Marden Bridge Middle School

Empowering Minds Inspiring Futures

Curriculum Outline 2026-27: ICT

[This document summarises the content to be delivered over the course of the year. There will be some rotation of topics due to resourcing implications.

	Autumn 1	Autumn 2	Spring 1/2	Summer 1	Summer 2
Year 5 **Year 5 overview - what are the students going to be achieving this year? At the end of Year 5, we want all students to have a clear understanding of how to be able to surf and navigate the internet safely, being able to identify possible threats and how to deal with these calmly and safely. Students will develop a clear understanding of how to use Google Workspace safely and securely, not only within Computing but also across the whole school and at home. Students will then continue to develop their knowledge and understanding of how the internet works. We will then develop our creative design skills with the creation of Vector images. Students will finish the year learning block coding and the importance of sequencing of instructions, and code some coding tasks.**	(Concepts - learn how to use the computer systems, logging on, creating folders. Accessing Google Drive. What is Google Drive? Using Google Suite: Slides, docs, drawings, and sheets. Uploading and accessing work online) (Skills -Knowing how to create, edit, upload, and share work online to work both independently and collaboratively with staff and peers.) Topic - Google Workspace Overview Logging into the computer system: where are all of the key folders? How to get onto Google Drive/mail/Classroom (1) Setting up Google Classroom: What is Google Drive (set up) / Mail. How to create folders and files and share work with staff/peers (2) How to use Google Classroom (1) How to use Google Docs / Slides / Drawings (3) Google Assessment (1)	(Concepts - learn about ways to stay safe online and what to look out for when online) (Skills - knowing what to look out for while online, observation skills, and building awareness.) Topic - E-Safety Overview What is ICT and Using ICT Online (2) How to stay safe online / Dangers of ICT(2) Minimising the risks of using ICT(2) End of unit assessment(1)	(Concepts - why order is important, what block-based programming is, and its role within a computer system. How different bits of code link together, find and fix errors in code)) (Skills -computational thinking and logic. Ordering of instructions. Block-based programming) Topic - Programming 1 Scratch Overview Scratch intro Sequence and variables(2) Selection(2) You've got the moves(2) fly cat fly(2) End of unit assessment(1)	(Concepts - what the different types of image formats are that are used within computing) (Skills - being able to explain the differences between Vector and Bitmap images) Topic - Vector images Overview Vector images and drawing tools(1) Creating Images(1) Making effective drawings(1) Layers and objects(1) Manipulation objects(1) End of unit assessment(1)	(Concepts - Learn about the different connections that we use, wired and wireless, and how computers are connected over short (LAN) and long (WAN) distances) (Skills - being able to explain and justify what wired and wireless are and how they are different. What does a LAN and WAN look like?) Topic - How the Internet Works Overview What is the internet (2) The World wide web(2) Connecting to the internet(2) End of unit assessment(1)

Extended Literacy opportunities:	Key topic words identified within lessons. The Google assessment - students have to read the assessment and follow the instructions given in order to complete it.	Key topic words identified within lessons. In lesson 3, students need to read the risks involved in using ICT and either match ways to reduce risk or write their own.	Key topic words identified within lessons. 'Big Ed' work that the students complete: students have to read and understand the tasks set out for them, and then complete them and write up their findings.		Key topic words identified within lessons.	
NUMERACY:		**Pie chart/bar on statistics for young people who use apps / have devices**	**IF / Else Statements**		**Pixel resolutions multiplication by x10,x100,x1000**	**Number of devices worldwide Internet speeds - download/upload and bandwidth - number comparisons**
SMSC/Creativity Focus	Cultural capital What is Google? Where did it come from? Why is it so popular?	Cultural capital Is everyone who they say they are online? Who regulates the internet?	Cultural capital 1883: The first programming language was developed in 1883 when Ada Lovelace and Charles Babbage worked together on the Analytical Engine, which was a primitive mechanical computer.		Cultural capital A **vector graphic is** a computer-made **image** that **is** made up of points, lines, and curves that are based upon mathematical equations, not pixels. The term "bitmap" originates from computer programming terminology, meaning a map of bits —a spatially mapped array of bits.	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 6 **Year 6 overview - We will have 2 lessons for usernames, passwords, Google Classroom setup, and new features. This year, students will examine the development of AI in our everyday lives and its impact on us. We will look at what data is and how it can be used, and its concepts. Students will continue to develop their programming (using Microbits) understanding of algorithms, and focus more on different inputs and outputs, and how these can affect programs. Students will end the**	(Concepts -learn how to use spreadsheets to gather and record data, students will understand how formulas work, and how to retrieve information from a spreadsheet) (Skills -Knowing how to create, edit, and format a spreadsheet to get the correct information from. What a formula is and how to use it on given data .) ***There will be 1 lesson for usernames, passwords, Google Classroom setup, and new features*** Topic - Spreadsheets Overview Collecting data (1) Formatting a spreadsheet (1) What's the formula? (1) End of unit assessment(1)	(Concepts - understanding that the term data can mean a variety of different concepts, such as sound, numbers, words, graphics) (Skills -being able to determine different types of data and what they are used for.) Topic - Data representation Overview Representing Data(2) Images(1) Creating a vector logo (3) End of unit assessment(1)	(Concepts - How to create 3D objects using 3d modleing tools) (Skills -being about to use TinkerCad to create 3d objects, understanding the purpose of this) Topic - 3D Modeling Overview Introduction to 3D modelling, 2D and 3D shapes and what is perspective(1) Handles and Anchors, manipulating shapes(1) Text and shape design, making a name plaque (1) creating a 3D desk tidy(1) Analyse a 3D model(1) End of unit assessment(1)	(Concepts - learn what AI is and how it is affecting our everyday lives) (Skills - being able to explain what an AI system looks like and understand what the impact might be upon our lives) Topic -Artificial intelligence / What if no internet Overview what is AI(1) Gorilla glass (1) Computer Networks (1) Wired and wireless (1) End of unit assessment(1)	(Concepts - developing an in-depth understanding of logic and sequencing, and why it is important.) (Skills -computational thinking and logic. Ordering of instructions.) Topic - Micro Bits Overview Variable(3) Selection (2) Developing algorithms End of unit assessment(1)	

