Computer Science Curriculum Map

Intent:

The Computer Science curriculum has been designed to develop safe, responsible and competent users of technology so that the students are prepared for a vast, diverse and expanding digital world including the use of AI. This digital world offers many advantages and pathways but the students are also taught about the safety aspects. Our curriculum includes many aspects concerning safeguarding, how to stay safe and who to contact if issues arise. Equally important is the consideration of morals and ethics.

The department aims to provide students with relevant skills and understanding so that they may be an asset to an organisation in the future. In addition, we teach the students how to think computationally.

Our Computing curriculum is designed to provide the foundations needed for further study in a technical role. It is felt that the current schemes of work prepare the students well for the subsequent Key Stages of further study.

The Computer Science Department aims to equip students with essential computational thinking and problem-solving skills. Our aim to is to prepare students for a technology-driven world in a safe manner. The department aims to create an inclusive environment where every student can develop digital literacy, creativity, and critical thinking, laying the foundation for future academic and career opportunities in a variety of fields. We aim to do this through the writing of units which appeal to all genders and interests.

Key Stage 3

YEAR 7	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	**How to use Microsoft Teams and the school network.** **E-safety** Age restrictions Content – how it can be used and shared Disinformation, misinformation and hoaxes Fake websites and scam emails Fraud (online) Password phishing Personal data Persuasive design which keeps 'users online for longer than they might have planned or desired' Dealing with pressure Mobile money Privacy settings Frenemies	**Spreadsheets** Use of functions and formulae including: SUM MIN MAX AVERAGE VLOOKUP XLOOKUP Data validation **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam **Assessment**	**Programming. Visual Basic.** **VB console application.** Adding comments Data types Rounding Variables String functions Inputting numbers ElseIf clause **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Theory** Computer systems. Embedded and dedicated systems. Components inside a computer system. Join the components to the explanation. Power supply Case cooling fan CPU CPU heat sink and fan Graphics card Motherboard Optical drive RAM Hard drive The role of the CPU – Control Unit, ALU, Cache The Fetch-Execute-Cycle RAM and ROM	**Kodu** Creation of games including the use of health, following paths, scores and spawning. **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Graphics** Desaturation Layers Spot healing tool/brush Clone stamp Dodge and burn Adjustment layers Removal of elements **Movie editing** Storyboards Record and edit movie clips. **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam

	Money laundering Band runner (activity) Sending explicit images **Smart Cutebots** The students will program a car with a Microbit attached to perform a number of operations such as dancing, turning on lights, signalling, avoiding collisions and following a path. **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam		Virtual memory The role of ROM The benefit of adding RAM The role of the operating system Systems software Databases Tables Data Validation Date types Field lengths Queries Forms Reports Macro buttons (extension task) **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam		

Key Subject Skills	As part of the department's vision, the students will learn how to stay safe online. This covers the steps needed to browse safe sites, identify misinformation and hoaxes and communicate safely. For more information, please see the planned topics above. The students learn how to analyse problems and develop flowcharts whilst writing algorithms. Following this, they will use a range of languages to code solutions. The department still teaches traditional office software including spreadsheets and databases so that the students have a fundamental understanding of data management. This then ties in with legislation in the theory unit(s). The students learn how to use manipulate photos, video and graphics across a variety of units. They also learn how to create games using events and actions in different packages. The students will use digital cameras, voice recorders and related equipment such as tripods and different lenses during some of the units.
Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.
Connections with careers	**The Computer Science schemes of work at Key Stage 3 are designed to equip students with a blend of creative and technical skills relevant to the digital media and computing industries. They provide a strong foundation for various careers in computing and digital media. They include:** **Digital Graphics and Imaging:** Graphic Design: Skills in creating and manipulating digital graphics prepare students for careers in graphic design, digital marketing, and advertising. The students are provided with a client brief which must be met, a situation which is common in industry. Image Editing: Proficiency in image editing software such as Adobe Photoshop is essential for roles in digital content creation, multimedia design, and photo editing. **Pre-Production Skills:**

