions and make suitable recommendations based on the information displayed in the dashboard. Students will also consider how the presentation methods chosen impact on the conclusions and recommendations they have made.	**Component 3: Effective Digital Working Practices** Aim: D Planning & communication in digital systems. Students will understand the purpose of key diagrams which are used in organisations to show how textual and diagrammatical communication can be used to explain digital solutions. Students will develop how to interpret, refine and draw data flow diagrams, flow charts and system diagrams.	**(Official BTEC exam 1st attempt: Jan 2026)** **Component 1 resits** (teacher's discretion): Exploring User Interface Design Principles and Project Planning Techniques (Controlled Assessment) **Component 3: Effective Digital Working Practices** Aim A and B revision techniques and exam practice.	**Component 2 resits** (teacher's discretion): Presenting and Interpreting Data (Controlled Assessment) Submission: May **Component 3: Effective Digital Working Practices** Aim A, B, C and D revision techniques and exam practice.	**(Official BTEC exam 2nd attempt: Jan 2026)**	**Course completion**

Enrichment Opportunities:

Development of digital & technical skills

The creativity of the User Interface design element and the opportunity to work towards a realistic work scenario. Students discover how cloud storage and cyber security which can be related to social media like Instagram and Facebook.

Suggested class field trips may take place to analyse user interface designs used by high street stores. Further discussions take place on how companies like Instagram and Facebook store data and manage privacy. Students develop a broad taste of digital skills creating a stepping stone to careers like IT Project Management, Technical Support and Cyber Security. The technical skills gained in DIT will provide students going into creative careers such as app design, web design, video game design, digital advertising and much more.

Students will have developed a knowledge of analytics, performance and technical elements, which will help students to improve their creative output.

Impact:

Formative assessment is an integral part of our approach to Teaching and Learning. Over the course of their study, all lessons use and apply formative assessment using questions, which is displayed, on the board or on paper, class teacher observation and recall retrieval activity/consolidation of learning. Examples of formative assessment, which is used, is self and peer assessment, different forms of questioning, quizzes to support learning and self-explanations or rubrics for assessing projects. Carefully chosen questions (diagnostic questions) are used to reveal student's misconceptions about the key principles and helps the DIT teacher understand the students' conception of the key topic.

Students will also sit a summative assessment at the end of each topic for the external assessment component. This assessment will be cumulative and will assess not only what the students have learned over the previous term, but also their understanding of all relevant material previously taught. Summative assessments consist of vocabulary to ensure students can speak the 'language' as digital leaders and apply these to contextual examples. Staff are supported to mark these accurately in line with the mark schemes, these are then moderated to ensure the accuracy of the teachers' feedback. All data is analysed centrally (not by teachers) and the Subject Leader of Computer Science & ICT is given a report outlining the areas of strength and weakness. This is then used to inform future planning, pedagogical action/support with additional interventions and set changes.