

Grace Academy Coventry

Curriculum Map 2023/24 - KS3 Computing - Year 7

DATES	AUTUMN TERM 1	AUTUMN TERM 2	SPRING TERM 1	SPRING TERM 2	SUMMER TERM 1	SUMMER TERM 2
Focus	1.1 Safety and responsibility	1.2 Networks	2.1 Computational thinking	2.2 Algorithms	3.1 Edublocks	3.2 Modelling data - Spreadsheets
Key Knowledge	E-SAFETY <ul style="list-style-type: none"> E-safety is often defined as the safe and responsible use of technology. It's about risk; it's 	Computer networks <ul style="list-style-type: none"> 2 or more computers connected together in order to communicate. 	Computational thinking <ul style="list-style-type: none"> Computational thinking allows us to take a complex problem, understand what the problem is 	The importance of algorithms <ul style="list-style-type: none"> a set of step-by-step instructions to solve a problem or complete a task 	Creating robust programs <ul style="list-style-type: none"> Programs are made up of statements that the programming language 	The purpose of spreadsheets <ul style="list-style-type: none"> Spreadsheets are used to store and manipulate data.

	<p>about being aware of the possible threats that online activity can bring, and how to deal with them.</p> <p>Bias and reliability in an online environment</p> <ul style="list-style-type: none"> Biased information is information that is written from a particular perspective or point of view. <p>Legislation</p> <ul style="list-style-type: none"> The computer misuse act 1990 The copyrights designs and patents act 1998 The data protection act 2018 <p>Hardware and software</p> <ul style="list-style-type: none"> Computer systems consist of hardware and software. Hardware is the physical components of the computer, such as the monitor, keyboard and mouse. Software is 	<p>Protocols</p> <ul style="list-style-type: none"> A protocol is a standard set of rules that allow electronic devices to communicate with each other. <p>Network hardware</p> <ul style="list-style-type: none"> Network cable Hub Server Router <p>Wired vs wireless networks</p> <ul style="list-style-type: none"> Wired networks send data along cables. Wireless networks send data through the air using radio waves. <p>The Internet</p> <ul style="list-style-type: none"> The internet is a global network of computers. All computer devices (including PCs, laptops, games consoles and smartphones) that are connected to the internet form part of this network. 	<p>and develop possible solutions.</p> <p>Abstraction</p> <ul style="list-style-type: none"> focusing on the important information only, ignoring irrelevant detail <p>Decomposition</p> <ul style="list-style-type: none"> breaking down a complex problem or system into smaller, more manageable parts <p>Pattern recognition</p> <ul style="list-style-type: none"> looking for similarities among and within problems <p>Algorithms</p> <ul style="list-style-type: none"> a set of step-by-step instructions to solve a problem or complete a task 	<p>Searching algorithms</p> <ul style="list-style-type: none"> searches allow data sets to be examined and for specific items to be found. <p>Sorting algorithms</p> <ul style="list-style-type: none"> sorts allow data sets to be put into order. <p>Sequencing</p> <ul style="list-style-type: none"> Sequence is the order in which the instructions are executed. <p>Selection and iteration</p> <ul style="list-style-type: none"> Selection is the process of making a decision. There are times when a program needs to repeat certain steps until told otherwise, or until a condition has been met. <p>Logical reasoning</p> <ul style="list-style-type: none"> Logical reasoning is the process of applying rules to problem solving. 	