

Computing Curriculum Intent

At the Kingsway School we believe the study of Computer Science and Information Technology is important because we live in a constantly evolving digital world where pupils need to be equipped with the relevant skills to be successful.

The foundations of Computer Science and Information Technology are built on a fundamental understanding of technology, skills and knowledge that will enable them to become confident digital citizens.

The core knowledge that learners are expected to acquire in the Computer Science and Information Technology curriculum is made up from a combination of: Computer Science, Information Technology and Digital Literacy.

Our Computer Science and Information Technology curriculum is aspirational because in these fast-paced subjects, we keep a close eye on national and international trends and news, so that our students are not disadvantaged. A global shortage of expertise in this field means that it is more important than ever that we produce high school graduates who are not only digitally literate but are inspired to become part of the future of technology – we aim to prepare Kingsway students to become programmers, project managers, data analysts and graphic designers that work locally and in places as far away as Silicon Valley. Alongside this, we encourage young women to become part of future developments and lessen the highly publicised gender imbalance in computer science-based roles. In short, we aim to inspire all our pupils to become the next generation of innovative thinkers and technology developers.

Subject: Year 7 Computing

Year 7: In year 7 we introduce students to computer systems and introduce them to Microsoft applications which will enable them to be confident when completing work in other subject areas. Students are introduced to the coding world through the interactive applications of Scratch and Kodu. We teach students how to remain safe online as well as be confident when calculating binary numbers and how these are used to create images and sound in computer applications.

	Scheme 1 Using Computers	Scheme 2: Introduction to Microsoft applications	Scheme 3: Scratch Animation	Scheme 4: Binary and Cyber Security	Scheme 5: Kodu	Scheme 6: Gaming in Scratch
Acquire	Google Classroom www Internet Internal components of a computer Inputs and Outputs Computer Storage	Save Cut/Paste Text Font Images Pictures Transitions Animation	Sequencing Variables Selection Operators Count-controlled iteration	Binary Denary Binary addition /subtraction Binary Images Cybersecurity Phishing Hacking	Coding When/Do Navigation Clone Sequencing Depth	Levels Scoring System Designs Development

Apply	To be able to compare the different components of a computer system and how they interact in real life	Open and Save Microsoft documents Add different forms of text to documents Be able to present documents in a wide variety of formats Add graphics/animations to presentations Add images/documents from external sources	To make a sprite to move To make my sprite add/subtract To create a backdrop To create a racing game	To be able to convert numbers into binary To convert Binary into Denary To understand the dangers of the internet and the different applications	Be able to create a landscape To use the navigation and pathing tool To be able to clone characters To put depth and complexity into work	To create a game where elements work effectively. Graphics are clear and gameplay is good with some player challenge. Coding is efficient
Vocabulary	Internet Outputs Inputs Storage Computer Components www	Word Powerpoint Graphics Font Text	Sprite Coding Variables Iteration Gaming	Binary Denary Binary Images Subtraction Phising Hacking	Coding Navigation Landscape Sequencing Depth	Coding Graphics Levels Designs
Assessment	Assessment 1 Mini test (October Half Term)	Assessment 2 Practical Test (December)	Assessment 3 Portfolio Assessment/Test (February)	Assessment 4 Portfolio Assessment (April)	Assessment 5 Portfolio Assessment (May)	Assessment 6 Portfolio Assessment/Test (July)

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Subject: Year 8 Computing

We build on students programming literacy by developing their own coding capabilities through small basic. They then develop these skills through creating their own website and mobile applications. Students are also introduced to developing their own graphics designs and improving their mathematical literacy through studying spreadsheets.