year with e-safety, focusing on blogging/vlogging and how to stay safe.						
Extended Literacy opportunities:	Key topic words identified within lessons. Students are reading the data that is given to them and then putting it into a spreadsheet in the correct position	Key topic words identified within lessons. Students have a range of keywords and have to fill in the blanks in a paragraph given to them.	Key topic words identified within lessons. Gap fill exercises. Students complete 3d design tasks.	Key topic words identified within lessons. Students read an article about AI in their lives.	Key topic words identified within lessons. Students write their own variable character descriptions for a given scenario.	
NUMERACY:	Working with Google Slides to do a budgeting activity - formulas - extension (pie chart/bar) - Data collection- =sum	Looking at Numbers in data multiplication by x10,x100,x1000	sizes, measurements, dimensions, shapes, 2d & 3d	Memory sizes	Sequence and number orders	
SMSC/Creativity Focus	Cultural capital What is Google? Where did it come from? Why is it so popular?	Cultural capital Why is ASCII used across the whole world?	Cultural capital What jobs use 3d modeling, and why is it useful?	Cultural capital Advancements with AI, such as smart speakers and smart devices.	Cultural capital Programming: who was the first programmer?	

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Year 7 **Year 7 overview - Students. We will have 1/2 lessons for usernames, passwords, Google Classroom setup, and new features. We want students to have a clear understanding of the different hardware and software that are available and the difference between them, being able to identify the most appropriate for a given scenario. Students should continue to develop and become confident block coders, being able to identify patterns and sequences within code using Small Basic, a language used as a stepping stone for Python.**	(Concepts -that there are lots of different types of storage devices and areas within a computer system where information is stored) (Skills - reasoning and awareness of the different types of storage) ***There will be 1 lesson for usernames, passwords, Google Classroom setup, and new features*** Topic - E-safety Overview Cyber ready (1) Fake news(1) Social media safety(1) Minimising the risk(1) Online profiles(1) End of unit assessment(1)	Concepts - different types of programming languages exist, and they are used for different challenges.) (Skills - being able to explain the difference between block-based programming languages and text-based ones. Topic - Programming - Small Basic Overview Turtle Graphics 3 Turtle Shapes 3 End of unit assessment(1)	Concepts - all computers use Binary to share and communicate information. Logic gates are a computer's way of helping it to sort out computing concepts. (Skills - being able to understand what binary and Decimal are and being able to solve, draw, and create logic gate problems Topic - Binary and Decimal Overview Logic gates - AND, OR, NOT: what are these/what role they play within a computer system (3) What is Decimal and binary (1) Decimal to binary conversions(1) End of unit assessment(1)	Concepts - Computer systems are made up of hardware and software. We need to understand what these are and how they interact with each other to choose the right hardware or software for any given task. (Skills -understanding the roles that different Hardware and Software play within a computer system and being able to explain and justify these choices.) Topic - Hardware & Software Overview Data flow - input/process/output(1) Internal and external hardware and their function(1) Peripherals(1) Storage devices(1)) End of unit assessment(1)	Concepts - why order is important) (Skills -computational thinking and logic. Ordering of instructions.) Topic - Computational Thinking Overview what is CT(1) Sorting data - binary and linear search(1) Algorithms and flow charts (2) End of unit assessment(1)	Concepts - what networking is, what makes a network a network, and why. (Skills -understanding how information is shared over a network. Being able to identify the best network for a given scenario. Topic - Networking Overview Communicating(3) Network Hardware(1) Network topologies(1) End of unit /year assessment(1)