<p>knows and understands.</p> <p>Syntax</p> <ul style="list-style-type: none"> The rules that must be followed in a programming language. <p>Variables and datatypes</p> <ul style="list-style-type: none"> A small piece of memory that stores 1 value. Types of data that can be used in a program. <p>Selection and iteration</p> <ul style="list-style-type: none"> Selection is the process of making a decision. There are times when a program needs to repeat certain steps until told otherwise, or until a condition has been met. 	<p>Data and information</p> <ul style="list-style-type: none"> Data is raw facts and figures whereas information is data with meaning. <p>Using functions and formula</p> <ul style="list-style-type: none"> Functions can be used in spreadsheets to make calculations and manipulate data. <p>Sorting and filtering</p> <ul style="list-style-type: none"> Sorting data in asc or desc order etc Only showing data that you want to see. <p>Goal seek</p> <ul style="list-style-type: none"> Finding the input when only the output is known. <p>Macros</p> <ul style="list-style-type: none"> Automating tasks within your spreadsheet.
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	the programs that run on a computer.					
Individual Tasks/Assessments †	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals
Links to KS2/KS3	<p>Search technologies (KS2)</p> <p>Is information on the web always reliable (KS2)</p> <p>Your online safety (KS2)</p>	<p>What is a computer network? (KS2)</p> <p>How does the internet work (KS2)</p> <p>Networks (KS2)</p>	<p>What is decomposition (KS2)</p> <p>All about algorithms (KS2)</p>	<p>All about algorithms (KS2)</p> <p>What is logical reasoning (KS2)</p>	<p>Repetition and selection (KS2)</p> <p>What is a variable and how do computers use them?</p>	<p>Working with data (KS2)</p>
End Point	<p>Staying safe in an online environment.</p> <p>Looking for reliable sources online and avoiding bias.</p> <p>The purpose of legislation related to</p>	<p>What a computer network consists of.</p> <p>How protocols are used for communication between devices.</p> <p>When to use a wired or wireless network.</p>	<p>Using decomposition to break down a problem.</p> <p>What a computer network consists of.</p> <p>How protocols are used for communication between devices.</p>	<p>The purpose of an algorithm when solving problems.</p> <p>Understanding when to use the sort and search algorithms.</p> <p>Using logical reasoning to predict outcomes.</p>	<p>Create working programs using an online editor.</p> <p>Understanding the purpose of a variable in a program.</p> <p>Understanding when to use selection and</p>	<p>How data can be stored on a spreadsheet.</p> <p>How data can be manipulated using functions.</p> <p>Using the goal seek function.</p>