	Scheme 1 Networks	Scheme 2: Small Basic	Scheme 3: Vector Graphics	Scheme 4: Spreadsheets	Scheme 5: Developing for the web	Scheme 6: Mobile App Development
Acquire	Network Hardware Wireless Internet WWW	Syntax, programming environment Intellisense graphics window variable loop selection random number	Shapes Logos Icons Illustrations Paths Nodes Tools	Cell Data Formula Function Chart Column Row Chart Average	Searching Threats HTML and CSS Search Engine Hyperlinks Networking technologies	Event handling Sequencing Variables Selection Operators
Apply	Define what a computer network is and explain how data is transmitted between computers across networks	Write and run programs in Small Basic using For...EndFor loops, variables, input output and	Draw basic shapes (rectangle, ellipse, polygon, star) with different properties (fill and stroke,	To understand why spreadsheets are used to store data.	Describe what HTML is Use HTML to structure static web pages Modify HTML tags using inline styling to improve	Identify when a problem needs to be broken down Implement and customise GUI elements

	Define 'protocol' and provide examples of non-networking protocols List examples of the hardware necessary for connecting devices to networks Compare wired to wireless connections and list examples of specific technologies currently used to implement such connections Define 'bandwidth', using the appropriate units for measuring the rate at which data is transmitted, and discuss familiar examples where bandwidth is important Define what the internet is Explain how data travels between computers across the internet Describe how services are provided over the internet Describe components (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together	selection statements Create a simple quiz game Identify and correct syntax errors in a program Use a While...EndWhile loop in a program Find and correct logic errors in a program Use the graphics window to draw different shapes in random colours	shape-specific attributes) Manipulate individual objects (select, move, resize, rotate, duplicate, flip, z-order) Manipulate groups of objects (select, group/ungroup, align, distribute) Combine paths by applying operations (union, difference, intersection) Combine multiple tools and techniques to create a vector graphic design Explain what vector graphics are Provide examples where using vector graphics would be appropriate	To update an existing spreadsheet by adding and deleting data. To format the spreadsheet to make it clear and easy to understand To understand different ways a spreadsheet can be formatted. To update an existing spreadsheet by using formatting techniques such as merge cells, text alignment and number formats To understand the difference between formulas and functions. To update an existing spreadsheet by using formulas to calculate sales and profits. To update an existing spreadsheet by using the functions provided by Excel to show highest, lowest and average values To understand the difference between a bar chart, pie chart and line chart. To create a range of charts to visually represent data for a given scenario. To appropriately label each chart to ensure its fit for purpose	the appearance of web pages Display images within a web page Apply HTML tags to construct a web page structure from a provided design Describe what CSS is Use CSS to style static web pages Assess the benefits of using CSS to style pages instead of in-line formatting Describe what a search engine is Explain how search engines 'crawl' through the World Wide Web and how they select and rank results Analyse how search engines select and rank results when searches are made Use search technologies effectively Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used Create hyperlinks to allow users to navigate between multiple web pages Discuss issues of safety and security from a technological	to meet the needs of the user Recognise that events can control the flow of a program Use user input in an event-driven programming environment Use variables in an event-driven programming environment Develop a partially complete application to include additional functionality Identify and fix common coding errors Pass the value of a variable into an object Establish user needs when completing a creative project Apply decomposition to break down a large problem into more manageable steps Use user input in a block-based programming language Use a block-based programming language to create a sequence Use a block-based programming language to include sequencing and selection
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					perspective Discuss the impact of networking technologies and services	Use user input in a block-based programming language Use variables in a block-based programming language Reflect and react to user feedback
Vocabulary	Network Hardware Wireless Internet WWW	graphics window variable loop selection random number	Shapes Logos Icons Illustrations Paths Nodes	Cell Data Formula Function Chart	Searching Threats HTML and CSS Search Engine Hyperlinks Networking technologies	Event handling Sequencing Variables Selection Operators
Assessment	Assessment 1 Test (October)	Assessment 2 Portfolio/Test (December)	Assessment 3 Portfolio/Test (February)	Assessment 4 Portfolio/Test (April)	Assessment 5 Portfolio/Test (May)	Assessment 6 Portfolio/Test (July)

Year 9 Computing

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Year 9:

