







Head of Department Welcome

Greetings and welcome to Glebelands School, where curiosity meets innovation! We're thrilled that you've chosen to explore our Computer Science department through this informational booklet.

Our Computer Science department is a dynamic hub of learning, and we're proud of the exceptional education we offer to our students. Currently, our team comprises two dedicated members who are committed to nothing less than excellence. Together, we've crafted an engaging and enriching curriculum that sparks a passion for learning.

At the core of our department's mission is the unwavering belief that every student can thrive in the world of Computer Science. Our curriculum is designed to be exciting, captivating, and empowering. Students dive into a wide array of fascinating topics, each carefully chosen to ignite their curiosity and cultivate their digital prowess.

As a member of our department, whether you're a seasoned educator or just starting your teaching journey, your voice matters. We encourage all team members to contribute ideas and insights, fostering an environment of continuous growth and innovation.

Beyond our exceptional team, we're fortunate to boast top-notch facilities that provide the perfect backdrop for exploration and experimentation. Our commitment to holistic education extends to a range of extracurricular opportunities, from our thriving Thrive initiative to after-school clubs. In the past, we've run exciting clubs like the MicroBit club, and this year, we're thrilled to introduce our elite programming club. We're always open to fresh ideas and eagerly welcome your suggestions.

This isn't just an introduction; it's an invitation to be part of a team that's shaping the future of education. The successful candidate, whether a new addition or a veteran, will share in our school's and department's strategic vision. Together, we'll create a learning environment where every student not only succeeds but flourishes in the thrilling world of Computer Science.

"Sometimes it is the people no one can imagine anything of who do the things no one can imagine." Alan Turing

Mr P Hardwood

Head of Computer Science





Computer Science Department Vision Statement

At Glebelands, the world of computing comes alive, pulsating with a thrilling blend of innovation and knowledge. Picture this: a dynamic domain where students embark on an electrifying journey spanning Computing, Media, and Information Technology. Here, we strike a perfect balance between hands-on expertise and theoretical wisdom in ICT and computer science.

In the heart of our computing department, a symphony of software mastery and programming prowess unfolds. We believe it's not enough to just crack problems; our students wield their skills as digital artists, using technology as a canvas to manifest the very essence of computer science theory.

Imagine the excitement as our students craft their own computer games at Key Stage 3, followed by creating comprehensive guides that unveil the secrets behind their gaming wizardry. It's not just about problem-solving; it's about the power to communicate that knowledge effectively.

But that's not all. Our computing curriculum at Glebelands is a beacon of ambition and aspiration. It's designed to empower every learner, especially those facing disadvantages and those with special educational needs, with the knowledge and cultural capital to thrive in life.

Here, cultural capital translates into tangible skills that can shape our students' futures. From mastering the entire Microsoft suite to conquering Adobe's creative realm, and diving deep into programming languages like Python and HTML, our students are equipped with the tools they need to navigate the digital landscape.

Not only do we hone their technical prowess, but we also nurture their emotional intelligence. In the spotlight, our students shine as they present group projects to their peers, fostering respect and offering constructive feedback to refine their work and presentation skills.

At Glebelands, we level the playing field, ensuring that all students, regardless of their backgrounds, have equal opportunities to produce exceptional work that challenges and delights across a spectrum of topics.

Our mission in the realm of Computing is clear: when our students bid farewell to Glebelands, they depart as digital dynamos. They've honed their computer programming skills, become masters of effective communication, navigated diverse application software, and coded in multiple languages, including Python and JavaScript. Their problem-solving prowess is unmatched, and they've mastered the art of designing, building, and testing various projects. They walk away with the confidence to break down any challenge into manageable, conquerable pieces.

Welcome to Glebelands, where the future is forged in pixels and code, and where every student's journey is nothing short of exhilarating!





About the Computer Science Department

Department Staff

- Mr Peter Harwood (Full time)
- Mr Jamie Pike (Part time)
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Facilities

- 3 fully equipped IT suites
- Office area

Each teaching room is setup with a desktop computer, sound system, projector and visualiser to support the delivery of lessons. We also have the software "Vision" to enable screen control of students computers.

We have a selection of IT technician that is on call for any issues.

