Computing at Parkgate Juniors

Computing is an integral part of our curriculum, with a strong emphasis on equipping our students with the skills and knowledge they need to thrive in today's digital age. We recognize the importance of teaching computing skills separately from other subjects to ensure our students develop a well-rounded understanding of computer science, information technology, and digital literacy. Our students are exposed to a wide range of computing skills through an engaging and challenging programme that covers topics such as coding, spreadsheets, touch typing, emailing, databases, simulations, and presentations.

At our school, we place great emphasis on e-safety, and this is integrated throughout our computing curriculum. We recognize that the internet can be a wonderful resource, but it also presents risks, and it is our responsibility to ensure that our students are well-equipped to navigate these risks safely. Our e-safety lessons are tailored to different age groups and cover a range of topics, including cyberbullying, online privacy, and the safe and responsible use of the internet.

We believe that computing is an essential tool for success in the modern world, and we must ensure that our students are equipped with the necessary skills and understanding to navigate the increasingly technological world around them.

Computing Policy

Purpose and Aims

Purpose

To develop an interest and curiosity in technology and to develop both the skills and mind-set to deal with changing technology of the future.

Aims

To develop basic computing skills and knowledge useful in real life.

To develop the language needed to talk about technology.

To use technology for effective communication.

To be able to explore, exchange and analyse information.

To develop creative thinking

To be flexible with changing technology and see opportunity rather than challenge.

Provision

Our curriculum is categorised in two ways:

• **Breadth** - which gives pupils experiences of a range of different technologies that could be used in different areas of the curriculum.

• **Depth** - which helps pupils to solve problems and think creatively, using technology. Our curriculum covers understanding computer networks, including the internet, effective and appropriate communication, testing and creating programs. We also use Computing lessons as an opportunity to explore privacy and the importance of safety when sharing personal information. We ensure that all aspects of e-safety including cyber-bullying are discussed and that children understand how to stay safe online. When possible, we try to look back at the past to learn how ideas change over time and recognise individuals who may have contributed to the technology we use today.

Progression

Progression

Our curriculum is based on both subject areas and progression in investigative skills. The vast majority of pupils work within age-related expectations with some pupils needing extra support and others developing a deeper understanding of the subject. Information is passed between year groups to build on previous learning and extend areas of learning where possible.

Assessment and reporting

We assess pupils within each unit of work. This information is reported to leadership and passed between classes. At the end of each term, assessments against the computing skills of Computer Science, Digital Literacy, Information Technology.

Monitoring, evaluation and improvement

Leadership involves monitoring of pupil outcomes, the quality of teaching, curriculum coverage and aspects of resource management. Many year groups use links with other subjects to ensure that skills taught are transferable. This is supported by the Computing Lead and pupils are consulted about their interest and concerns about the subject. Parental support is encouraged and internet safety information is shared to support home-learning.

Computing - Intent, Implementation & Impact

Intent	**Aims/ Statement of Intent:** Our children are taught a wide range of skills in computing, with the aim to develop their knowledge and understanding in computer science, Information technology and digital literacy. We teach a broad range of skills that come under these three key areas through a variety of topics including coding, spreadsheets, touch typing, emails, databases, simulations and presentations. Alongside these topics we also focus greatly on how to use ICT safely. We work on e-safety in all years and across many different curriculum areas. It is important that as we move through KS2 children at Parkgate consider carefully how they keep themselves safe online and how they should treat others the same way that they would in the real world.
	Knowledge and skills: Skills taught through three key areas: Computer science, Information technology and digital literacy. Build a broad subject specific vocabulary. Be able to transfer the skills learnt to other areas of the curriculum. Teach a broad range of skills that fall under the main areas of computing focused on. To know how to stay safe online and what to do if they feel unsafe.
Implementation	**Approaches to learning/How our pupils learn:** Use of real-world examples, software and hardware to support the learning of skills in computing. Sequenced learning. Building on prior skills through topics taught. Collaborative opportunities for work. Practice skills taught through a range of cross-curricular links. Use Purple Mash as a Use a range of software to practise skills such as Purple Mash. Use a range of hardware to practise skills.
	Support: Guided examples, display resources continuing vocabulary for the unit. Scaffolded tasks—Purple Mash.
	Enrichment (including link and opportunities): SAM Learning, TT Rockstars, Google Classroom, Coding Club, Cross curricular week, anti-bullying week and robotics. Numbots. BBC Micro:Bits, 3D Printer, Safer Internet Day

