

Subject: Computer Science

Year group: 7

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content <i>Declarative Knowledge</i> – <i>‘Know What’</i>	E-Safety File Management, Social Networking, Keeping your data safe, Using Emails, Searching the web	Understanding Computers Elements of a Computer, The CPU, Understanding Binary, Binary Addition, Storage Devices, Convergence and new technologies,	Introduction to Algorithms & Flowcharts Sensors and types of sensors, computer controls, robots, sequences, algorithm, creating flowcharts, pseudocode	Spreadsheets Computer models, Creating a financial model, Conditional formatting and Validation, Macros and Charts	Games Programming in Scratch Movement, Lives and scoring, Adding a new level, Randomising the behaviour of sprites, Shooting and jumping, Adding sounds	HTML and website development Form Handler, HTML, CSS, Design, Development, Creating a Web Form
Skills <i>Procedural Knowledge</i> – <i>‘Know How’</i>	<ul style="list-style-type: none"> Learn to manage files in File Explorer Understand the importance of backup Learn about the possible dangers of social networking sites Learn how to respond to threats on the Internet and how to keep your identity secure on the Internet How to create a secure, memorable password and how to protect your identity online how to avoid being a victim of an email scam Send, respond to and forward emails 	<ul style="list-style-type: none"> Distinguish between hardware and software Give examples of computer hardware and software Draw a block diagram showing CPU, input, output and storage devices Name different types of permanent storage device Suggest appropriate input and output devices for a simple scenario 	<ul style="list-style-type: none"> identify different sensors and explain what they detect sensors used for different jobs Explain what computer control and automatic mean and when we might use computer control instead of humans and understand why how a computer controls a Robot symbols of a flowchart Identify all the different sequences of a traffic light create an algorithm Write pseudocode 	<ul style="list-style-type: none"> Give examples of how computer models are used in the real world Format a simple spreadsheet model Use simple formulae and functions Name cells in a spreadsheet model Use a simple spreadsheet model to explore different “what if” scenarios Create a basic pie chart to display results 	<ul style="list-style-type: none"> Relate computational abstractions and simple programming code to on-screen actions Design simple algorithms to solve problems Sequence instructions in order to make things happen Use variables in programming structures Assemble code in procedural blocks Use simple Boolean operators in programming code 	<ul style="list-style-type: none"> Write HTML code to create a simple web page and display it in a browser Write CSS to define the styles used in a web page Create a simple navigation system using HTML Use a design to create a template for a web page using HTML Create their own multi-page website

	<ul style="list-style-type: none"> • search your old emails for a sender, subject, etc. Resize large image files before sending • Manage a contacts list • Be aware of the advantages and disadvantages of email • Define the term “search engine” and name examples • Learn techniques to use a search engine efficiently • Appreciate that there is no guarantee that the information on the Internet is accurate 	<ul style="list-style-type: none"> • Explain what RAM and ROM are used for • Show how numbers and text can be represented in binary • Explain the impact of future technologies • Most pupils will be able to: • Perform simple binary arithmetic • State strengths and weaknesses of different storage devices • Describe briefly how data is stored on a CD • Some pupils will be able to: • Identify input and output devices for more complex scenarios • Explain how characters are encoded using the ASCII system • Use an ASCII reference chart to convert a character into binary and its 		<ul style="list-style-type: none"> • Explain what is meant by a financial model • Explain the advantages of naming cells in a spreadsheet model • Format, construct and manipulate a simple spreadsheet model using formulae • Use conditional functions in calculations • Use conditional formatting • Use a spreadsheet model to predict and test the outcomes for different scenarios • Some pupils will be able to: • Justify the formatting they have used in a spreadsheet model • Present information from a spreadsheet model 	<ul style="list-style-type: none"> • Identify and use screen objects in their own Scratch game • Carry out simple tests to debug their project • Write their own instructions to create and use a simple list (inventory) • Use the broadcast function in Scratch at a simple level • Make good use of operators • Incorporate a range of sprites which can be controlled in different ways • Improve their project based on peer feedback • Systematically test their own projects to ensure that few errors remain • Use the broadcast function in Scratch effectively • Use a range of ‘event handlers’ 	<ul style="list-style-type: none"> • Insert text, images and links on their web pages • Most pupils will be able to: • Use a range of HTML tags to create well laid out web pages • Write CSS code to define the styles of different parts of a web page • Use HTML and CSS to create their web page template • Use the template to design a multi-page website with a consistent look and feel to each page • Use responsive design techniques in creating their website so that the web pages will adapt to any size of screen • Create a simple web form to collect user data
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		decimal equivalent		<p>in a variety of formats</p> <ul style="list-style-type: none"> • Create a macro and assign it to a button on the spreadsheet • Customise a chart to present information effectively • Evaluate the effectiveness of a computer model • 	<p>effectively to create a complex project</p> <ul style="list-style-type: none"> • Effectively design, implement and refine their own algorithms • Compare the effectiveness of their algorithms with those of peers • Critically analyse the limitations of their projects • 	<ul style="list-style-type: none"> • Some pupils will be able to: • Add enhancements or additional features to the original basic design • Construct a good-looking, well-formatted interactive website that is suitable for its intended audience
Vocabulary	File extension, Camel caps, folder, subfolder, root folder/directory, Recycle bin, backup, shortcut key combination, backup, zip, social networking, cyberbullying, online profile, privacy settings, phishing, hacking, biometrics, encryption, virus, email provider, salutation, email signature, Carbon Copy (CC) Blind Carbon copy (BCC), attachment, search engine, server	Input, process, output, device, hardware, software, fetch, decode, execute, binary, conversion, memory, RAM, ROM, denary, ASCII, code, pits, lands, burn, read, write, data, track	Integrated development, IDLE, interactive mode, Script mode, variable, string, syntax, assignment statement, augmented assignment operator, data type, integer, float, round, BIDMAS, selection, sequence, iteration, module, function, syntax error, logic error, debug, binary search	Model, simulation, cell, row, column, format, decimal, integer, currency, formula, relative reference, absolute reference, validation, macro, pie chart	Language or words associated with the animation package (Scratch), for example: sprite, interface, cursor, presentation mode, block, script, broadcast, timer Vocabulary associated with programming a computer, for example: default, operator, boolean, program, loop, variable, troubleshoot, debug, pseudocode Learners will need to use structures that describe programming commands, such as:	HTML, tags, attribute, property, CSS, inline, internal, embedded, external, style, element, text editor, web browser, navigation, responsive design, hyperlink, template

					Repeat ... until, If ... else, When ..., Forever.	
Cross curricular opportunities	Poster making for Art PSHE learning how to stay safe	Presentation skills public speaking Maths skills	Maths – Calculations, Logical puzzles	Business – Forecasting Maths – Calculations, Formulas		History, P.E, English. Creating pages for different subject topics could be linked to current topics in class.
Links to National Curriculum	understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns	understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems	programming languages, at least one of which is textual, to solve a variety of computational problems	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data		undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,