	Project Planning: Understanding pre-production processes, such as storyboarding, scripting, and project management, is important for roles in media production, project management, and digital production coordination. Concept Development: Skills in developing concepts and planning projects are crucial for creative roles in advertising, media planning, and content creation. **Audio and Video Production:** Video Editing: Proficiency in video editing software (such as CapCut or Adobe Rush) is essential for careers in video production, film editing, and digital media. Sound Editing: Understanding sound editing and production prepares students for roles in audio engineering, podcast production, and multimedia design. **Photography:** Digital Photography: Knowledge of digital photography techniques and editing is crucial for careers in photography, photojournalism, and visual content creation. The Key Stage 3 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS3, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. Some may be encouraged to learn Python too as a second language. We also cover HTML and elements of JavaScript. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS3 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts.

Home support	You may support your child at home using a range of methods: • Encourage your child to write and test code regularly. Websites such as Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 3 Computer Science content on the BBC Bitesize website. • Encourage the reading of the text books and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their computer science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

YEAR 8	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	**E-safety** Online challenges County lines Online bullying Content which incites hate and violence Fake profiles Grooming Live streaming Use of CEOP website Unsafe communication Impact on confidence (including body confidence) **Flowol** The creation of flowcharts to control traffic lights and a range of other scenarios. **Assessment**	**Game creation** GameMaker Sprites Objects Actions Events Testing **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Website design and HTML** HTML Ordered lists Unordered lists Tables Images Hyperlinks **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Graphics** Layer masks Reflections Lasso tools Depth of field Black and white conversions Adjusting colours **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Theory** Units of data Bit Nibble Byte Kilobyte Megabyte Gigabyte Terabyte Petabyte Binary numbers How to count in binary numbers How to calculate binary numbers – addition Convert binary to denary Add binary numbers using column addition Overflow errors Binary shifts	**Visual Basic programming – till system** Form application Formulae Icons Testing **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam

	End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam				Hexadecimal numbers Convert Hex to Denary Storing of digital files including pixels and compression **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	
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Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.
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	Digital Photography: Knowledge of digital photography techniques and editing is crucial for careers in photography, photojournalism, and visual content creation. The Key Stage 3 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS3, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. Some may be encouraged to learn Python too as a second language. We also cover HTML and elements of JavaScript. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS3 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts.
Home support	You may support your child at home using a range of methods: • Encourage your child to write and test code regularly. Websites such as Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 3 Computer Science content on the BBC Bitesize website. • Encourage the reading of the text books and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their computer science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

YEAR 9	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	**E-safety** Pornography (see CEOP) Impact on quality of life, physical and mental health and relationships Online vs. offline behaviours Reputational damage How to stay safe online when gaming Programming. Visual Basic. VB console application. ElseIf clause Case statements Nested selection statements For loop While loop Do…Loop Assessment	**Programming. Visual Basic. VB console application** ElseIf clause Case statements Nested selection statements For loop While loop Do…Loop Assessment End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Photography** The features of DSLRs Practical projects Manual mode – shutter speed, aperture and ISO. Manual focus Composition rules. Assessment End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Graphics** Creation of a character using a range of elements. The creature project. Cartoon portrait. Image editing. Removal of elements. Assessment End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	**Theory** Network topologies Star Bus Ring Mesh Network protocols The Internet and the cloud The Internet and the cloud Network security threats Weak points SQL injection Ethical and cultural issues Computer legislation. Open source and proprietary software	**Dreamweaver and sound editing** Create a podcast or sound-based advert using copyright-free media. Export Create two pages of a website using software. Add images and sound. **Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate KS4 coursework or tests, depending on the subject Paper 1 Recap of exam topics Compression CPU Legislation