Impact	**Skills:** Success in using a range of software and hardware. Have a secure understanding of skills that fall under key areas: computer science, Information technology and digital literacy. Have a broad subject specific vocabulary. Be able to transfer the skills learnt to other areas of the curriculum.	**Attitudes/ wellbeing and personal development:** Resilience towards new concepts/ technology. Curiosity. Self-motivation. E-safety– to know what to do to stay safe online

Book study method	SDS	Pupil Voice	feedback	Learning walks	homework	Assessment	CPOMS
Marking and feedback		Google classroom		Purple mash tasks		planning	

Curriculum Overview - Computing

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
L K S 2	**Year 3**	Coding	Touch typing and Spreadsheets	Email	Databases	Simulations and graphing	Presenting and online safety	**Year 3**
		Online Safety						
	Year 4	Animation and Logo	Effective searching	Making music	Coding	Spreadsheets	Animation and logo	**Year 4**
		Online Safety						
U K S 2	**Year 5**	Spreadsheets	Coding	Databases and game creator	Modelling	Concept maps	Word processing	**Year 5**
		Online Safety						
	Year 6	Coding	Spreadsheets	Networks and quizzing	Blogs	Text adventures	Binary	**Year 6**
		Online Safety						

Left column spanning labels: **L K S 2** (Years 3–4), **U K S 2** (Years 5–6)
Right column spanning labels: **L K S 2** (Years 3–4), **U K S 2** (Years 5–6)

Scheme of work – Progression of knowledge and skills

Computing in Year 3

Online Safety	Topic	Wks	Topic Focus	Knowledge	Skills
Every Lesson: Online Safety Discussion Prompts Project Evolve Knowledge Mapping **Specific Learning:** lessons covering identified areas of need from: Self-Image and Identity Online Relationships Online Reputation Online Bullying Managing Online Information Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership	Coding	5	Design and Make an Interactive Scene	To understand what a flowchart is To understand how flowcharts are used in computer programming. To understand how to use the repeat command. To use coding knowledge to create a range of programs.	Children can use a flowchart to create a computer program. Children can create a computer program that includes use of the repeat command. Children can plan their scene and code before they create their program. Children can run, test and debug their programs. Children can confidently make several different things happen in a program.
	Spreadsheets	1	Creating Pie Charts and Bar Graphs	To add and edit data in a table layout. To find out how spreadsheet programs can automatically create graphs from data.	Children can create a table of data on a spreadsheet. Children can use a spreadsheet program to automatically create charts and graphs from data.
		2	Comparing Data	To introduce the 'more than', 'less than' and 'equals' tools. To introduce the 'spin' tool and show how it can be used to count through times tables.	Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations. Children can use the 'spin' tool to count through times tables.
		3	Cell Addresses	To learn about describing cells using their addresses.	Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. Children can find specified locations in a spreadsheet.
	Touch Typing	1	Home, Top and Bottom Row Keys	To introduce typing terminology. To understand the correct way to sit at the keyboard. To learn how to use the home, top and bottom row keys. To practise and improve typing for home, bottom, and top rows.	Children understand the names of the fingers. Children understand what is meant by the home, bottom, and top rows. Children have developed the ability to touch type the home, bottom, and top rows. Children can use two hands to type the letters on the keyboard.
		2	Left Keys	To practise the keys typed with the left hand.	Children can touch type using the left hand.
		3	Right Keys	To practise the keys typed with the right hand.	Children can touch type using the right hand.
	Email	1	Communication	To think about the different methods of communication.	Children can list a range of different ways to communicate. Children can highlight the strengths and weaknesses of each method of communication.
		2	Composing Emails	To open and respond to an email. To write an email to someone from an address book.	Children can open an email and respond to it. Children have sent emails to other children in the class.

