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YEAR 9 – Python KS3 Computer Science		
Rationale and Context of Unit:	**Core curriculum content:**	**Tier 2 & Tier 3 vocabulary explicitly taught:**
This Key Stage 3 Computer Science curriculum is designed to provide a clear and progressive journey from foundational digital skills to more advanced computational understanding. In Year 7, students establish core computing competencies, including effective use of a personal computer, secure login procedures, and navigation of school networks. They develop confidence using digital platforms such as Google Workspace and Microsoft Office, while also being introduced to binary number systems, essential e-safety principles, and early programming through Micro devices. This ensures all students begin with a consistent baseline of knowledge and digital literacy. In Year 8, students build on this foundation by developing a deeper understanding of computer systems and how they function. They explore the relationship between hardware and software, as well as the role of input and output devices. Their knowledge of number systems is extended to include hexadecimal, strengthening their understanding of how data is represented and processed. Programming skills are further developed through Python and platforms such as Amazon Turing Lab, while digital safety is reinforced through the EE PhoneSmart programme. The introduction of electronic components provides a practical link between software and physical computing, supporting engagement and applied learning. In Year 9, students consolidate and refine the knowledge and skills developed throughout Key Stage 3 in preparation for the transition to Key Stage 4 Computer Science. Having experienced both block-based and text-based programming, including Python as a widely used industry language, students are better equipped to tackle more complex	**Core Computing Skills** Students will develop essential skills in using a personal computer, including basic operation, navigation, and system use. **Google Workspace** Students will learn how to log in securely and use key Google tools such as Gmail, Google Drive, and Google Docs to communicate, store, and create work effectively. **Number Systems** Students will explore number systems, including binary (base 2), denary (base 10), and hexadecimal (base 16). They will learn how to convert between these systems and understand how data is represented within computers. **Programming in Python** Students will begin coding using the Python programming language, creating simple programs while developing logical thinking and problem-solving skills. **Coding Platforms** Students will further enhance their programming skills through the Amazon Turing Lab platform, where they can practise and apply coding concepts in an interactive environment. **School Network Navigation** Students will learn how to navigate the school network, including accessing shared drives, locating files, and saving work securely within their own user areas. **Introduction to Electronic Components** Students will be introduced to basic electronic components, gaining an understanding of how hardware works alongside software to create functional computing systems.	Hardware Software CPU (Central Processing Unit) Motherboard Coaxial Fibre-Optic Wireless Pixel Resolution Metadata

