

Computing Overview

National Curriculum Coverage, Progression in Skills and Knowledge and Supporting Resources/Schemes of Work

EYFS

	3 & 4-year-olds will be learning to:	Children in Reception will be learning to:	ELG
Personal, social and emotional	<ul style="list-style-type: none"> Select and use activities and resources with help To use large and small motor skills to do things independently 	<ul style="list-style-type: none"> To show resilience and perseverance 	<ul style="list-style-type: none"> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge Work and play cooperatively with others
Maths	<ul style="list-style-type: none"> Selecting shapes Recall of numbers Describe a familiar route Making comparisons 	<ul style="list-style-type: none"> Subitise Make comparisons Directions Positional language 	<ul style="list-style-type: none"> To explore and represent pattern To compare quantities Subitise
Understanding the World	<ul style="list-style-type: none"> Explore how things work 	<ul style="list-style-type: none"> Draw information from a simple map Comment on images 	<ul style="list-style-type: none"> Look at different environments, maps etc
Expressive art and design	<ul style="list-style-type: none"> Listen with increased attention to sound Respond to what they have heard Draw with increasing complexity and detail Develop their own ideas 	<ul style="list-style-type: none"> Return to and build on ideas Watch and talk about dance and performance Listen attentively and respond to music 	<ul style="list-style-type: none"> Exploring tools and techniques Experiment with colour, design, form and function

Year 1

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
Autumn 1 Computer Science	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Recognise common uses of information technology beyond school.	Sequence a series of pre-written instructions to create an algorithm. Break an activity down into simple steps Independently list the steps in their own algorithms, test them and correct any mistakes Combine more than one command into a device to make a simple program		What is an algorithm? How do the controls affect the device?	Digital devices work by processing information based on a sequence of instructions called a program.	Debug Computer Algorithm			Curriculum Innovation – Skills 4 Bradford Lolly Stick Puppet Algorithms CS1 Crazy Character Algorithms – Barefoot CS1 Human Robot Mazes CS2 Tinkering Time Beebots Project Evolve – online safety
				Possible Misconceptions:					
Autumn 2 Digital Literacy	Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Recognise common uses of information technology beyond school	Use mouse/touchscreen/tablet to follow the appropriate buttons to navigate to websites Understand the internet is fun but just like there are rules in the real world to keep you safe there are rules for keeping them safe in the online world.		What do we call the 'buttons on the keyboard? What technology can we use to find out information?	The internet helps us to find out information about lots of different facts.	Internet Technology Keyboard Keys Space bar			https://www.abcya.com/games/cup_stack_typing_game Laptops Purple Mash – Unit 1.9 Technology outside school Project Evolve - online safety materials
				Possible Misconceptions:					

Oracy opportunities for Autumn term	Problem Solving- Debugging an Algorithm (Paired discussion)								
Spring 1 Media	Use technology purposefully to create, organise, store, manipulate, and retrieve digital content	Use the shape tool and the line tools Make careful choices when painting a digital picture Explain why a tool was used Use a computer independently to paint a picture Compare painting a picture on a computer and on paper		How can we paint using computers?	Computers can be used to create art.	Tool Erase Fill Undo			Creating Media – Digital Painting (NCCE) Microsoft Paint Paintz app Project Evolve – online safety
Possible Misconceptions:									
Spring 2 Data Handling	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Sort and classify objects based on their properties. Create a simple pictogram Create a pictogram and to interpret the data it represents. Change the data independently in a pictogram and comment on the effects of the changes.		How can we sort objects? What is a pictogram? What is data?	We can use different criteria to sort objects.	Sort Criteria Pictogram Data		Careers/ Aspirations week STEM visit	Purple Mash – Unit 1.2 & 1.3 Sorting rings Laptops Desktops Project Evolve – online safety
Possible Misconceptions:									
Oracy opportunities for spring term	Discussion- It is fine to share images online?								