See specific skills covered in this year group in the Online Safety Curriculum Overview below.		3	Using Email Safely: Part 1	To learn how to use email safely.	Children have written rules about how to stay safe using email. Children have contributed to classmates' rules.
		4	Using Email Safely: Part 2	To learn how to use email safely.	Children have created a quiz about email safety which explores scenarios that they could come across in the future.
		5	Attachments	To add an attachment to an email.	Children can attach work to an email. Children know what CC means and how to use it.
	Branching Databases	1	Introducing Branching Databases	To sort objects using just YES/NO questions. To complete a branching database using 2Question.	Children understand how YES/NO questions are structured and answered. Children have used YES/NO questioning to play a simple game with a friend. Children can explain why they choose a particular question to split their database. Children have contributed to a class branching database about fruit. Children have completed a branching database about vegetables.
		2	Creating a Branching Database on the Computer	To create a branching database of the children's choice.	Children can choose a suitable topic for a branching database. Children can select and save appropriate images. Children can create a branching database. Children know how to use and debug their own and others branching databases.
	Simulations	1	What Are Simulations?	To find out what a simulation is and understand the purpose of simulations.	Children know that a computer simulation can represent real and imaginary situations. Children can give some examples of simulations used for fun and for work. Children can give suggestions of advantages and problems of simulations.
		2	Exploring a Simulation	To explore a simulation, making choices and discussing their effects.	Children can explore a simulation. Children can use a simulation to try out different options and to test predictions. Children can begin to evaluate simulations by comparing them with real situations and considering their usefulness. Children can analyse choices made using a branching database.
		3	Analysing and Evaluating a Simulation	To work through and evaluate a more complex simulation.	Children can recognise patterns within simulations and make and test predictions. Children can identify the relationships and rules on which the simulations are based. Children can evaluate a simulation to determine its

					usefulness for purpose. Children can create their own simple simulation (extension).
	Graphing	1	Introducing 2Graph	To enter data into a graph and answer questions.	Children can set up a graph with a given number of fields. Children can enter data for a graph. Children can produce and share graphs made on the computer.
		2	Using 2Graph to Solve an Investigation	To solve an investigation and present the results in graphic form.	Children have solved a maths investigation. Children can present the results in a range of graphical formats. Children can use the sorting option to make analysis of their data easier.
	Presenting	1	Making a Presentation from a Blank Page	To create a page in a presentation.	Children know what Google Slides is. Children know how to open Google Slides on a tablet. Children can add text and format it.
		2	Adding Images	To add images to a presentation.	Children can change the design of the slides. Children can insert a new slide. Children can insert pictures.
		3	Adding Shapes and Lines	To add shapes and lines to a presentation.	Children can add shapes to a presentation. Children can add lines into a presentation.
		4	Create a Presentation	To use the skills learnt in previous weeks to design and present an effective presentation.	Children can create a presentation including formatted text. Children can add objects including text and pictures. Children can present their work on Slides.

Computing in Year 4

	Topic	Wks	Topic focus	Knowledge	Skills
Online Safety					
Every Lesson: Online Safety Discussion Prompts Project Evolve Knowledge Mapping **Specific Learning:** lessons covering identified areas of need from: Self-Image and Identity Online Relationships Online Reputation Online Bullying Managing Online Information Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership See specific skills covered in this year group in the Online Safety Curriculum Overview below.	Coding	6	Making a playable game	To review coding vocabulary and knowledge. To understand how an IF statement works. To understand how to use coordinates in computer programming. To understand the Repeat until command. To understand what a variable is in programming. To use a number variable.	Children can plan an algorithm for their scene and use 2Code to program it. Children can create a program that includes an IF statement. Children can make use of the X and Y properties of objects in their coding. Children can interpret a flowchart that depicts an IF statement. Children can explain what a variable is in programming. Children can create and use variables when programming.
	Spreadsheets	1	Formulas	To find out how to add formulae to a cell.	Children can add formulae to a cell to complete a calculation or other function
		2	Formatting Cells	To explore the use of the display of decimal places.	Children can add a formula to a cell to automatically make a calculation in that cell.
		3	Formatting Cells	To use the currency formatting tool in 2Calculate.	Children can use the number formatting tools within 2Calculate to appropriately format numbers.
		4	Using Timers	To explore the use of the timer, random number and spin button tools.	Children can use the timer, random number and spin button tools.
		5	Graphing data using a spreadsheet	To use the line graphing tool in 2Calculate with appropriate data.	Children can use a series of data in a spreadsheet to create a line graph.
	Writing for different audiences	1	Font Styles	To explore how font size and style can affect the impact of a text.	Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text. Children can assess their texts using criteria to judge their suitability for the intended audience.
		2	Font Styles	To explore how font size and style can affect the impact of a text.	Children can use text formatting to make a piece of writing fit for its audience and purpose.
		3	Produce a News Report	To use a simulated scenario to produce a news report.	Children can use the incoming information to write their own newspaper report.
		4	Writing for a purpose	To use a simulated scenario to write for a community campaign.	Children can use their ideas to write a persuasive letter or poster as part of the campaign.