	the use of digital devices and assets. How hardware works alongside software.	What makes up the internet.	When to use a wired or wireless network.		iteration within a program.	How to automate tasks using macros.
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	Grace Academy Coventry Curriculum Map 2023/24 - KS3 Computing - Year 8					
DATES	AUTUMN TERM 1	AUTUMN TERM 2	SPRING TERM 1	SPRING TERM 2	SUMMER TERM 1	SUMMER TERM 2
Focus	1.1 SQL Databases	1.2 Debugging	2.1 Web development - RocketCake	2.2 Python Basics	3.1 Computer systems	3.2 Memory and storage
Key Knowledge	SQL <ul style="list-style-type: none"> Structured query language used as a database management language. 	The importance of syntax <ul style="list-style-type: none"> The rules that must be followed in a programming language. 	Web authoring software <ul style="list-style-type: none"> A program or software used to create a website. 	The print() function <ul style="list-style-type: none"> The print function is used to display messages or content in your program. 	Computer systems <ul style="list-style-type: none"> A computer system is a combination of hardware and software. 	Main memory <ul style="list-style-type: none"> RAM (Random access memory) used to store currently used instructions.

	<p>Tables and records</p> <ul style="list-style-type: none"> A table holds many records. A record is a full set of data about a person or thing. <p>Manipulating data</p> <ul style="list-style-type: none"> Data can be manipulated using the INSERT, DELETE or UPDATE commands. <p>Queries</p> <ul style="list-style-type: none"> A query is a request or specific data in a database. <p>Relationships</p> <ul style="list-style-type: none"> Relationships are created if you have more than 1 table in a database with links. 	<p>Errors in programs</p> <ul style="list-style-type: none"> Errors are made in a program when the syntax isn't followed. <p>Debugging</p> <ul style="list-style-type: none"> Finding errors in your program or algorithm and repairing it. 	<p>HTML and CSS</p> <ul style="list-style-type: none"> HTML (Hypertext markup language) is used to create the content of the website. CSS (Cascading style sheet) is used for the design of the website. <p>Structure and layout</p> <ul style="list-style-type: none"> The structure of a website refers to how the pages are linked. The layout of a webpage refers to how content is shown on a webpage. <p>Hyperlinks</p> <ul style="list-style-type: none"> Hyperlinks are used to navigate through or out of the website. 	<p>The input() function</p> <ul style="list-style-type: none"> The input function is used when the user is required to enter some information in a program. <p>Syntax</p> <ul style="list-style-type: none"> The rules that must be followed in a programming language. <p>Data types</p> <ul style="list-style-type: none"> Types of data that can be used in a program. 	<p>Embedded systems and general-purpose computers</p> <ul style="list-style-type: none"> Embedded systems have one purpose. General purpose computers can do more than 1 thing. <p>Computer hardware</p> <ul style="list-style-type: none"> The equipment used to create a computer system. <p>Operating systems</p> <ul style="list-style-type: none"> The software that allows the communication between the hardware and software. <p>Logic gates</p> <ul style="list-style-type: none"> AND, OR, NOT 	<ul style="list-style-type: none"> ROM (Read only memory) used to store boot up instructions. <p>Secondary storage</p> <ul style="list-style-type: none"> Used to store permanent data such as files and programs. <p>Magnetic storage</p> <ul style="list-style-type: none"> storage devices, such as hard disk drives <p>Optical storage</p> <ul style="list-style-type: none"> storage devices, such as CD, DVD and Blu-ray discs <p>Solid-state storage</p> <ul style="list-style-type: none"> storage devices, such as solid-state drives and USB memory sticks
Individual Tasks/Assessmen †	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole

	class feedback • Retrievals	class feedback • Retrievals	class feedback • Retrievals	class feedback • Retrievals	class feedback • Retrievals	class feedback • Retrievals
Links to KS2/KS3	Working with data (KS2) Spreadsheets (Y8)	What is debugging? (KS2) Logical reasoning (KS2) Edublocks (Y8)	What is digital publishing (KS2) How do you make a good app? (KS2) Safety and responsibility (Y8)	Repetition and selection (KS2) What is a variable and how do computers use them? What are inputs and outputs? (KS2)	What are inputs and outputs? (KS2) How is your digital data stored?	Computer systems (Y8) How is your digital data stored?
End Point	Understanding the purpose of a database. Adding and manipulating data on a database. Creating queries and relationships between tables.	Why it's important to understand and follow the syntax of a programming language. How problems and programs can be fixed using debugging.	Understanding the purpose of a website. Understanding how HTML works with CSS when developing a website. The differences between layout and structure. The need for hyperlinks on a webpage.	Understanding when to use the print() and input() in a program. Understanding the importance of syntax in a programming language. The different data types that are used in python.	The purpose of a computer system. Understanding how hardware works with software in a computer system.	Understanding the purpose of main memory on a computer system. Understanding the purpose of secondary storage on a computer system. Understanding the different types of secondary storage that is available.

Grace Academy Coventry

Curriculum Map 2023/24 - KS3 Computing - Year 9

DATES	AUTUMN TERM 1	AUTUMN TERM 2	SPRING TERM 1	SPRING TERM 2	SUMMER TERM 1	SUMMER TERM 2
Focus	1.1 Graphics	1.2 Web development project	2.1 Number systems	2.2 Representing data	3.1 Python programming	3.2 Cybersecurity
Key				Representing text		