	End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam				**Assessment** End of unit assessment – PowerPoint Microsoft Teams quiz if appropriate End of year exam	Algorithms Proprietary and open source software **Paper 2** Programming fundamentals Mini project **Assessment** Seneca Learning Past papers
Key Subject Skills	As part of the department's vision, the students will learn how to stay safe online. This covers the steps needed to browse safe sites, identify misinformation and hoaxes and communicate safely. For more information, please see the planned topics above. The students learn how to analyse problems and develop flowcharts whilst writing algorithms. Following this, they will use a range of languages to code solutions. The department still teaches traditional office software including spreadsheets and databases so that the students have a fundamental understanding of data management. This then ties in with legislation in the theory unit(s). The students learn how to use manipulate photos, video and graphics across a variety of units. They also learn how to create games using events and actions in different packages. The students will use digital cameras, voice recorders and related equipment such as tripods and different lenses during some of the units.					

Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.
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	Digital Photography: Knowledge of digital photography techniques and editing is crucial for careers in photography, photojournalism, and visual content creation. The Key Stage 3 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS3, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. Some may be encouraged to learn Python too as a second language. We also cover HTML and elements of JavaScript. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS3 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts.
Home support	You may support your child at home using a range of methods: • Encourage your child to write and test code regularly. Websites such as Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 3 Computer Science content on the BBC Bitesize website. • Encourage the reading of the text books and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their computer science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

Key Stage 4: GCSE
Computer Science

YEAR 10	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	Paper 1 Systems architecture Memory and storage Paper 2 Algorithms Programming fundamentals	Paper 1 Networks Network topologies Protocols and layers Paper 2 Programming fundamentals Binary and hexadecimal ASCII	Paper 1 Network layers System security System software Legislation Paper 2 Programming fundamentals Producing robust programs	Paper 1 Translators Revision/recap Paper 2 Programming fundamentals IDE Revision/recap	Paper 1 Computational logic Paper 2 Programming fundamentals IDE	Paper 1 Recap of exam topics Compression CPU Legislation Algorithms Proprietary and open source software Paper 2 Programming fundamentals Mini project

Key Subject Skills	Key Stage 4 Computer Science focuses on developing a variety of subject-specific skills that are essential for students to develop and master. It includes: • Programming skills, including writing code, using control structures and functions. • Computational thinking, including problem decomposition, abstraction and algorithm design. • An understanding of how data is represented in binary and hexadecimal formats. • Knowledge of both hardware components and software including applications, utilities and operating systems. • The ability to complete standard algorithms including sorting algorithms such as bubble sort and merge sort, as well as searching algorithms such as binary search.
Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.

Connections with careers	The Key Stage 4 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS4, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS4 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts. **Data and Information:** Data Structures and Databases: Knowledge of data structures and database management systems is crucial for careers in database administration, data engineering, and big data analytics. SQL and Data Querying: Learning SQL and other data querying languages prepares students for data analyst and business intelligence roles. **Computer Systems and Networks:** System Architecture: Understanding the internal components and architecture of computer systems is vital for careers in hardware engineering, system administration, and technical support. Network Security: Advanced knowledge of network protocols and cybersecurity principles prepares students for roles in network administration, cybersecurity analysis, and ethical hacking. **Software Development and Project Management:** Software Development Life Cycle (SDLC): Familiarity with the SDLC, including stages like planning, development, testing, and maintenance, is essential for careers in project management, software testing, and quality assurance.