<p>Summer 1</p> <p>Computer Science</p>	<p>Understand what algorithms are how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs</p>	<p>Create and debug simple programs & algorithms to achieve an outcome.</p> <p>Recognise common uses of technology in and beyond school and understand they are controlled by programs</p>		<p>How does the BeeBot work? What do the blocks do? What is code?</p>	<p>We program commands to make the Beebots move. A block is a command in Scratch Junior. You need to put blocks in the correct order of the algorithm. Blocks</p>	<p>Blocks</p>			<p>Curriculum Innovation- Skills 4 Bradford CS3 Floor Robot Mazes Barefoot computing - Scratch Junior Tinkering Activity</p> <p>CS3 – Programs in Scratch Junior Parts 1 & 2</p> <p>BeeBots – will need booking from the Innovation Centre</p> <p>CS4 Technology at home – Skills 4 Bradford</p> <p>Scratch Junior on ipads</p> <p>Project Evolve – online safety</p>
<p>Summer 2</p> <p>Media</p>	<p>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>	<p>Communicate simple ideas through the use of text, images.</p> <p>Type a phrase with spaces between letters.</p> <p>Add text to images or images to text.</p> <p>Change font, size colour and style appropriately</p> <p>Understand sound and music can be created using a range of simple technology</p> <p>Record sound using simple technologies and play back the recordings.</p>		<p>What is the difference between a traditional book and an e-book? What makes a good sound effect? How do you change the font style and size?</p>	<p>To change the font and size of writing you must highlight what you want to change first.</p>	<p>E book Insert Animation Paste Font</p>			<p>Purple Mash Unit 1.6 2Create Laptops Desktops</p> <p>Project Evolve – online safety</p>
<p>Oracy opportunities for summer term</p>	<p>Discussion- Can you talk to strangers online?</p>								

Year 2

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
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<p>Autumn 1</p> <p>Computer Science</p>	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>Understand that more complex problems can be broken down into smaller parts Create and develop algorithms & programs to achieve pre-defined outcomes Predict the outcome of a program using logical reasoning</p>		<p>What is decomposition?</p>	<p>Breaking down a sequence into parts helps the design process and sharing of a sequence.</p>	<p>Decompose Predict Sprite</p>		<p>STEM visit in class</p>	<p>Barefoot Computing materials – Decomposition unplugged, World map logic activity Curriculum Innovation – Skills 4 Bradford CS5, CS6, CS7 Project Evolve</p>				
<p>Possible Misconceptions:</p>				<p>Autumn 2</p> <p>Digital Literacy</p>	<p>Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</p>	<p>To recognise the uses and features of information technology To identify the uses of information technology in the school To identify information technology beyond school To explain how information technology helps us To explain how to use information technology safely To recognise that choices are made when using information technology</p>		<p>What is information technology? What activities can we use computers for?</p>	<p>Barcodes are scanned using a scanner.</p>	<p>Barcode Scanner Scan</p>			<p>IT around us - (NCCE) Project Evolve – online safety materials</p>
<p>Possible Misconceptions:</p>				<p>Oracy opportunities for Autumn term</p>	<p>Problem Solving- Debugging an Algorithm (Paired discussion)</p>								

<p>Spring 1</p> <p>Media</p>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Create, edit and format a range of digital texts.</p> <p>Combine and share digital content from multiple sources</p>		<p>What is the shift key used for?</p>	<p>The shift key can be used to create capitals letters when pressed with a letter key. The shift key can also be used for adding punctuation to your text.</p>	<p>Align</p>		<p>Curriculum Innovation – Skills 4 Bradford MM6, MM10</p> <p>Project Evolve – online safety materials</p>
				<p>Possible Misconceptions:</p>				
<p>Spring 2</p> <p>Data Handling</p>	<p>Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>	<p>Create a simple graph (the data may be given to the pupil)</p> <p>Collect data and display it in the form of a graph</p> <p>Write questions based on a graph they have created</p>		<p>How does a pictogram show information? How is information organised in a binary tree? How can a database help organise information?</p>	<p>A Binary Tree is simple way of sorting information into two categories. A database is a computerised system that makes it easy to search, select and store information.</p>	<p>Binary Tree Database Field Record Search Sort</p>	<p>Careers/ Aspirations week STEM visit</p>	<p>Purple Mash – Unit 2.4 Questioning</p> <p>Project Evolve</p>
				<p>Possible Misconceptions:</p>				
<p>Oracy opportunities for spring term</p>	<p>Discussion- It is fine to share images online?</p>							
<p>Summer 1</p> <p>Computer Science</p>	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>Create and debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs</p> <p>Recognise common uses of information technology beyond school</p>	<p>Demonstrate the ability to debug predefined programs.</p> <p>Identify digital technologies around us and describe how they work</p>		<p>What controls digital technology?</p>	<p>Some bugs in programs are to do with the order of commands.</p> <p>All digital technology is controlled by a program.</p>	<p>Commands Code</p>		<p>Barefoot Computing</p> <p>Curriculum Innovation – Skills 4 Bradford CS8, CS9, CS10</p> <p>Book Creator</p> <p>Scratch Junior</p> <p>Project Evolve – online safety materials</p>
				<p>Possible Misconceptions:</p>				

Summer 2 Media	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Create and edit 2D images. Create, capture, review and edit digital content. Create on-screen animations to illustrate a concept.		How do filters change photos?	Filters can change the way we see a picture.	Crop Filters Frame			Curriculum Innovation – Skills 4 Bradford MM7, MM8, MM9 Ipads Seesaw Project Evolve – online safety materials
				Possible Misconceptions:					
Oracy opportunities for summer term	Discussion- Can you talk to strangers online?								

