

KNOWLEDGE OVERVIEW GRID						
	Subject: Computing			Year Group: 6		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Communication & Collaboration	Web page creation	Scratch	Tinker CAD	Excel	Microbits
NC Objectives Covered (Taken directly from the National Curriculum)	Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour.	Design - write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence - selection, and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. I can describe strategies for keeping my personal information private, depending on context. To improve their mastery of art and design techniques, including drawing, painting, and sculpture with a range of materials. Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Recognise, describe, and build simple 3D shapes, including making nets.	Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. Solve problems involving addition, subtraction, multiplication, and division. Interpret and construct pie charts and line graphs and use these to solve problems. Calculate and interpret the mean as an average. I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). I can use different search technologies. I can evaluate digital content and can explain how I make choices from search results.	Design, write and debug programs that accomplish specific goals. Use sequence, selection, work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Digital Literacy Strand	Privacy and Security AUP Password setting	Online Relationships and Online bullying.	Health Well Being	Self-Image and Identity	Managing Online Information. Copywrite	Online reputation
Previous Knowledge -What have children learnt previously that will support this next step?	Year 5 – ‘Computer systems and networks’ unit. Some knowledge on the internet and networks but no specific theory unit prior to 2022-2023.	Basic computer skills Logging on, opening a browser, using a search engine. LKS2: Previous use of Microsoft word. Inserting images, changing fonts, and formatting text. E-Safety Knowing what personal information is and why it shouldn’t be shared online.	Previous use of Hour of Code/PowerPoint/Scratch Year 5 Programming Units	Previous use of Hour of Code/PowerPoint/Scratch Basic understanding of saving, editing, and retrieving digital work.	LKS2: Previous use of Power Point. Previous Office skills 3/4 Save/Save as, Embolden and other features, Bullets Spell check	Microbits: beginner projects in Year 3/4. Closed projects involving loops

Misconceptions -What are the common misconceptions in knowledge for this unit?	As children are in the same room but not working on the same device, this can create a misconception that to work collaboratively over the internet you still need to be physically close.	Some pupils will be expecting to use ‘code’ to build their website. It is important to address that whilst some websites are built this way, more and more are now build using website builders such as Google Sites where users instead drag and drop pre-coded elements into their website.	Pupils may confuse similar blocks and not realise some blocks need to be used within loops to work continuously. Pupils might expect sprites to move, follow the mouse, or detect events (like clicking or touching colours) automatically without the correct code structure.	The biggest difficulty pupils often have with using 3D design software for the first time is ensuring their designs ‘line up’ in all three dimensions.	The misconceptions when pupils are first introduced to spreadsheets often come from their expected use of certain symbols from mathematics. For example, pupils can often find the change from using x to * for multiply confusing. Pupils may find using the = symbol at the start of the cell confusing as they are more likely to see it after a calculation.	Not downloading the HEX file. How to deal with issues – how to report. CEOP
Learning Sequence -Detail the learning sequence using key questions in an ordered sequence. -The questions should have a sequential build up to answer the overall learning challenge. Red= Declarative knowledge (‘knowing that’) Blue= procedural knowledge (‘knowing how’)	Re-visit Acceptable Use Policy. 1.Can I explain the importance of internet addresses? 2. Can I recognise how data is transferred across the internet? 3. Can I explain how sharing information online can help people to work together? 4. Can I evaluate different ways of working together online? 5. Can I recognise how we communicate using technology? 6. Can I evaluate different methods of online communication? E Safety Warm Up Content I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. I know how information and data is shared and used online. I know that for most people the internet is an integral part of life and has many benefits. I know where and how to report concerns and get support with issues online.	1.Can I review an existing website and consider its structure? 2. Can I plan the features of a web page? 3. Can I consider the ownership and use of images (copyright)? 4. Can I recognise the need to preview pages? 5. Can I outline the need for a navigation path? 6. Can I recognise the implications of linking to content owned by other people? E Safety Warm Up Content I can explain who might view a website and how to keep personal information safe online. I can recognise the difference between copyrighted content and media that is allowed to be used. I can recognise and avoid unsafe or unreliable websites. I can explain how online actions—like what I write or share—can affect others.	