		5	Writing for a purpose	To use a simulated scenario to write for a community campaign.	Children can assess their texts using criteria to judge their suitability for the intended audience.
	Logo	1	Introduction to 2Logo	To learn the structure of the language of 2Logo and input simple instructions in 2Logo	Children know what the common instructions are in 2Logo and how to type them.
		2	Creating Letters using Logo	To use 2Logo to create letter shapes.	Children can input instructions into 2Logo to draw out letters.
		3	Using the 'Repeat' Command in Logo	To use the Repeat command in 2Logo to create shapes.	Children can create shapes using the Repeat function.
		4	Using Procedures	To use and build procedures in 2Logo.	Children can create 2Logo instructions to draw patterns of increasing complexity.
	Animation	1	Animating an Object	To decide what makes a good, animated film or cartoon and discuss favourite animations.	To decide what makes a good, animated film or cartoon and discuss favourite animations. To learn how animations are created by hand.
		2	Using 2Animate Tools	To learn how to create an animation on a computer.	To find out how 2Animate animations can be created in a similar way using technology. Children can use the Onion Skin tool to create an animated image.
		3	Creating Stop Motion Animation	To create my own stop motion animation	Children can use backgrounds and sounds to make more complex and imaginative animations. Children have used some of the ideas from existing 'stop motion' films to recreate their own animation Children have shared their animations and commented on each other's work using blogs in Purple Mash.
	Effective Searching	1	Using a Search Engine	To locate information on the search results page.	Children can structure search queries to locate specific information.
		2	Use Search Effectively to Answer Questions	To use search effectively to find out information.	Children have used search to answer a series of questions. Children have written search questions for a friend to solve.
		3	Reliable Information Sources	To assess whether an information source is true and reliable.	Children can analyse the contents of a web page for clues about the credibility of the information.
	Hardware Investigators	1	Hardware	To understand the different parts that make up a desktop computer.	Children know what the function of the different parts of the computer is.
		2	Parts of a Computer	To recall the different parts that make up a computer.	Children can name the different parts of a desktop computer.

	Making Music	1	Understanding Music	To identify and discuss the main elements of music: Pulse, Rhythm, Tempo, Pitch, Texture	Children can use appropriate musical language to discuss a piece of music. Children can identify sounds in a piece of music. Children can explain how a piece of music makes them feel.
		2	Rhythm and Tempo	To understand and experiment with rhythm and tempo.	Children can identify and recall a simple rhythm. Children can explain what tempo is and how changing it can change the mood of a piece of music. Children can create their own simple rhythm using Busy Beats.
		3	Melody and Pitch	To create a melodic phrase.	Children can show an understanding of melody. Children can create a simple melodic pattern using 2Sequence and Busy Beats. Children can use a variety of notes, experimenting with pitch.
		4	Creating Music	To compose a piece of electronic music.	Children can explore and understand how music is created. Children can experiment with pitch, rhythm and melody to create a piece of electronic house music on Busy Beats.