Year 3

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
Autumn 1 Computer Science	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	Understand that all computers allow data to be input, processed and output. Understand all computer systems need programs / software to work. Decompose and sequence a range of algorithms & programs. Create and refine programs that use simple		What is a computer? How do different devices work?	An input device sends information in to a computer and an output device sends information out from a computer.	Input Process Output Hardware Software		STEM visit in class	Curriculum Innovation – Skills 4 Bradford CS10, CS11, CS12, CS13 Scratch Junior or Scratch Project Evolve – online safety materials

	<p>forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>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</p>	<p>inputs and output to control events.</p>		Possible Misconceptions:					
<p>Autumn 2</p> <p>Digital Literacy</p>	<p>Use search technologies effectively, appreciate how results are selected and ranked. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Follow a process</p> <p>Explain what makes a secure password</p> <p>Recognise similarities between using digital devices and using non-digital tools</p> <p>Suggest differences between using digital devices and using non-digital tools</p> <p>Explain how messages are passed through multiple connections</p> <p>Recognise that a computer network is made up of a number of devices</p>		<p>Are there times when it is better to use a non-digital tool rather than a digital device?</p> <p>How can we share information effectively between connections?</p> <p>How does a file travel from one computer to another?</p>	<p>When one computer wants to send information to another computer, it can now do so via the network switch.</p> <p>A Wi-Fi connection is not an internet connection; it's just a wireless way of connecting to a network.</p> <p>Digital device</p> <p>Digital devices are all forms of information technology, and their purpose is to help us to complete certain tasks.</p>	<p>cyber attack</p> <p>connection</p> <p>network</p> <p>network switch</p> <p>server</p> <p>network sockets</p>			<p>NCCE - Computing systems and networks – Connecting computers</p> <p>Project Evolve – online safety teaching materials</p>

		<p>Demonstrate how information can be passed between devices</p> <p>Explain the role of a switch, server, and wireless access point in a network</p> <p>Identify how devices in a network are connected together</p>		Possible Misconceptions:					
Oracy opportunities for Autumn term									
Spring 1	<p>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</p>	<p>Create and amend a range of texts for a specific purpose.</p> <p>Create and combine visual media to meet a specific need.</p>		<p>What elements are used in a newspaper?</p>	<p>We use copy and paste if we want to keep the text we are copying.</p>	<p>Columns Cut Shot Instructional film storyboard</p>			<p>Curriculum Innovation – Skills 4 Bradford MM11, MM12</p> <p>Project Evolve – online safety teaching materials</p>
Media				Possible Misconceptions:					
Spring 2	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Create simple graphs using ICT to organise, present and understand data.</p> <p>Answer questions in an existing database</p> <p>Be able to search a database using more than one search term.</p>		<p>What is a branching database?</p>	<p>Branching databases are used to classify groups of objects.</p>	<p>Branching Database</p>		<p>Careers/ Aspirations week STEM visit</p>	<p>Purple Mash Unit 3.6 Branching Databases</p> <p>Project Evolve – online safety teaching materials</p>
Data Handling				Possible Misconceptions:					
Oracy opportunities for spring term									