Knowledge	HCI and GUI <ul style="list-style-type: none"> Graphical User Interface (GUI) - Also known as GUI. A type of interface 	Visual identity <ul style="list-style-type: none"> Visual identity is a way of establishing a consistent and 	Binary <ul style="list-style-type: none"> A number system that contains 	<ul style="list-style-type: none"> Computers work in binary. As a result, all characters, whether they are letters, punctuation 	Writing programs <ul style="list-style-type: none"> Programs are made up of statements that the programming language 	Data and information <ul style="list-style-type: none"> Data is raw facts and figures whereas information
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	<p>that allows users to interact with a computer system through graphical icons.</p> <ul style="list-style-type: none"> Human Computer Interaction (HCI) - The term used to describe the communication between people and computer systems. <p>Layering</p> <ul style="list-style-type: none"> Involves placing multiple elements, or layers, on top of each other, creating a sense of visual interest and importance. <p>Visual identity</p> <ul style="list-style-type: none"> Visual identity is a way of establishing a consistent and recognizable brand identity across all forms of media. <p>Wireframes</p> <ul style="list-style-type: none"> Wireframes are a blueprint, or a visual representation, of an app's structure. <p>Composition</p>	<p>recognizable brand identity across all forms of media.</p> <p>Creating a website for a business</p> <ul style="list-style-type: none"> A business is an individual or organization that makes goods or provides services. 	<p>two symbols, 0 and 1. Also known as base 2.</p> <p>Denary</p> <ul style="list-style-type: none"> The number system most commonly used by people. It contains 10 unique digits 0 to 9. Also known as decimal or base 10. <p>Hexadecimal</p> <ul style="list-style-type: none"> A number system using 16 symbols from 0-9 and A-F, also known as base 16 and hex. 	<p>or digits are stored as binary numbers. All of the characters that a computer can use are called a character set.</p> <p>Representing images</p> <ul style="list-style-type: none"> Computers work in binary. All data must be converted into binary in order for a computer to process it. Images are no exception. <p>Representing sound</p> <ul style="list-style-type: none"> Sound is captured - usually by a microphone - and then converted into a digital signal. 	<p>knows and understands.</p> <p>Variables</p> <ul style="list-style-type: none"> A small piece of memory that stores 1 value. <p>Arithmetic operators</p> <ul style="list-style-type: none"> Arithmetic operators including addition(+), subtraction(-), multiplication(*) and division(/) can be used in a program. <p>Lists</p> <ul style="list-style-type: none"> Lists are like variables but they can store more than 1 value at a time. <p>Selection and iteration</p> <ul style="list-style-type: none"> Selection is the process of making a decision. There are times when a program needs to repeat certain steps until told otherwise, or until a condition has been met. 	<p>is data with meaning.</p> <p>Social engineering</p> <ul style="list-style-type: none"> A set of methods used by criminals to steal someone's data including shouldering, phishing, blagging and pharming. <p>Hacking</p> <ul style="list-style-type: none"> Gaining unauthorized access to someone's computer or phone system. <p>Malware</p> <ul style="list-style-type: none"> Malware is a general term that describes lots of different programs that try to do something unwanted to your computer. <p>Protection against malware</p> <ul style="list-style-type: none"> Anti-virus Anti-malware Firewalls Physical protection
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	<ul style="list-style-type: none"> Composition in photo and video editing refers to the arrangement of different images, the placement of subjects, the use of color and light, of an image. 					
Individual Tasks/Assessmen †	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals 	<ul style="list-style-type: none"> Self-assessment Peer assessment Live marking End of topic Whole class feedback Retrievals
Links to KS2/KS3	RocketCake Y8 HTML & CSS Y8	Graphics Y9 RocketCake Y8	What is Programming? Y7	Number Systems Y9	Edublocks Y7 Python Basics - Y8	Computer Networks
End Point	<p>User experiences, interface design, and overall usability to enhance the way humans engage with technology.</p> <p>Creating brand identity -</p>	<p>Creating a visual identity using Rocket Cake.</p> <p>Understanding the key concept of business.</p>	<p>Making binary calculations.</p> <p>Converting between binary, denary and hexadecimal.</p>	<p>Understanding how data is represented in text, image and sound.</p>	<p>The use of arithmetic operators to perform mathematical and logical operations.</p>	<p>Data and information</p> <p>Social Engineering methods</p> <p>Malware identification</p>

	encompassing the visual elements associated with a brand, like logos, colors, typography, and imagery.				Creating and utilizing lists in a computer program. Understanding the concept of iteration and employing selection.	Network protection
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