Computing in Year 5

Online Safety	Topic	Wks	Topic focus	Knowledge	Skills
Every Lesson: Online Safety Discussion Prompts Project Evolve Knowledge Mapping **Specific Learning:** lessons covering identified areas of need from: Self-Image and Identity Online Relationships Online Reputation Online Bullying Managing Online Information Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership See specific skills covered in this	Coding	6	Coding Efficiently Simulating a Physical System Decomposition and Abstraction Friction and Functions Introducing Strings Text Variables and Concatenation	To be able to simplify code. To program a simulation using code. To know what decomposition and abstraction are in Computer Science. To understand how to use friction in code. To begin to understand what a function is and how functions work in code. To begin to explore text variables and concatenation when coding.	Children can use simplified code to make their programming more efficient. Children can use variables in their code. Children can use their plan to program the simulation. Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task. Children can create a program which represents a physical system. Children can set/change variable values appropriately. Children know some ways that text variables can be used in coding.
	Spreadsheets	1	Conversions of Measurements	To use formula within a spreadsheet to convert measurements of length and distance.	Children can create a formula in a spreadsheet to convert measurements.
		2	Formulae	To use the count tool to answer hypotheses about common letters in use. To use formulae to calculate area and perimeter of shapes.	Children can use the 'count' tool.
		3	Using Text Variables to Perform Calculations	To create formulae that use text variables.	Children can use these calculations to solve a real-life problem. Children can create simple formulae that use different variables.
		4	Event Planning with a Spreadsheet	To use a spreadsheet to help plan a school cake sale.	Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.
	Databases	1	Searching a Database	To learn how to search for information in a database.	Children understand the different ways to search a database.
		2	Creating a Database	To contribute to a class database.	Children can search a database to answer questions correctly.

year group in the Online Safety Curriculum Overview below.		3&4	Creating a Topic Database	To create a database around a chosen topic.	Children can design an avatar for a class database. Children can successfully enter information into a class database.
	Game Creator	1&2	Setting the scene.	To review existing computer games. To design the game environment.	Children can review and analyse a computer game. Children can describe some of the elements that make a successful game. Children can begin the process of designing their own game.
		3, 4 & 5	Creating a Game	To design the game quest to make it a playable game. To finish and share the game.	Children can design the setting for their game so that it fits with the selected theme. Children can upload images or use the drawing tools to create the walls, floor, and roof. Children can design characters for their game. Children can decide upon, and change, the animations and sounds that the characters make. Children can make their game more unique by selecting the appropriate options to maximise the playability. Children can write informative instructions for their game so that other people can play it. Children can evaluate their own and peers' games to help improve their design for the future.
	3D Modelling	1	Moving Points	To explore the effect of moving points when designing.	Children can explore the different viewpoints in a design software whilst designing a building.
		2	Designing for a Purpose	To design a 3D model to fit certain criteria.	Children can explore how to edit the polygon 3D models to design a 3D model for a purpose.
		3&4	Printing and Making	To refine and print a model.	Children can refine one of their designs to prepare it for printing. Children can print their design as a 2D net and then create a 3D model. Children can explore the possibilities of 3D printing.
	Concept Maps	1	Introduction to Concept Mapping	To understand the uses of a 'concept map'.	Children can make connections between thoughts and ideas. Children can see the importance of recording concept maps visually. Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections.'
		2&3	Concept Mapping	To create a concept map. To understand how a concept map can be used to retell stories and information.	Children can create a basic concept map. Children can create an informative text.
		4	Collaborative Concept Maps	To create a collaborative concept map and present this to an audience.	Children can create a concept map. Children have used Presentation Mode to present their concept maps to an audience.

	Word Processing (Google Docs)	1	Making a Document from a Blank Page	To know what a word processing tool is for.	Children know what a word processing tool is for. Children will be able to create a word processing document, altering the look of the text and navigating around the document.
		2	Inserting Images: Considering Copyright	To add and edit images to a document.	Children know how to add images to a document. Children know the correct way to search for images that they are permitted to reuse.
		3	Editing Images	To know how to use word wrap with images and text.	Children know how to attribute the original artist of an image Children can edit their images within Docs to best present them alongside text. Children understand wrapping of images and text.
		4	Adding the Text	To change the look of text within a document.	Children can add appropriate text to their document, formatting in a suitable way. Children can use styles to format a document. Children can use bullet points and numbering. Children can add text boxes and shapes. Children can use page breaks, headers and footers.
		5	Sharing Files	To use the sharing capabilities in Google docs	Children can share their documents with selected users. Children understand the different permissions when sharing in Google docs. Children can share using a share link.
		6	Presenting Information Using Tables	To use tables within Google Docs to present information.	Children can add tables to present information. Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns.
		7&8	Writing a Letter Using a Template	To introduce children to templates.	Children can use a template and edit it appropriately. Children can use the spelling and grammar tools built into Google docs.