<p>Summer 1</p> <p>Computer Science</p>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>Understand and use the concept of repetition to write more efficient code.</p>		<p>What is the difference between 'repeat forever' and 'repeat until'?</p>	<p>Repeats are also known as loops.</p>	<p>Repetition Loop Flowchart</p>			<p>Barefoot computing Resources: Tinkering Activity Shapes and Crystal Flowers</p> <p>Innovation Centre – Skills 4 Bradford CS14</p> <p>Scratch</p> <p>Project Evolve – online safety materials</p>
<p>Possible Misconceptions:</p>									
<p>Summer 2</p> <p>Media</p>	<p>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</p>	<p>Create audio recordings to meet a specific need.</p> <p>Create, edit and annotate a range of 2D images.</p> <p>Combine digital content from different sources using appropriate layout.</p>		<p>What is a 2d plan? What is 3d design?</p>	<p>A 2d plan is called a plan view or a bird's eye view.</p> <p>3D design software allows us to create objects in 3D such as characters in films and games.</p> <p>Visual media clips do not have to be created in the sequence they might appear in the final visual media production.</p>	<p>Clip Copyright Resize Rotate Duplicate</p>			<p>Curriculum Innovation – Skills 4 Bradford MM13, MM14, MM15</p> <p>https://roomstyler.com/3dplanner</p> <p>Project Evolve – online safety materials</p>
<p>Possible Misconceptions:</p>									
<p>Oracy opportunities for summer term</p>									

Year 4

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
Autumn 1 Computer Science	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p>	<p>Understand the composition of a range of programs by decomposing them into their key components</p> <p>Understand and apply the concept of selection in their own algorithms and programs</p> <p>Predict what a specific piece of code will do and alter it to achieve a chosen outcome</p>		<p>What are the PEGI age ratings for the games you play?</p> <p>Why do we use selection in programming?</p>	<p>Logical reasoning enables us to analyse things and make predictions.</p> <p>Algorithms and programs can be more complicated and steps don't always appear in a straight line.</p> <p>Sometimes things happen in programs that make events take place. selection</p>	Selection		STEM visit in class	<p>Curriculum Innovation – Skills 4 Bradford CS15, CS16, CS17</p> <p>Barefoot computing resources Bug in the Water</p> <p>Scratch</p> <p>Project Evolve – online safety teaching materials</p>
				<p>Possible Misconceptions:</p>					
Autumn 2 Digital Literacy	<p>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</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p>Select, use, and combine a variety of software</p>	<p>To describe how networks physically connect to other networks</p> <p>To recognise how networked devices make up the internet</p> <p>To outline how websites can be shared via the World Wide Web (WWW)</p> <p>To describe how content can be added and accessed on the World Wide Web (WWW)</p> <p>To recognise how the content of the WWW is created by people</p>		<p>What does WWW stand for?</p> <p>Who owns the web?</p>	<p>There are multiple services which can be accessed using the internet.</p> <p>The internet is connected by many routers.</p>	<p>Internet Network Router Server wireless access point (WAP) website web page links Download</p>			<p>NCCE – The Internet</p> <p>Project Evolve – online safety teaching materials</p>

	(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.	To evaluate the consequences of unreliable content		Possible Misconceptions:					
Oracy opportunities for Autumn term	Discussion: computers can replace teachers								
Spring 1 Media	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.	Understand and apply design criteria to their digital content. Understand how the composition of visual media can affect how it is interpreted.		How can camera shots, image composition and visual effects help to create effective still images?	Digital content is designed to get our attention and affect our opinions. long shot	medium shot close up extreme close up			Innovation Centre – Skills 4 Bradford MM16, MM17 Power point Canva for Education
				Possible Misconceptions:					
Spring 2 Data Handling	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	To format cells as currency, percentage, decimal to different decimal places or fraction. To use the formula wizard to calculate averages. To combine tools to make spreadsheet activities such as timed times tables tests.		How would you add a formula so that the cell shows the percentage score for a test? Give an example of the data that could be best represented by a line graph.	A spreadsheet is a computer program that represents information in a grid of rows and columns. Cells are individual sections of a spreadsheet grid. They contain data or calculations.	Cells Columns Formula		Careers/ Aspirations week STEM visit	Purple Mash Unit 4.3 Spreadsheets

	presenting data and information.	To use a spreadsheet to model a real-life situation. To add a formula to a cell to automatically make a calculation in that cell.		Possible Misconceptions:					
Oracy opportunities for spring term	Discussion: computers make life easier								
Summer 1 Computer Science	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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	Design and create programs using selection purposefully Understand what a computer network is and describe different parts of a network		How do you use abstraction? What is a computer network?	When you go online the information you access could be created and stored anywhere in the world on other networks.	abstraction			Innovation Centre – Skills 4 Bradford CS18, CS19 Scratch Barefoot computing – 2d shape debugging
				Possible Misconceptions:					
Summer 2 Media	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.	Purposefully combine a range of digital content to present information to others. Create and combine audio to make a simple musical composition.		What is a presentation? What is a multi-track recording?	Music is often recorded using separate tracks.	Slide Track Loop			Innovation Centre Resources MM18, MM19, Garage band
				Possible Misconceptions:					
Oracy opportunities for summer term									