Home support	You may support your child at home using a range of methods: • Encourage your child to write and test code regularly. Websites like Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 4 Computer Science specification found on the OCR website • Encourage the reading of the text books and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their computer science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

YEAR 11	**Autumn 1**	**Autumn 2**	**Spring 3**	**Spring 4**	**Summer 5**	**Summer 6**
Key Knowledge	Paper 1 System software Ethical, legal, cultural and impacts of digital technology Paper 2 Set algorithms Linear, Binary, Bubble and Merge Sort	Paper 1 Revision Assessment Sit past paper 1 Paper 2 Revision	Paper 1 Revision Graphics Paper 2 SQL Programming	Paper 1 Revision Sound Paper 2 Revision	Paper 2 Revision	N/A

Key Subject Skills	Key Stage 4 Computer Science focuses on developing a variety of subject-specific skills that are essential for students to develop and master:
	• Programming skills, including writing code, using control structures and functions. • Computational thinking, including problem decomposition, abstraction and algorithm design. • An understanding of how data is represented in binary and hexadecimal formats. • Knowledge of both hardware components and software including applications, utilities and operating systems. • The ability to complete standard algorithms including sorting algorithms such as bubble sort and merge sort, as well as searching algorithms such as binary search.
Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.

Connections with careers	The Key Stage 4 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS4, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS4 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts. **Data and Information:** Data Structures and Databases: Knowledge of data structures and database management systems is crucial for careers in database administration, data engineering, and big data analytics.
	SQL and Data Querying: Learning SQL and other data querying languages prepares students for data analyst and business intelligence roles. **Computer Systems and Networks:** System Architecture: Understanding the internal components and architecture of computer systems is vital for careers in hardware engineering, system administration, and technical support. Network Security: Advanced knowledge of network protocols and cybersecurity principles prepares students for roles in network administration, cybersecurity analysis, and ethical hacking. **Software Development and Project Management:** Software Development Life Cycle (SDLC): Familiarity with the SDLC, including stages like planning, development, testing, and maintenance, is essential for careers in project management, software testing, and quality assurance.

Home support	You may support your child at home using a range of methods: • Encourage your child to write and test code regularly. Websites like Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 4 Computer Science specification found on the OCR website • Encourage the reading of the textbooks and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their computer science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

Key Stage 4: GCSE
Creative iMedia

YEAR 10	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	R094 (Visual identity) is completed alongside the theory unit, R093 – Creative iMedia in the media industry. R094 involves analysing the client brief, producing preproduction documents and creating a digital graphic. R093 covers media sectors, job roles, the law, preproduction documents and media products.	R094 (Visual identity) is completed alongside the theory unit, R093 – Creative iMedia in the media industry. R094 involves analysing the client brief, producing preproduction documents and creating a digital graphic. R093 covers media sectors, job roles, the law, preproduction documents	iMedia in the media industry. R094 involves analysing the client brief, producing preproduction documents and creating a digital graphic. R093 covers media sectors, job roles, the law, preproduction documents and media products.	iMedia in the media industry. R098 involves analysing the client brief, producing preproduction documents and creating a video as well as a photographic portfolio. R093 covers media sectors, job roles, the law, preproduction	iMedia in the media industry. R098 involves analysing the client brief, producing preproduction documents and creating a video as well as a photographic portfolio. R093 covers media sectors, job roles, the law, preproduction documents and media products.	iMedia in the media industry. R098 involves analysing the client brief, producing preproduction documents and creating a video as well as a photographic portfolio. R093 covers media sectors, job roles, the law, preproduction documents and media products.

Key Subject Skills	Creative iMedia students must develop the following: • Research methods, both qualitative and quantitative. • Analysis of existing problems and the development of solutions. • Understanding of key concepts within the theory elements. • Technical skills including research, editing and refinement. • Organisation of deadlines and work schedules. Presentation of work so that it is clear for the client.			
	• Research methods, both qualitative and quantitative. • Analysis of existing problems and the development of solutions. • Understanding of key concepts within the theory elements. • Technical skills including research, editing and refinement. • Organisation of deadlines and work schedules. • Presentation of work so that it is clear for the client.			
Personal development: **RSE** **Online safety** **Enrichment**	Studying Creative iMedia may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • Creative iMedia enriches the students by providing both subject-specific knowledge and core skills for personal development such as organisation, presentation and communication. • It boosts confidence through the ability to create graphics, audio, video or animation using technology.			