computational thinking and problem-solving tasks. The inclusion of electronics within the curriculum offers a practical, hands-on dimension that reflects current industry practices and emerging job sectors. This final stage of KS3 ensures students are secure in their understanding, confident in their abilities, and well-prepared to make informed choices about further study and future pathways in Computer Science.		
Challenge and Support:	**World wide learning/ links to 21st century:**	**Cultural capital/ Industry/ Enrichment:**
Lessons are thoughtfully designed with embedded EDSM descriptors to ensure clear progression and effective differentiation for all learners. Each lesson includes targeted activities that provide appropriate stretch and challenge for higher attaining pupils (HAPs), enabling them to deepen their understanding and apply their skills in more demanding contexts. Literacy development is supported through carefully selected reading materials, with dedicated time built into the curriculum for engagement. Structured PowerPoint resources are used to guide learning and provide regular opportunities for students to read aloud, helping to strengthen both comprehension and oracy skills. Key subject-specific vocabulary is explicitly taught throughout the unit, with clear definitions and explanations to support understanding, retention, and confident use of technical terminology. Google Classroom serves as a centralised platform for learning and is organised consistently in line with other Creative Industries subjects. This familiar and structured approach promotes independence, reduces cognitive load, and allows students to easily access lesson materials, homework, assessments, and revision resources. It also supports continuity of learning by enabling students to revisit content, catch up on missed work, and access	This unit develops essential digital competencies that are fundamental to life and work in the 21st century. Students build confidence in using personal computers and cloud-based tools such as Google Workspace, reflecting the way modern organisations communicate, collaborate, and manage information globally. These skills enable students to work efficiently in digital environments that mirror real-world professional settings. Through the study of number systems and programming in Python, students gain an understanding of how data is represented and processed within computers. These concepts underpin all modern technologies, from mobile devices to global communication networks. By developing logical thinking, problem-solving, and coding skills, students are prepared for a future where digital literacy and computational thinking are increasingly essential across a wide range of careers. The unit also promotes responsible and informed use of technology through digital safety and network navigation. Students learn how to manage digital resources securely and understand the importance of protecting their online identity. The introduction of electronic components further strengthens their awareness of how hardware and software interact in real-world systems, helping them to make meaningful connections between theoretical knowledge and	This scheme of learning introduces students to a wide range of career pathways within Computer Science, helping them to recognise the breadth of opportunities available within the digital sector. Careers such as digital engagement apprentice and audio engineer are explored, broadening students' awareness of the industry alongside the qualifications, skills, and experiences needed to access these roles. For many students, access to technology beyond the classroom is limited. This unit therefore plays a vital role in providing equal opportunities to develop essential digital skills, ensuring all learners can build confidence and competence in using technology effectively. In doing so, it supports social mobility by equipping students with skills that are increasingly important for further education, employment, and everyday life. Computer Science remains an area of high demand both locally and nationally. By developing strong foundational knowledge and practical skills, students are well positioned to progress into a growing industry where digital expertise is highly valued. This not only enhances their future employability but also contributes to the wider economy by supporting innovation and the development of a skilled workforce.

additional resources such as careers information and curated video content for further enrichment.	practical applications in an increasingly technology-driven world.	
Historical, Social, Moral, Spiritual, Cultural context:	**Cross curricular links/ literacy/numeracy:**	**Common misconceptions:**
The Key Stage 3 Computer Science curriculum provides students with opportunities to explore the wider historical, social, moral, spiritual, and cultural impact of digital technology. Through areas such as Google Workspace, Microsoft Office applications, and school network navigation, students gain insight into how computing has evolved and transformed communication, education, and the workplace. This helps them to understand the historical development of technology and its significant influence on modern society. From a social and moral perspective, digital safety and awareness are key elements of the curriculum. Students are taught how to behave responsibly online, exploring important issues such as cyberbullying, privacy, and respectful communication. This encourages them to reflect on the consequences of their online behaviour, develop empathy, and make informed, ethical decisions when engaging in digital environments. Topics such as binary, number systems, and micro programming deepen students' understanding of how technology operates at a fundamental level. This supports a broader cultural awareness of the digital world and fosters curiosity about how modern systems function. Collectively, these experiences help students to become responsible, knowledgeable, and culturally aware digital citizens.	**Gatsby Benchmark:** https://www.bbc.co.uk/bitesize/articles/zj6s6v4 https://www.bbc.co.uk/bitesize/articles/zncdvk7 **STEAM Ambassadors:** Students will be awarded a STEAM ambassador badges if they have been identified for doing exceptional work either academically or practically within this Design Technology curriculum. **Cross Curricular links:** **Mathematics:** Number systems such as binary, denary, and hexadecimal reinforce understanding of place value, conversion, and logical reasoning, while programming supports problem-solving and sequencing skills. **English:** The use of Google Workspace supports written communication, reading, and presentation skills, helping students to structure and present ideas clearly. **Science:** Learning about hardware, software, and electronic components links to topics such as electricity, circuits, and how physical systems operate. **Design and Technology:** Understanding electronic components and programming supports product design and systems thinking, particularly in areas involving automation and smart technologies. **PSHE:** Digital safety and phone awareness promote responsible online behaviour, helping students understand risks such as cyberbullying, privacy, and digital wellbeing.	Although students are often referred to as part of the "digital generation," their experience of computers and digital systems in a professional or structured environment is frequently limited. Many learners are familiar with using technology socially, but have not developed a secure understanding of how digital tools are used in workplace or educational settings. As a result, students can hold misconceptions about key concepts in computing, particularly around online safety. This includes an overestimation of the strength and security of simple passwords, as well as a lack of awareness of best practice in protecting personal data and managing online identity. Addressing these misconceptions is a key focus of the curriculum to ensure students develop safe, responsible, and informed digital habits.
Assessment timeline:		