Year 5

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
Autumn 1 Computer Science	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller part Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Understand and use variables in algorithms and programs.		What do we use variables for?	Variables can change.	Variable		STEM visit in class	Innovation Centre – Skills 4 Bradford CS20 Scratch Project Evolve – online safety teaching materials
				Possible Misconceptions:					
Autumn 2 Digital Literacy	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To identify how to use a search engine To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom		What is a system?	Components can work together to perform a task.	Computer System Crawler Bot			NCCE – Systems and searching Project Evolve – online safety teaching materials
				Possible Misconceptions:					
Oracy opportunities for Autumn term									

<p>Spring 1</p> <p>Media</p>	<p>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.</p>	<p>Develop an understanding of more complex design criteria and apply them to their digital content</p> <p>Understand how the composition of digital content can evoke emotion and apply this to their own digital content creation</p> <p>Design and create simple 3D models</p>		<p>What makes a good radio advert?</p> <p>How is 3D technology used in the world?</p>	<p>A good radio advert is short to keep people interested with the voice over matching what they are selling – exciting, dramatic or funny.</p> <p>3D printing is already used in medicine and engineering.</p>	<p>Voiceover 3D printing</p>			<p>Innovation Centre Resources: MM20, MM21, MM22</p> <p>Project evolve – online safety teaching resources</p>
<p>Possible Misconceptions:</p>									
<p>Spring 2</p> <p>Data Handling</p>	<p>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</p>	<p>To use formulae within a spreadsheet to convert measurements of length and distance.</p> <p>To use the count tool to answer hypotheses about common letters in use.</p> <p>To use a spreadsheet to model a real life problem. To use formulae to calculate area and perimeter of shapes.</p> <p>To create formulae that use text variables.</p>		<p>How would you add a formula so that the cell shows the product of two other cells?</p> <p>What would you use to have a cell automatically calculate the number of days since a certain date?</p>	<p>Spreadsheets can be used for carrying out investigations.</p>	<p>Rows Columns Formula Formula Bar Totalling tool</p>			<p>Purple Mash – Unit 5.3 Spreadsheets</p> <p>Project Evolve – online learning teaching materials</p>
<p>Oracy opportunities for spring term</p>									

Summer 1 Computer Science	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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	Understand and use conditional repetition in algorithms and programs Use two-way selection in algorithms and programs Use a broad range of input and output devices in their programs Understand that a computer system comprises input, process, memory and output Understand how search engines work and use them effectively		What is a real-life algorithm?	Variables can be combined with repetition commands to control scores, lives, end of program, number of correct answers, etc.	Initialise Memory			Innovation Centre – Skills 4 Bradford CS21, CS22, CS23, CS24, CS25 Project Evolve – online safety teaching materials
				What are the different ways computers/digital devices store data?					
Summer 2 Media	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.	Develop an understanding of basic presentation skills and apply them when presenting Understand how a range of online spaces and tools can be used to create digital content collaboratively		What are the basic features of good presentation design?	Films/animations/games are created by several teams often working in different geographical locations.	speaker notes presenter view server real time			Curriculum Innovation – Skills 4 Bradford MM23, MM24 Project Evolve – online safety teaching materials
Oracy opportunities for summer term									

Year 6

Theme	National Curriculum	Progression in Skills	Disciplinary Concepts	Key Questions	Key Facts	Key Vocab	Drivers & 50 things	British Values & Protective Characteristics	Schemes/Resources/ Texts
Autumn 1 Computer Science	Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they	Use selection, variables, input and output to create a program using a physical device		What is the difference between the internet and the WWW? What is packet switching?	Packet switching is a system that breaks the data that is transferred into smaller pieces like a jigsaw puzzle.	Encryption URL			Innovation Centre - Skills 4 Bradford CS28, CS29