Computing in Year 6

Online Safety	Topic	Wks	Topic focus	Knowledge	Skills
Every Lesson: Online Safety Discussion Prompts Project Evolve Knowledge Mapping **Specific Learning:** lessons covering identified areas of need from: Self-Image and Identity Online Relationships Online Reputation Online Bullying	Coding	6	Designing and Making a more Complex Program Using Functions Flowcharts Simulations User Input Using Text-based Adventures	To design a playable game with a timer and a score. To plan and use selection and variables. To understand how the launch command works. To use functions and understand why they are useful. To understand how functions are created and called. To use flowcharts to test and debug a program. To create a simulation of a room in which devices can be controlled. To understand the different options of generating user input. To understand how user input can be used in a program. To understand how to make a text-based adventure game.	Children can plan a program which includes a timer and a score. Children can follow their plans to create a program. Children can debug when things do not run as expected. Children can create a program that makes use of functions. Children can create a program that uses multiple functions with the code arranged in tabs. Children can explain how their code executes when their program is run. Children can follow flowcharts to create and debug code. Children can create flowcharts for procedures. Children can be creative with the way they code to generate novel visual effects. Children can code programs that take text input from the user and use this in the program. Children are aware of the need to code for all possibilities when using user input. Children can follow through the code of how a text adventure can be programmed. Children can design their own text-based adventure game based on one they have played. Children can adapt an existing text adventure so it reflects their own ideas.
Managing Online Information Health, Well-being and Lifestyle Privacy and Security Copyright and Ownership See specific skills covered in this	Spreadsheets with google sheets	1	What is a Spreadsheet?	To know what a spreadsheet looks like.	Children know some uses of a spreadsheet tool. Children can navigate around a spreadsheet using cell references. Children can enter data into cells. Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook.
		2	Basic Calculations	To navigate and enter data into cells. To introduce some basic data formulae in Sheets.	Children can use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae Children can use a spreadsheet to solve a problem. Children can use the SUM function
		3	Modelling	To demonstrate how the use of Sheets can save time and effort when performing calculations.	Children can use a spreadsheet to model a situation

year group in the Online Safety Curriculum Overview below.		4	Organising Data	To demonstrate how spreadsheets can make complex data clearer by manipulating the way it is presented.	Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. Children know what is meant by a delimiter. Children understand how to sort data.
		5	Advanced Formulae	To use more advanced formulae to make calculations.	Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. Children gain familiarity with range notation.
		6	Charts and Graphics	To create a variety of charts and graphs to understand data.	Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier. Children gain an understanding of how a graphical representation can make data easier to interpret. Children make a variety of charts using Sheets. Children illustrate their data using sparklines and data bars.
		7	Using a Spreadsheet to Solve Problems	To use a spreadsheet to model a real-life situation. To apply spreadsheet skills to solving problems.	Children have modelled a real-life situation using a spreadsheet. Children can understand how a spreadsheet can be used to plan an event. Children understand the advantages of using formulae when data is subject to change.
	Blogging	1	What is a Blog?	To identify the purpose of writing a blog and the features associated with a successful blog.	Children understand how a blog can be used as an informative text. Children understand the key features of a blog
		2	Planning a Blog	To plan the theme and content for a blog.	Children can work collaboratively to plan a blog.
		3	Writing a Blog	To understand how to write a blog and a blog post.	Children can create a blog or blog post with a specific purpose. Children understand that the way in which information is presented has an impact upon the audience.
		4	Sharing Posts and Commenting	To understand how to contribute to an existing blog.	Children can post comments and blog posts to an existing class blog. Children understand the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying. Children can assess the effectiveness and impact of a blog. Children understand that content included in their blog carefully considers the end user.