1.Can I change the look of a sprite? 2. Can I make a sprite follow a mouse pointer? 3. Can I change a background and add a sprite with multiple costumes? 4. Can I write a script that will run when the sprite touches a particular colour? 5. Can I make a sprite turn and move using the keyboard? 6. Can I create a variable that changes its value when a sprite is clicked? E Safety Warm Up Content I can identify what a respectful and safe online comment looks like. I can explain why I should never share personal information in my projects. I can ask for help from a trusted adult if something I see or experience online makes me uncomfortable. I can choose safe and appropriate usernames and project names for sharing on Scratch. I can think carefully before posting or sharing anything online, including Scratch projects.	1.Can I recognise that you can work in three dimensions on a computer? 2. Can I identify that digital 3D objects can be modified? 3. Can I recognise that objects can be combined in a 3D model? 4. Can I create a 3D model for a given purpose? 5. Can I plan my own 3D model? 6. Can I create my own digital 3D model? E Safety Warm Up Content I can explain why I should never share personal information when using online design tools. I can explain why it’s important to keep my passwords safe when using online design platforms. I can describe how to behave respectfully when sharing digital designs or giving feedback online. I can explain what to do if someone sends me an unkind message on a design platform.	1.Can I create a data set in a spreadsheet? 2. Can I build a data set in a spreadsheet? 3. Can I explain that formulas can be used to produce calculated data? 4. Can I apply formulas to data? 5. Can I create a spreadsheet to plan an event? 6. Can I choose suitable ways to present data? E Safety Warm Up Content I can explain why personal data should not be included in shared spreadsheets. I can recognise the risks of sharing a spreadsheet with others online. I can identify what makes a strong and secure password to protect a document. I can give examples of how incorrect or misleading data can affect decisions. I can describe how data shared online could be copied, changed, or used by others.	1. Recap features of a Microbit and how do I programme and download my programme to the Microbit. 2. Can I use loops and variables to make a light sensor? 3. Can I use variables to make a step counter? 4. Can I use radio function e.g. for project ‘Share a secret’? 5. Can I make an environment data logger? 6. Can I use Microbit features to create my own program? E Safety Warm Up Content I can explain how sharing something online can have +ve or –ve impact. I can show to be kind online, respecting boundaries. I can describe how things shared privately online can have unintended consequences e.g., screen grabs. I can explain sharing inappropriate images can have an impact and consequence and know what to do if this happens. (screen grab- URL, profile) I can explain how to report online bullying.

Curriculum End Points -What will children know and be able to do by the end of the unit? -What will the children produce to demonstrate this knowledge?	Children will understand how data is transferred over the internet. They will also know: - The makeup and structure of data packets. - How the internet facilitates online communication and collaboration; - How to complete shared projects online and evaluate different methods of communication. - How to communicate responsibly by considering what should and should not be shared on the internet.	Children will understand how to create websites for a chosen purpose. They will be able to: - Identify what makes a good web page. - Design and evaluate their own website using Google Sites. - Understand the common features of webpages for different purposes. - Understand the need for copyright-free images on my website. - Add content to a website, including text and images - Understand navigation paths and have multiple web pages on my website, linked via hyperlinks.	Children will learn how to create their own computer game and decide what makes a good computer game. They will be able to: -Edit a sprite’s appearance by changing its costume using the correct blocks. -Program a sprite to follow the mouse pointer using loops and motion blocks. -Add and switch between multiple costumes for a sprite and change the background of the stage. -Write a script that makes something happen when a sprite touches a particular colour. -Use keyboard inputs to control a sprite’s movement and direction. -Create and use a variable that changes value when the sprite is clicked.	Children will develop their knowledge and understanding of using a computer to produce 3D models. They will be able to: - work in a 3D space, moving, resizing, and duplicating objects. -They will be able to create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. - Learners will be able to examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.	Children will understand how to organise data into columns and rows to create their own data set. They will be able to: - Understand the importance of formatting data to support calculations. -Have an awareness of formulas and begin to understand how they can be used to produce calculated data. - Know how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. -Use spreadsheets to plan an event and answer questions. - Know how to create charts and evaluate results in comparison to questions asked.	Can showcase a variety of skills to programme Microbit using loops, variables and conditionals.
