The Bishop of Winchester Academy Curriculum Plan – Computing

The **Computing** curriculum at The Bishop of Winchester Academy has been designed with the key aim of enabling students to live life to the full. Through the acquisition of knowledge and the practised application of skill, students can have the courage to be wise and make intelligent, informed decisions.

Our knowledge-based curriculum is ambitious in its breadth and depth, offering challenge to learners irrespective of their background. Through setting high expectations and accepting no excuses for all, we counter social disadvantage and bolster aspirations. Students are nurtured and supported throughout their journey at The Bishop, and explore ways to develop their awareness, collaboration, creativity, empathy, independence and resilience, collectively referred to as our LApps (Learning Applications).

Year 7	Michaelmas (M1)	Michaelmas (M2)	Lent (L1)	Lent (L2)	Pentecost (P1)	Pentecost (P2)
Disciplinary Knowledge	**Online safety and responsibility** Cyber bullying Malware Staying safe online	**How licensing and referencing works** Word processors Licensing Referencing techniques	**What are computer networks and how do they work** Protocols Bandwidth The World Wide Web	**What is a spreadsheet and what can I do with it** Digital spreadsheets Data Functions and formulas	**Intro into programming with scratch** Variables Selection Iteration	**Programming in scratch expanded** Sub routines Condition-controlled iteration Lists
Disciplinary Skills	Safe online behaviour Defence against malicious software How to protect yourself on social media	Formatting documents Different licence types and when they are applicable Referencing correctly	Protocols in networking How bandwidth affects connections How the World Wide Web works	Using spreadsheets Handling data Functions and formulas in spreadsheets	Creating and using variables Creating IF statements Using loops	Structure programming Iteration based on conditions Using programming lists
Personal Development	Personal safety online Responsibility Online awareness LApp: Awareness LApp: Collaboration LApp: Empathy	Digital literacy Harvard referencing Online legality LApp: Independence	Networking knowledge TBOWA 200: Margaret Hamilton LApp: Awareness	Digital literacy Automation of tasks using formulas LApp: Creativity	Logic & programming mentality Core programming techniques LApp: Creativity LApp: Resilience	Combining techniques for advanced programs LApp: Creativity LApp: Resilience
Future Pathways	Child safety online project officer Security compliance officer (digital safety)	Document writer Digital note-taker Administration staff	Network engineer CISCO teaching staff	Financial analysis Project management Data analysis	Software engineer Junior programmer	Tools programmer Animation programmer

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Year 8	Michaelmas (M1)	Michaelmas (M2)	Lent (L1)	Lent (L2)	Pentecost (P1)	Pentecost (P2)
Disciplinary Knowledge	**Vector graphics** Vector operations Vector Paths Vector tools	**How to make websites** HTML tags CSS Search engines	**Binary in computing** Representation Encode & decode Binary, base numbers and prefixes	**Low-level computing** Computing & operating systems Hardware Logic circuits	**App development** Mobile application Event-driven programming Object properties	**An introduction to python** Programming expressions Programming data types Boolean flags
Disciplinary Skills	Vector graphics design Using logos, illustrations and icons effectively	Using HTML tags to create websites Using CSS to style websites Understanding how to manipulate searches for effective searching	Understanding and using binary How to encode and decode	How systems within computers work How hardware works How logic circuits work	Implementing and customising GUI elements Recognise and develop events to control programs Debug, reflect and react to programs	Using arithmetic expressions Using relational operators to form logical expressions Combine iteration and selection with Boolean variables as flags
Personal Development	Knowledge on subconscious bias towards images LApp: Creativity LApp: Awareness	Effective searching e-Safety LApp: Creativity	TBOWA 200: Grace Hopper LApp: Awareness LApp: Resilience	LApp: Awareness	Accessibility of software LApp: Awareness LApp: Independence LApp: Resilience	LApp: Awareness LApp: Independence LApp: Resilience
Future Pathways	Graphics design Games artist Marketing designer	Website developer CSS developer	Cyber security researcher Flight data specialist	Low-level developer Low-level software engineer	App developer Programming consultant	Python programmer Script developer Games designer

Year 9	Half Term 1	Half Term 2
Disciplinary Knowledge	**Information technology and digital literacy:** Components of creating specific digital artefact and the process of pre-production planning in the digital media industry.	**Computer Science:** Algorithms and programming. Applying the fundamental control structures to solve problem using a text-based programming language.
Disciplinary Skills	Skills required in the process creating each element of the required digital graphic from a client brief.	Structured programming
Personal Development	LApp: Creativity	LApp: Resilience
Future Pathways	Level 2 Cambridge National in iMedia benchmark leading to further study or apprenticeships in digital media roles	GCSE in Computer Science benchmark qualification leading to various roles in modern industry

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Year 10 GCSE Computer Science	Michaelmas (M1)	Michaelmas (M2)	Lent (L1)	Lent (L2)	Pentecost (P1)	Pentecost (P2)
Disciplinary Knowledge	Algorithms and programming including: Principle of computational thinking	Algorithms and programming including: Designing, creating and refining algorithms	Systems including: CPU Architecture CPU Performance	Systems including: Memory and Storage	Data including: Numbers Characters	Data including: Images Sound
Disciplinary Skills	Computational thinking – algorithmic thinking	Computational thinking – debugging	Computational thinking – abstraction	Computational thinking – pattern recognition	Computational thinking – decomposition	Computational thinking – logical reasoning
Personal Development	LApp: Resilience	Ethical, legal, cultural and environmental impacts of digital technology	LApp: Awareness	Ethical, legal, cultural and environmental impacts of digital technology	TBOWA 200: Grace Hopper	Ethical, legal, cultural and environmental impacts of digital technology
Future Pathways	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships

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Year 11 GCSE Computer Science	Michaelmas (M1)	Michaelmas (M2)	Lent (L1)	Lent (L2)	Pentecost (P1)	Pentecost (P2)
Disciplinary Knowledge	Algorithms and programming including: Searching and sorting algorithms	Algorithms and programming including: Producing robust programs	Systems including: Systems Architecture Computer networks, connections and protocols	Systems including: System Software	Data including: Conversions	Data including: Boolean Logic
Disciplinary Skills	Computational thinking – algorithmic thinking	Computational thinking – debugging	Computational thinking – abstraction	Computational thinking – pattern recognition	Computational thinking – decomposition	Computational thinking – logical reasoning
Personal Development	LApp: Resilience	Ethical, legal, cultural and environmental impacts of digital technology	LApp: Awareness	Ethical, legal, cultural and environmental impacts of digital technology	TBOWA 200: Grace Hopper	Ethical, legal, cultural and environmental impacts of digital technology
Future Pathways	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships	A level in Computer Science benchmark qualification or other related level 3 routes such as T levels and apprenticeships