Connections with careers	**The Creative iMedia schemes of work are designed to equip students with a blend of creative and technical skills relevant to the digital media industry. It provides a strong foundation for various careers in computing and digital media. They include:** **Digital Graphics and Imaging:** Graphic Design: Skills in creating and manipulating digital graphics prepare students for careers in graphic design, digital marketing, and advertising. The students are provided with a client brief which must be met, a situation which is common in industry. Image Editing: Proficiency in image editing software like Adobe Photoshop or GIMP is essential for roles in digital content creation, multimedia design, and photo editing. **Pre-Production Skills:** Project Planning: Understanding pre-production processes, such as storyboarding, scripting, and project management, is important for roles in media production, project management, and digital production coordination. Concept Development: Skills in developing concepts and planning projects are crucial for creative roles in advertising, media planning, and content creation. **Audio and Video Production:** Video Editing: Proficiency in video editing software (such as CapCut in school) is essential for careers in video production, film editing, and digital media. Sound Editing: Understanding sound editing and production prepares students for roles in audio engineering, podcast production, and multimedia design. **Photography:** Digital Photography: Knowledge of digital photography techniques and editing is crucial for careers in photography, photojournalism, and visual content creation. Visual Storytelling: Skills in visual storytelling and composition are relevant for roles in media production, advertising, and marketing. **Career and Further Education Pathways:** Industry Awareness: Exposure to different aspects of the digital media industry helps students understand career pathways in media production, design, and technology. Preparation for Higher Education: The curriculum prepares students for further studies in media, design, and computing at colleges and universities, leading to advanced roles in these fields. The Creative iMedia curriculum offers a comprehensive blend of creative and technical skills, making it a valuable foundation for students pursuing careers in the diverse and dynamic field of digital media and computing.

Home support	You may support your child at home using a range of methods: • Encourage your child to use graphic design software. Free versions are found online. • Allow your child to take photos or record video using a DSLR if one is available. • Read the Key Stage 4 Creative iMedia specification found on the OCR website • Encourage the reading of the textbooks and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Communicate with their Creative iMedia teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

YEAR 11	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	R098 (Visual imaging) is completed alongside the theory unit, R093 – Creative iMedia in the media industry. R098 involves analysing the client brief, producing preproduction documents and creating a video as well as a photographic portfolio. R093 covers media sectors, job roles, the law, preproduction documents and media products.	R098 (Visual imaging) is completed alongside the theory unit, R093 – Creative iMedia in the media industry. R098 involves analysing the client brief, producing preproduction documents and creating a video as well as a photographic portfolio. R093 covers media sectors, job roles, the law, preproduction documents and media products.	R093 covers media sectors, job roles, the law, preproduction documents and media products.	R093 covers media sectors, job roles, the law, preproduction documents and media products.	R093 covers media sectors, job roles, the law, pre-production documents and media products.	N/A

Key Subject Skills	Creative iMedia students must develop the following: • Research methods, both qualitative and quantitative. • Analysis of existing problems and the development of solutions. • Understanding of key concepts within the theory elements. • Technical skills including research, editing and refinement. • Organisation of deadlines and work schedules. • Presentation of work so that it is clear for the client.		
Personal development: **RSE** **Online safety** **Enrichment**	Studying Creative iMedia may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • Creative iMedia enriches the students by providing both subject-specific knowledge and core skills for personal development such as organisation, presentation and communication. • It boosts confidence through the ability to create graphics, audio, video or animation using technology.		