Knowledge Sentences -Using the end points, what are the key statements children need to remember by the end of the unit? (I know that...) (To share with children when it is taught during the unit)	1. I know that internet addresses tell which website to go to. 2. I know that data is sent over the internet in small pieces called packets, which travel through networks to reach the right device. 3. I know that computer networks such as the internet provide multiple services, such as the world wide web. They provide opportunities for communication and collaboration. 4. I know that people can communicate online in different ways, like emails, messages, and video calls. 5. I know that I communicate using internet-based communication. 6. I know to evaluate I can use the scratch programming tool to help me.	1. I know that there are different types of media used on websites and websites are written in HTML. 2. I know that there are common features of a web page including: a title, header and navigation page. 3. I understand the terms ‘fair use’ and ‘copyright’ and why copyright-free images should be used. 4. I understand the need to preview web pages and how a web page may appear on different devices. 5. I know that a navigation path means the way that pages are linked together. 6. I know that there are implications of linking to content owned by other people. I can create hyperlinks to link to other people's work.	I know that a sprite is a character or object that can be programmed to move, change, or interact on the screen. I know that costumes are different appearances or versions of a sprite that can be switched to create animation. I know that the stage is where sprites perform and can have different backgrounds that can be changed in the code. I know that blocks are instructions that tell a sprite what to do, such as move, turn, or say something. I know that a script is a set of connected blocks that run when triggered by an event like clicking the green flag or pressing a key. I know that the ‘forever’ block is a loop that makes the script run again and again without stopping. I know that debugging means finding and fixing problems in a program to make it work properly.	I know that 3D models are created using shapes placed in a digital 3D space. I know how to move, resize, and duplicate 3D objects using a computer. I know that placeholders can be used to create hollow parts within 3D models. I know that combining shapes can help to build more complex 3D objects. I know that grouping and ungrouping shapes helps with editing and designing. I know how to plan and design a 3D object for a specific purpose.	I know how to organise data into rows and columns to create a structured data set and why formatting data correctly is important when using formulas. I know that formulas can be used to perform calculations in a spreadsheet and how to use a formula to calculate data across a range of cells. I know how to duplicate formulas to apply them to multiple cells. I know how to use a spreadsheet to help plan an event by inputting and calculating data. I know how to create charts in a spreadsheet to present data visually. I know how to evaluate a chart or spreadsheet to answer questions about the data.	I know that a micro bit is a tiny, pocket-sized computer. A micro-bit can contain: • LEDs, which are individually programmable. • 2 programmable buttons. • Connection pins. • Temperature and light sensors. • Motion sensors. • Wireless communication. • USB interface. Reset button.

Key Vocabulary (To share with children and add to working walls/knowledge mats)		Internet Protocol (IP) addresses, Domain Name Server (DNS); data packets, the main parts of a packet (header and data payload).	Website, web page, navigation, hyperlink, layout, design, aesthetics, copyright, fair use, purpose, content, evaluate.	Sprite, costume, stage, backdrop, block, script, event, loop, input, output, variable, debugging.	3D Design, work plane, shape, solid, hole, group, ungroup, align, rotate, scale, resize.	Spreadsheet, cell, row, column, data, formula, function, chart, calculate.	Hex file, Download, Make code blocks, conditional, variable blocks
What does this look like at Bramhope?	Enrichment Activities (trips, residentials, speakers, SMSC)	Digital Leader assembly	Digital Leader assembly	Digital Leader assembly Change One Thing Competition Parent Workshop linked to Parents evening.	Digital Leader assembly	Digital Leader assembly	Digital Leader assembly Parent Workshop linked to Parents evening.
	Physical Resources (artefacts)	E Safety Warm Up Planning		E Safety Warm Up Planning	E Safety Warm Up Planning	<i>Laptops</i> <i>Google search engine</i> E Safety Warm Up Planning	Microbit website Microbits. 16 V1 16 V2. Also requested government Microbit as part of additional funding. Due to arrive September 2023 E Safety Warm Up Planning
	Cross Curricular learning (Include opportunities for writing and quality texts)						Science – data loggers, temperature, light sensors, electricity conductivity (all projects listed on BBC Microbit website and depending on X curricular science topic.
	Local Learning including outdoor learning						
	Opportunities for cultural Diversity						