Students continue to develop their computing programming skills by using python programming language to manipulate and develop high level programming skills. Students also learn the history of computing and the history of the www and the internet. Students also get the opportunity to develop their creative skills by producing 2-d animations and their own gaming designs

	Scheme 1: Back to the future	Scheme 2: Gamemaker	Scheme 3: 2-D Animation	Scheme 4: Python Programming	Scheme 5:
Acquire	Cipher Decipher Encryption WWW Hypertext CPU Logic Logic Gates And Or Not	Break Collectible object Collision detection Draw text Persistent Random_range Room Sprite	Cut-out animation Motion capture Claymation Flipbook Motion graphics Frame Onion skinning Layers Export Tweening Stage Frames Frames per second Assets	Inputs Outputs Arithmetic operations Randomness Selection Iteration	Social Media Digital technologies Malware Hyperlinks

Apply	To understand who Alan Turing was To understand how messages can be encrypted using ciphers. To understand how to use a cipher key to decipher codes To understand who Sir Tim-Berners-Lee is To understand what the World Wide Web (WWW) is and how it differs from the Internet To understand how the WWW was born. To understand how to write a simple web page To understand who George Boole was To understand what Boolean Logic is To understand what logic gates are and how they are used in a CPU To understand who Charles Babbage was To understand what Charles Babbage did To understand how 'problem solving' and 'logical thought' underpins Computer Science	To learn how to use Gamemaker. To understand how to create a maze and how to re-design them to make it more difficult. To understand the purpose of enemies and collectible objects within the context of a video game. To understand the purpose of adding levels to a video game To understand the purpose of scores and lives in a video game. To understand the conditions required to lose or win in your game.	To understand the different types of animation. To create a frame by frame animation using animation software. To make effective use of layers when creating an animation To understand the purpose of tweening and why it's used in animation. To create an animation that uses tweening. To consolidate your understanding of animation types and techniques by completing a quiz at the end of the lesson To be able to create your own assets in wick editor by creating a traffic light animation. To be able to identify a range of tools used in animation software. To be able to identify a wide range of tools used in animation software.	Describe what algorithms and programs are and how they differ Recall that a program written in a programming language needs to be translated in order to be executed by a machine Write simple Python programs that display messages, assign values to variables, and receive keyboard input Locate and correct common syntax errors Describe the semantics of assignment statements Use simple arithmetic expressions in assignment statements to calculate values Receive input from the keyboard and convert it to a numerical value Use relational operators to form logical expressions Use binary selection (if, else statements) to control the flow of program execution Generate and use random integers Use multi-branch selection (if, elif, else statements) to control the flow of program execution Describe how iteration (while statements)	To understand what social media is and the features they can provide for the user. To identify the risks associated with using social media platforms. To list ways that the risks to using social media can be avoided. (i.e. how to use social media responsibly Having the skills and knowledge to use digital technologies effectively, including understanding how to access and evaluate information online. Use digital tools for communication, collaboration and protect personal information and privacy. To understand what is meant by Malware and the different types. To know what is meant by phishing and how to spot a phishing attack. To understand how to set up a strong password and why it's important To create a master slide for the Gourmet Delights kiosk. To create the content for the Gourmet Delights kiosk.
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				controls the flow of program execution Use iteration (while loops) to control the flow of program execution Use variables as counters in iterative programs Combine iteration and selection to control the flow of program execution Use Boolean variables as flags	To use hyperlinks and kiosk mode to allow users to interact with the product.
Vocabulary	www internet logic gates problem solving	Sprite Random range Persistent Room Sprite	Animation Tweening Onion skinning Frames Motion	Inputs Outputs Arithmetic operations Randomness Selection Iteration	Social Media Digital technologies Malware Hyperlinks
Assessment	Assessment 1 Portfolio/Test (October)	Assessment 2 Portfolio/Test (December)	Assessment 3 Portfolio Assessment (February)	Assessment 4 Portfolio Assessment (April)	Assessment 5 Portfolio Assessment/Test (May)