Key Stage 3:

Year 7, 8 and 9 have 2 x 50 minute lesson every fortnight

Key Stage 4:

In Year 10 and 11, our curriculum dedicates 6 x 50 minute lessons per fortnight to study Computer Science, an increasingly favoured choice among our discerning students.





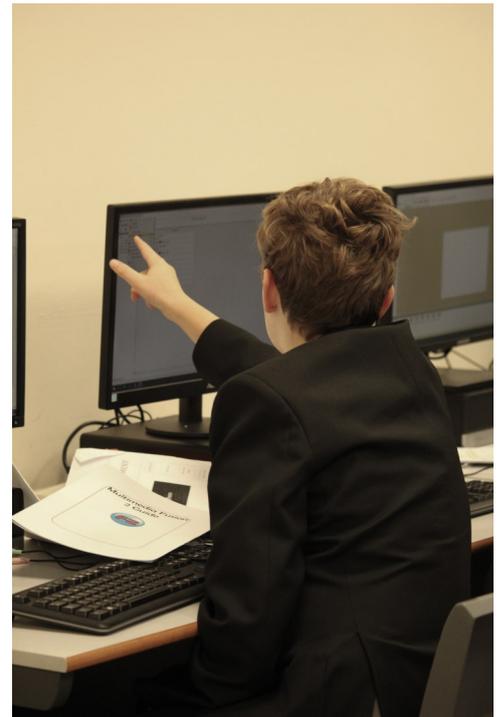
Computer Science Key Stage 3 Curriculum

In Key Stage 3 students are offered a broad and exciting curriculum where each year student completes a variety of projects.

Year 7 Curriculum Overview: In Year 7, our curriculum immerses students in the captivating world of computer science. We kickstart the year with an exploration of the rich history of computer science, providing students with a solid foundation. They then harness their knowledge to envision the future through collaborative presentations on cutting-edge technologies using PowerPoint Online. This collaborative journey encourages group presentations, fostering teamwork and effective communication. Our students dive deeper into the heart of technology as they dissect computer hardware, unravelling the inner workings of these modern marvels. After the holiday break, we embark on a term-long exploration of cyber security, equipping students with the skills to safeguard themselves online. To conclude the year, students venture into the realm of game development, employing Kodu to bring their creative gaming visions to life.

Year 8 Curriculum Overview: In Year 8, our curriculum takes a hands-on approach to technology. We commence the year by delving into the world of HTML and CSS, providing students with the tools to craft their own websites centred around their personal interests. After the winter break, we venture into the realm of Python programming, covering essential concepts from sequences, selections, and iterations to advanced topics like lists and file handling. The year concludes with a focus on computer graphics, allowing students to explore how computers store and manipulate graphical content, honing their graphic design skills in the process.

Year 9 Curriculum Overview: Year 9 marks a significant step in our students' journey towards digital literacy. We commence the year by introducing database concepts, guiding students in constructing their databases, which includes flat file and relational databases. Additionally, students delve into fundamental SQL commands, equipping them with database management skills. In the spring term, we explore ethical dimensions, with a strong focus on artificial intelligence and the ever-important subject of online safety. Our students also embark on a quest to achieve their IDEA awards, nationally recognized qualifications in various IT skills. The year culminates with an exploration of video production and editing, providing insights into the world of content creation and online monetization, fostering a well-rounded understanding of digital media.





Computer Science Key Stage 4 Curriculum



Curriculum Map

Algorithms
 Programming techniques
 Producing robust programs
 Computational logic
 Translators and facilities of languages
 Data representation

Systems architecture
 Memory/Storage
 Wired and wireless networks
 Network topologies, protocols and layers
 System security and software
 Ethical concerns
 Algorithms
 Programming techniques

Stage 4 is where Computer Science truly comes into its own, captivating our students with its ever-growing popularity. At this stage, we proudly offer the OCR course, a well-structured program comprising two distinct yet interwoven units:

Unit 01 – Computer Systems: In this unit, students embark on an illuminating journey into the heart of computing. They dive deep into the intricacies of the Central Processing Unit (CPU), unravelling its inner workings with the precision of digital detectives. This exploration extends to the realms of computer memory and storage, both of which are fundamental pillars in the ever-evolving digital landscape. Wired and wireless networks come under scrutiny, as students explore various network topologies, gaining insights into the very infrastructure of our connected world.