Connections with careers	**The Creative iMedia schemes of work are designed to equip students with a blend of creative and technical skills relevant to the digital media industry. It provides a strong foundation for various careers in computing and digital media. They include:** **Digital Graphics and Imaging:** Graphic Design: Skills in creating and manipulating digital graphics prepare students for careers in graphic design, digital marketing, and advertising. The students are provided with a client brief which must be met, a situation which is common in industry. Image Editing: Proficiency in image editing software like Adobe Photoshop or GIMP is essential for roles in digital content creation, multimedia design, and photo editing. **Pre-Production Skills:** Project Planning: Understanding pre-production processes, such as storyboarding, scripting, and project management, is important for roles in media production, project management, and digital production coordination. Concept Development: Skills in developing concepts and planning projects are crucial for creative roles in advertising, media planning, and content creation. **Audio and Video Production:** Video Editing: Proficiency in video editing software (such as CapCut in school) is essential for careers in video production, film editing, and digital media. Sound Editing: Understanding sound editing and production prepares students for roles in audio engineering, podcast production, and multimedia design. **Photography:** Digital Photography: Knowledge of digital photography techniques and editing is crucial for careers in photography, photojournalism, and visual content creation. Visual Storytelling: Skills in visual storytelling and composition are relevant for roles in media production, advertising, and marketing. **Career and Further Education Pathways:**
	Industry Awareness: Exposure to different aspects of the digital media industry helps students understand career pathways in media production, design, and technology. Preparation for Higher Education: The curriculum prepares students for further studies in media, design, and computing at colleges and universities, leading to advanced roles in these fields. The Creative iMedia curriculum offers a comprehensive blend of creative and technical skills, making it a valuable foundation for students pursuing careers in the diverse and dynamic field of digital media and computing.

Home support	You may support your child at home using a range of methods: • Encourage your child to use graphic design software. Free versions are found online. • Allow your child to take photos or record video using a DSLR if one is available. • Read the Key Stage 4 Creative iMedia specification found on the OCR website • Encourage the reading of the textbooks and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams • Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your child to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Communicate with their Creative iMedia teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

Key Stage 5: A-level

YEAR 12	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	Number systems Coding systems Encryption Hardware and software Programming basics	Internal hardware Stored program concept Processor instruction se	External hardware devices Communication basics Networks	The Internet Internet security TCP/IP Client-server	Relational databases SQL	Big data Start coursework
Key subjects Skills	Key Stage 5 Computer Science focuses on developing a variety of subject-specific skills that are essential for students to develop and master. It covers: • Programming skills, including writing code, using control structures and functions. • Computational thinking, including problem decomposition, abstraction and algorithm design. • An understanding of how data is represented in binary and hexadecimal formats. • Knowledge of both hardware components and software including applications, utilities and operating systems. • The ability to complete standard algorithms including sorting algorithms such as bubble sort and merge sort, as well as searching algorithms such as binary search. • Independent learning. The students are asked to conduct research to solve problems, improve programs, or understand new technologies. • The students must understand the ethical, legal, and environmental impacts of digital technology on society.					

Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage. • Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts.

	• It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.

Connections with careers	The Key Stage 5 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS4, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS4 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts. **Data and Information:** Data Structures and Databases: Knowledge of data structures and database management systems is crucial for careers in database administration, data engineering, and big data analytics. SQL and Data Querying: Learning SQL and other data querying languages prepares students for data analyst and business intelligence roles. **Computer Systems and Networks:** System Architecture: Understanding the internal components and architecture of computer systems is vital for careers in hardware engineering, system administration, and technical support. Network Security: Advanced knowledge of network protocols and cybersecurity principles prepares students for roles in network administration, cybersecurity analysis, and ethical hacking. **Software Development and Project Management:** Software Development Life Cycle (SDLC): Familiarity with the SDLC, including stages like planning, development, testing, and maintenance, is essential for careers in project management, software testing, and quality assurance.
Home support	You may support your young adult at home using a range of methods: • Encourage your young adult to write and test code regularly. Websites like Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 5 Computer Science specification found on the AQA website • Encourage the reading of the textbooks and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams

	• Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your young adult to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their Computer Science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.