Extended Literacy opportunities:	Key topic words identified within lessons. Students read stories and then identify key points within them. Students look at the pros and cons and then explain why.	Key topic words identified within lessons. Students are writing lines of code to form programs using keywords in a specific way.	Key topic words identified within lessons. What is a truth table, and how is it different from a logic gate, but also how they link together, and one represents the other.	Key topic words identified within lessons. Students are given devices and are asked to explain what each device does within a computer system.	Key topic words identified within lessons. Students identify what the CT process is and design their own CT process, writing down the steps involved.	Key topic words identified within lessons. Read the six scenarios below. Identify whether it would be best to use a wired or wireless network.
NUMERACY:		**X-Y Axis, Angles and degrees**	**Binary to Decimal conversions +/-. AND OR NOT Gates**	**Storage sizes and how they are used**	**Binary/Linear sorts**	**Bandwidth sizes**
SMSC/Creativity Focus	Cultural capital How does fake news affect our views?	Cultural capital Enigma machine, Alan Turing Charles Babbage. Ada lovelace and the difference engine programming.	Cultural capital Modern-day smartphones have more computing power than the Apollo 11 space shuttle Smart devices and their use of storage and memory sizes - not just random numbers being used.	Cultural capital Elon Musk - chip placed in people's heads.	Cultural capital In 1921, industrial engineers Frank and Lillian Gilbreth introduced the "Flow Process Chart" to the American Society of Mechanical Engineers (ASME).	Cultural capital Who created the internet (Sir Tim Bernards Lee)? Why was it created?
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Year 8 **Year 8 overview: We will have 1 or 2 lessons for usernames, passwords, Google Classroom setup, and new features. We want students to be able to build upon and develop their knowledge and understanding of computing by delving deeper into the hardware and software that is used within a computer system. Students will develop a greater understanding of networking and how it is used in everyday life. They will also look into how data is stored within a system. Students will gain the opportunity to be creative and use Photoshop to create a digital graphic.**	(Concepts - what is data, why is data used, what can data be used for) (Skills - being able to read and use data to extract specific content) ***There will be 1 lesson for usernames, passwords, Google Classroom setup, and new features*** Topic - Modelling Data Overview Spreadsheets(1) Collecting data(1) Using data for yourself and others(1) End of unit assessment(1)	(Concepts -that there are lots of different types of storage devices and areas within a computer system where information is stored) (Skills - reasoning and awareness of the different types of storage) Topic - E-safety Overview Developing understanding for e-safety concepts Online reputation Big data End of unit assessment(1)	(Concepts -why do we have storage within a computer, what would happen if storage didn't exist?) (Skills - explain and justify the need for computer storage within a system or in the cloud.) Topic - Networking and Storage Overview Network devices and connections (2) Network types: LAN, WAN, WPAN (2) Wired and wireless networks (1) End of unit assessment(1)	(Concepts - why websites are designed the way that they are and the processes that are gone through to make one) (Skills -being able to draw on their use of websites and what makes a good website when it comes to its design it) Topic - Creating Digital products (Canva) Overview What is a digital graphic (1) Identifying the properties of Digital Graphics (1) Creating a magazine product (1) Creating a website (1) End of unit assessment(1)		(Concepts - what block-based programming is and its role within a computer system. How different bits of code link together) (Skills - logic and reasoning, and pattern recognition) Topic - Python understanding Overview What is Python - strings and variables(3) Python Numbers and Arithmetic (3) End of unit/year assessment(1)

Students will start creating more detailed program code using Python.					
Extended Literacy opportunities:	**Key topic words identified within lessons. Students match keywords to their meanings.**	**Key topic words identified within lessons. Students read Character descriptions and identify key points from the text, creating a timeline for each character.**	**Key topic words identified within lessons.** Write down 4 advantages and 4 disadvantages of a wireless network, and explain why there are advantages/disadvantages	**Key topic words identified within lessons. Students write an evaluation for their finished product**	**Key topic words identified within lessons. Students write text-based code**
NUMERACY:	**Spreadsheet data analysis - data collection**		**Storage sizes within a computer system**	**Sizes of canvas - pixel resolution of images**	**Algorithms**
SMSC/Creativity Focus	Cultural capital Why do we obsess about data?	Cultural capital What is Google? Where did it come from, and why is it so popular?	Cultural capital Why do we have storage, relating it to smartphone storage? How does cloud storage work, saving information in several locations, and why?	Cultural capital Careers in web design weren't even a job 30 years ago. These also changed 10 years later with the development of smartphones and how the internet and web pages are viewed, changing again with wearable devices.	Cultural capital Python is used in the programming of Google, used at CERN, used for Nokia phones, and some computer games