But this unit goes beyond the mere hardware; it delves into the profound global impact of computer science, touching upon the ethical, legal, cultural, and environmental dimensions that shape our digital society. Students grapple with the weighty questions of our age, considering the ethical implications of technology's relentless march forward. They become adept at deciphering how data is represented, building upon the solid foundation laid in Key Stage 3. In this journey, they acquire the invaluable skill of converting binary to decimal, denary to hexadecimal, and vice versa, thus unlocking the very language of computers.

Unit 02 – Computational Thinking, Algorithms, and Programming: Building upon the strong programming foundations laid in Key Stage 3, students venture deeper into the art and science of programming. Armed with their prior knowledge, they embark on a thrilling exploration of algorithms and advanced programming techniques. They learn not only to create programs but also to imbue them with the intelligence to store, sort, and search for data efficiently, equipping them to tackle real-world challenges.

The entire programming lifecycle unfolds before them, from the inception of Pseudo code in the planning stage to the creation of meticulous flow charts, akin to architects drafting blueprints. Rigorous testing of final solutions ensures that our students emerge as proficient programmers, ready to tackle the multifaceted challenges of the digital age with confidence. This unit empowers them not merely as users of technology but as creators and innovators, ready to shape the future of our increasingly digitized world.



Vocational ICT Key Stage 4 Curriculum

Unit 1 ICT in Society: In today's digital age, the world of ICT encompasses a wide array of contexts, and this unit equips students with essential knowledge. ICT specialists need a solid foundation to provide top-notch service and advice to their clients and industries. This unit invites learners to explore the multifaceted uses of hardware, applications, and specialized software in society. They delve into the diverse applications of information technology, spanning businesses, educational institutions, and personal use. Key topics include understanding how IT fulfils the needs of organizations and individuals, the dynamics of data and information usage and transfer, and the far-reaching legal, moral, ethical, cultural, and environmental impacts of IT, emphasizing the critical importance of cybersecurity. Assessment for this unit is external, with a comprehensive written examination lasting 1 hour and 20 minutes. It comprises a variety of question formats, including objective responses, short and extended answers, all grounded in real-world situations. This assessment holds significant weight, contributing 40% to the overall qualification grade.

Unit 2 ICT in Context: ICT permeates our daily lives, with digital devices becoming indispensable. In workplaces, ICT is a linchpin, streamlining tasks and enabling organizations to operate efficiently. Employers seek candidates who possess a versatile skill set, encompassing the understanding and practical application of various computer programs, software, and applications. This unit empowers learners with a comprehensive working knowledge of databases, spreadsheets, automated documents, and images, allowing them to tackle real-world challenges in vocational settings. Students leverage their understanding of how IT serves both organizational and individual needs, focusing on the fitness-for-purpose aspect of data and the meticulous checking of input data for errors. Key topics encompass planning, creating, modifying, and utilizing databases, spreadsheets, automated documents, and images. Assessment for this unit is internal, conducted through controlled assessment. Learners undertake a series of prescribed tasks tailored to an annual context provided by WJEC and distributed to centers via the WJEC Secure Website. This assessment is a substantial component, accounting for 60% of the overall qualification grade and demanding approximately 40 hours of dedication.





What our students said when asked to finish the sentence *'I like Computer Science because...'*

"I like making games on the computer and how to code which is a great skill"

"My teacher really does care and he knows how much I struggle and yet motivates me to keep going when I want to give up"

"We can be creative and have a lot of freedom to think for ourselves"

"It is fun and also challenging. It gives us the opportunity to learn new skills and try something new"

"It's an enriching and engaging subject"

"It's really fun and there is so so much stuff to learn that you won't already have learnt. There is loads to do as well"

"The teacher is really nice and helps people when they get stuck"

"You get to learn about the different parts of the computer, their functions and what they're used for"

"I think it is a fun way to learn how to use of different effects on the computer"

"The project and Mr Chandler are really fun. I can ask for help"

"It is exciting and gets my brain going"





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