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Computer Science is delivered as part of a carousel system within the Creative Industries Faculty, alongside Product Design, Food, and Textiles. This structure allows each subject to be taught over a focused period of approximately nine weeks per academic year. Within this timeframe, students engage in a broad range of activities designed to develop both practical and theoretical understanding of Computer Science, ensuring they gain meaningful exposure despite the short delivery window.

Assessment in Computer Science is split equally between two key areas: subject knowledge and employability skills, each marked out of 50. Subject knowledge assessments evaluate students' understanding of design principles, materials, processes, and the ability to apply this knowledge to problem-solving tasks. The employability assessment is bespoke to Computer Science and assesses a range of transferable skills such as creativity, teamwork, time management, and independent thinking—key attributes valued by employers within the creative industries.

All student achievements are logged by teaching staff on the KS3 subject tracking sheet to ensure consistent monitoring of progress across the faculty. In addition, individual achievement scores are recorded on the front of student books, providing a clear and accessible reference for students and parents. The Creative Industries Faculty prides itself on being forward-thinking, consistently integrating the latest technologies to enhance teaching and learning. This aligns with government guidance and supports students in developing digital literacy as part of their broader educational experience.

Subject Knowledge:

Literacy
Python
Python functions
Binary (Base 2)
Denary (Base 10)
Hexadecimal (Base 16)
Online Safety

Exam: 50 marks

Employability Skills: Environmental Poster

The employability component of this scheme of learning is a practical assessment worth 50 marks. In this task, students will programme using the Turing Lab as a learning platform. The aim is to develop students ability in using Python where students complete several areas. Turtle, weaving with Python, Python challenges and Environmental Poster. Turing Lab offers a visual method of code development in action.

Practical: 50 marks

Home learning

Home learning in Computer Science is set in accordance with the subject's home learning schedule, which is available through the Acle Academy website. These tasks are carefully designed to reinforce both the subject knowledge and employability skills assessment areas that are implemented into the classroom. By supporting the curriculum in this way, students can consolidate their understanding of key concepts and continue developing transferable skills such as problem-solving, creativity, and time management beyond the classroom setting.

To support independent learning, subject-specific YouTube playlists have been created and curated to align directly with classroom content. These playlists include a range of resources, such as instructional videos, practical demonstrations, and relevant theory-based content. Where appropriate, audio books or audio versions of set literacy texts are also included, allowing students to access content in a format that suits different learning styles. This approach encourages students to take ownership of their learning while making use of high-quality digital resources that complement and enhance their in-school experience.

Feedback

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Feedback plays a vital role in the delivery of practical subjects within the carousel system, including Computer Science. Due to the hands-on nature of the curriculum, verbal feedback is an essential tool for effective teaching and learning. This ongoing, in-the-moment dialogue allows teachers to guide students through processes, correct errors as they occur, and reinforce good practice. Evidence of this approach can be seen in focused, purposeful classroom environments where students are actively engaged and responsive to teacher input.

To further support learning, structured strategies such as WWW (What Went Well) and WAGOLL (What A Good One Looks Like) are embedded within lessons. These strategies help students to reflect on their own work, recognise strengths, and understand expectations through high-quality exemplars. Peer and self-assessment opportunities are often built into practical tasks, enabling students to become more independent and reflective learners.

To complete the feedback loop, students review their Subject Knowledge assessments with reference to personalised feedback provided via their school email accounts. This process encourages students to identify and address any misconceptions, reinforcing personal responsibility and promoting continuous improvement. By reviewing assessment outcomes and targeted feedback, students can take clear, informed steps to improve their understanding and performance in future tasks.