YEAR 13	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Key Knowledge	Coursework	Coursework Data structures Graphs and trees Dijkstra's shortest path algorithm Number systems – floating point numbers	Finite state machines The Turing Machine Search algorithm Reverse Polish Notation Exam prep with code	Hash tables and dictionaries Exam prep with code	Past papers	N/A
Key subjects Skills	Key Stage 5 Computer Science focuses on developing a variety of subject-specific skills that are essential for students to develop and master. It covers: • Programming skills, including writing code, using control structures and functions. • Computational thinking, including problem decomposition, abstraction and algorithm design. • An understanding of how data is represented in binary and hexadecimal formats. • Knowledge of both hardware components and software including applications, utilities and operating systems. • The ability to complete standard algorithms including sorting algorithms such as bubble sort and merge sort, as well as searching algorithms such as binary search. • Independent learning. The students are asked to conduct research to solve problems, improve programs, or understand new technologies. • The students must understand the ethical, legal, and environmental impacts of digital technology on society.					

Personal development: **RSE** **Online safety** **Enrichment**	Studying Computer Science may provide enrichment in a range of ways: • The students are taught, from Key Stage 3, how to stay safe online by following an expansive number of methods. • It encourages critical thinking that questions assumptions. The students watch a number of videos concerning technology and are asked to question the usage.

	• Problem-solving skills. The students are asked to analyse complex problems and break them down into smaller parts. • It teaches the students to understand trends and patterns to aid in decision making and to help avoid bias and stereotypes. • It boosts confidence through the ability to create, troubleshoot, and innovate using technology. • Computer Science helps to foster a mindset that questions assumptions, evaluates evidence, and makes reasoned decisions. This is encouraged through the morals and ethics section of the curriculum.

Connections with careers	The Key Stage 5 Computer Science curriculum is designed to deepen students' understanding and skills in computing, further preparing them for a wide range of careers in the field. The links with careers are as follows: **Programming Skills:** Programming Languages: At KS4, students typically learn more complex programming languages, including Visual Basic, and concepts. This advanced knowledge is critical for careers in software development, mobile app development, and game development. **Algorithm Design and Problem Solving:** Algorithm Efficiency: KS4 Computer Science students learn about efficient algorithms and data structures, which are fundamental for roles in algorithm development and programming. Complex Problem Solving: Enhanced problem-solving skills are applicable in roles such as operations research analysts, IT consultants, networking and systems analysts. **Data and Information:** Data Structures and Databases: Knowledge of data structures and database management systems is crucial for careers in database administration, data engineering, and big data analytics. SQL and Data Querying: Learning SQL and other data querying languages prepares students for data analyst and business intelligence roles. **Computer Systems and Networks:** System Architecture: Understanding the internal components and architecture of computer systems is vital for careers in hardware engineering, system administration, and technical support. Network Security: Advanced knowledge of network protocols and cybersecurity principles prepares students for roles in network administration, cybersecurity analysis, and ethical hacking. **Software Development and Project Management:** Software Development Life Cycle (SDLC): Familiarity with the SDLC, including stages like planning, development, testing, and maintenance, is essential for careers in project management, software testing, and quality assurance.
Home support	You may support your young adult at home using a range of methods: • Encourage your young adult to write and test code regularly. Websites like Codecademy, w3schools and freeCodeCamp offer interactive coding exercises. • Suggest working on small projects or challenges to apply the learning. • Read the Key Stage 5 Computer Science specification found on the AQA website • Encourage the reading of the textbooks and electronic resources provided by the department • Check the assignments and test scores that are visible on Teams

	• Provide access to technology. Although technology can be expensive, there are a large number of second-hand computers available online and the software used is often free. • Encourage your young adult to use flashcards, mind maps, and summary notes for key concepts and vocabulary. • Act as a tester for their programs, helping them identify and fix bugs. • Communicate with their Computer Science teacher to stay informed about their progress and any areas needing attention. • Review progress periodically to ensure they stay on track.