	offer for communication and collaboration	Understand the difference between the internet and the world wide web and how data is transferred across the Internet		Possible Misconceptions:					
Autumn 2 goIT	<p>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.</p> <p>Design, create, evaluate and amend a program to meet a design brief.</p>	<p>Understand the varying roles computer scientists can play in industry.</p> <p>Apply understanding of the Design Thinking Model to adjust real-world product life cycles.</p> <p>Communicate basic concepts of Artificial Intelligence and Machine Learning.</p> <p>Work in groups to ideate a technological solution to an identified problem.</p> <p>Communicate how to train and develop their own machine learning tool by classification.</p> <p>Understand and communicate the importance of testing and training data.</p> <p>Understand and apply the concept of storyboarding to design a classification tool.</p> <p>Purposefully design and create their own digital content based on their design knowledge and the needs of an audience.</p>	<p>Identifying jobs that use Computer Science</p> <p>Understanding the different steps of design thinking</p> <p>Learn the concept of classification through the use of Teachable Machine.</p> <p>Identify ways that the technology could solve the defined problem.</p> <p>Train and apply a prototype to solve real-world problems.</p> <p>Design and deliver a presentation</p>	<p>What are the different steps of design thinking?</p> <p>What could an AI do to make today's jobs easier?</p>	<p>People use design thinking to solve everyday problems.</p> <p>Artificial Intelligence (AI) is the process giving computers the ability to do the same tasks humans can.</p>	<p>Design thinker</p> <p>Iterative</p> <p>Empathy</p> <p>Stakeholder</p> <p>ideate</p>			<p>goIT STEM planning</p> <p>Teachable Machine</p> <p>Sustainable Development Goals</p>
Oracy opportunities for Autumn term									

<p>Spring 1</p> <p>Digital Literacy</p>	<p>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</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>	<p>Describe how computers use addresses to access websites</p> <p>Identify and explain the main parts of a data packet</p> <p>Explain that data is transferred over networks in packets</p> <p>Explain that all data transferred over the internet is in packets</p> <p>Send information over the internet in different ways</p> <p>Explain how the internet enables effective collaboration</p> <p>Choose methods of communication to suit particular purposes</p> <p>Explain how to report inappropriate content online</p>	<p>Explore what is necessary for effective communication and the importance of agreed protocols.</p> <p>Begin to understand the concept of packets and gain an understanding of the key parts of a packet.</p> <p>Consider how people can work together when they are not in the same location.</p> <p>Learning about another approach to online working: reusing and modifying work done by someone else.</p> <p>Evaluate which methods of communication suit particular purposes.</p> <p>Explore issues around privacy, information security and reporting of inappropriate content.</p>	<p>What can be transferred on the internet (other than messages in text)?</p>	<p>When computers send messages, they have the address they're sending to and the one it's coming from.</p> <p>Packets are used because they break large volumes of data into small chunks, making them easier to send across networks.</p> <p>data</p>	<p>Internet Protocol (IP) address Domain Name Server (DNS) Data Packet data payload</p>		<p>NCCE - Computing systems and networks - Communication and collaboration</p> <p>Project Evolve – online safety teaching materials</p>
<p>Spring 2</p> <p>Data Handling</p>	<p>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</p>	<p>To use a spreadsheet to investigate probability</p> <p>To use a spreadsheet to calculate the discount and final prices in a sale.</p> <p>To use a spreadsheet to plan how to spend money and the effect of saving money.</p> <p>To use a spreadsheet to plan a charity day to</p>		<p>How would you add a formula so that the cell shows the total of a column of cells?</p> <p>What is a computational model and what it can be used for?</p>	<p>To add formula use the formula wizard advanced total tool or type a formula into the cell by using the '=' symbol, mathematical operators and cell references.</p> <p>Modelling in Computing means creating or using a simulation (a model) of a real-life situation, on a</p>	<p>Probability Expense.</p>		<p>Purple Mash – Unit 6.3 Spreadsheets</p> <p>Project Evolve – online learning teaching materials</p>

		maximise the money donated to charity.			computer. It represents the data of a situation.				
				Possible Misconceptions:					
Oracy opportunities for spring term									
Summer 1	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Design, create, evaluate and amend a program to meet a design brief		What are arcade games?	An arcade game is a computer game that is often played in amusement arcades.				Innovation Centre – Skills 4 Bradford
Computer Science	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output			What are the features of arcade games?					Lots of videos on Skill 4 Bradford site under the Game Maker’s Toolkit heading
	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			Possible Misconceptions:					CS27 Game Makers Toolkit

<p>Summer 2</p> <p>Media</p>	<p>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.</p>	<p>Purposefully design and create their own digital content based on their design knowledge and the needs of an audience.</p>		<p>How do you embed content into a digital book?</p>	<p>It is possible to combine several pieces of media into one.</p>				<p>Innovation Centre – Skills 4 Bradford</p> <p>MM28</p> <p>Book Creator, PowerPoint or google slides</p>
<p>Oracy opportunities for summer term</p>									