	Text Adventures	1	What Is a Text Adventure?	To find out what a text-based adventure game is and to explore a Story..	Children can describe what a text adventure is. Children can map out an existing text adventure.
		2	Planning a Story Adventure	To plan a 'Choose your own Adventure' type story.	Children can map out a story-based text adventure.
		3	Making a Story-based Adventure Game	To make a text adventure based on a story.	Children can split their adventure-game design into appropriate sections to facilitate creating it. Children can create, test and debug using their plan.
		4	Coding a Map-Based Text Adventure	To use written plans to code a map-based adventure	Children can create their own text-based adventure based upon a map. Children can use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. Children make logical attempts to debug their code when it does not work correctly.
	Networks	1	The World Wide Web and the Internet	To discover what the children know about the Internet.	Children know the difference between the World Wide Web and the internet.
		2	Our School Network and Accessing the Internet	To find out what a LAN and WAN are To find out how we access the internet in school.	Children know about their school network.
		3	Research	To research and find out about the age of the internet and what the future might hold.	Children have researched and found out about Tim Berners-Lee. Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.
	Quizzing	1 & 2	Exploring Quizzes	To understand different question types. To explore the grammar quizzes.	Children have considered the audience's ability level and interests when setting the quiz. Children understand the different question types.
		3,4 & 5	Creating a Quiz	.To make a quiz to test your teachers or parents.	Children have ideas about what sort of questions are best suited to the different question types. Children have made and shared a quiz Children have ideas about what sort of questions are best suited to the different question types. Children have considered the audience's ability level and interests when setting the quiz.
		6	A Database Quiz	To make a quiz that requires the player to search a database	Children have shared their quiz and responded to feedback.

	Understanding Binary	1	What is Binary?	To recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems).	Children can explain how all data in a computer is saved in the computer memory in a binary format. Children can explain that binary uses only the integers 0 and 1. Children can relate 0 to an 'off' switch and 1 to and 'on' switch.
		2	Counting in Binary	To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.	Children can count up from 0 in binary using visual aids if needed.
		3	Converting from Decimal to Binary	To understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.	Children can convert numbers to binary using the division by two method.
		4	Game States	To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.	Children can make use of a variable set to 0 or 1 to control game states.

Online Safety Overview

	Year 3	Year 4	Year 5	Year 6
Self-Image and Identity	I can explain what is meant by the term 'identity'. Self-Image and Identity I can explain how people can represent themselves in different ways online I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.	I can explain how my online identity can be different to my offline identity. I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	I can explain how identity online can be copied, modified or altered. I can demonstrate how to make responsible choices about having an online identity, depending on context.	I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. 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 can explain the importance of asking until I get the help needed.
Online Relationships	I can describe ways people who have similar likes and interests can get together online. I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with. I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. I can explain how someone's feelings	I can describe strategies for safe and fun experiences in a range of online social environments (e.g. live streaming, gaming platforms) I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts, feelings and beliefs.	I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs). I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault. I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.	I can explain how sharing something online may have an impact either positively or negatively I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.

	can be hurt by what is said or written online. I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.		I can demonstrate how to support others (including those who are having difficulties) online.	
Online Reputation	I can explain how to search for information about others online I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal. I can explain who someone can ask if they are unsure about putting something online.	I can describe how to find out information about others by searching online. I can explain ways that some of the information about anyone online could have been created, copied or shared by others.	I can search for information about an individual online and summarise the information found. I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	I can explain the ways in which anyone can develop a positive online reputation. I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.
Online Bullying	I can describe appropriate ways to behave towards other people online and why this is important. I can give examples of how bullying behaviour could appear online and how someone can get support.	I can recognise when someone is upset, hurt or angry online. I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).	I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. I can identify a range of ways to report concerns and access support both in school and at home about online bullying. I can explain how to block abusive users.	I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. I can explain how someone would report online bullying in different contexts.

			I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	
Managing Online Information	I can demonstrate how to use key phrases in search engines to gather accurate information online. I can explain what autocomplete is and how to choose the best suggestion. I can explain how the internet can be used to sell and buy things I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.	I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with. I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers). I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.	I can explain how search engines work and how results are selected and ranked. I can explain how to use search technologies effectively. I can describe how some online information can be opinion and can offer examples. I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). I understand the concept of persuasive design and how it can be used to influences peoples' choices. I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.

			I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.	I can describe the difference between online misinformation and dis-information I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation or disinformation). I can identify, flag and report inappropriate content.
Health, Well-being and Lifestyle	I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	I can explain how using technology can be a distraction from other things, in both a positive and negative way. I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, loot boxes) and explain the importance of seeking permission from a trusted adult before purchasing.	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).
Privacy and Security	I can describe simple strategies for creating and keeping passwords private. I can give reasons why someone should only share information with people they	I can describe strategies for keeping personal information private, depending on context.	I can explain what a strong password is and demonstrate how to create one. I can explain how many free apps or services may read and share private	I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I can explain what to do if a password is

	choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. I can describe how connected devices can collect and share anyone's information with others.	I can explain that internet use is never fully private and is monitored, e.g. adult supervision. I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. I know what the digital age of consent is and the impact this has on online services asking for consent.	information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. I can explain what app permissions are and can give some examples.	shared, lost or stolen. I can describe how and why people should keep their software and apps up to date, e.g. auto updates. I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). I know that online services have terms and conditions that govern their use.
Copyright and Ownership	I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	I can assess and justify when it is acceptable to use the work of others I can give examples of content that is permitted to be reused and know how this content can be found online.	I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet.

The above areas are assessed in turn at the start of each term and areas of greatest need are addressed using Project Evolve resources and tools available in Purple Mash.

Computing Vocabulary Ladders

Year 3 - Coding	Year 4 - Coding	Year 5 - Coding	Year 6 - Coding
Action	Button	Abstraction	Co-ordinates
Alert	Code blocks	Concatenation	Launch Command
Algorithm	Command	Decomposition	Object
Background	Co-ordinates	Efficient	Procedure
Bug	Design	Friction	Repeat until
Button	Execute	Function	Text Adventure
Click events	'If' statement	Physical System	Text Object
Code	'If/Else' statement	Print to Screen	X and Y properties
Collision detection event	Prompt	Random	
Command	Implement	Simplify	
Debug\ Debugging	Repeat until	Simulation	
Degrees	Properties	String	
Event	Selection	Tabs	
Flowchart	Variable	Timer	
Implement			
Input			
Interval			
Nest			
Object			
Output			
Predict			
Properties			
Repeat			
Right-Angle			
Run			
Scene			
Sequence			
Test			
Timer			
Turtle Object			

Year 3 – Online Safety	Year 4 – Online Safety	Year 5 – Online Safety	Year 6 – Online Safety
Appropriate	AdFly	Appropriate	Data Analysis
Blog	Attachment	Avatar	Location sharing
Inappropriate	Citation	Bibliography	Print Screen
Internet	Collaborate	Communication	Screen Time
Password	Collaborative database	Creative commons licence	Secure websites
PEGI ratings	Cookies	Critical thinking	
Personal information	Copyright	Encrypt	
Permission	Data analysis	Identity theft	
Reliable source	Digital footprint	Image manipulation	
Reputable source	Malware	Ownership	
Spoof	Phishing	Reference	
Verify	Plagiarism	Reliability	
Vlogs	Ransomware	Responsibility	
Website	Report	Screenshot	
	SMART rules	Spoof	
	Software	Validity	
	Spam		
	Virus		
	Watermark		

Year 3 – Spreadsheets	Year 4 – Spreadsheets	Year 5 – Spreadsheets	Year 6 – Spreadsheets
Advanced Mode	Average	Advance Mode	Workbook
Bar graph	Budget	Area	Sheet
Cell	Calculations	Computational Model	Calculation
Cell reference	Chart	Formula Bar	Series
Column	Decimal place	Formulae	Template
Data	Format Cell	Perimeter	Expense
Equals	Formula	Profit	Formatting
Less than	Formula Wizard	Spreadsheet	Currency
More than	Line graph	Totalling tool	Delimiter
More than, less than & Equal tool	Percentage	Variable	Flash fill
Pie Chart	Resize		Auto-fit
Quiz tool	Set image		Filter
Row	Timer		Graph
Spinner tool	Totals		Horizontal
Table			Vertical
			Axis\axes
			Formatting

Year 3 – Other topics	Year 4 – Other topics	Year 5 – Other topics	Year 6 – Other topics
Touch Typing	**Writing for Different Audiences**	**Databases**	**Blogging**
Keys	Campaign	Arrange	Blog
Posture	Format	Avatar	Vlog
Spacebar	Font	Chart	Archive
Typing	Genre	Collaborative	Blog post
Email	Opinion	Data	Collaborate
Address Book	Reporter	Database	Nodes
Attachment	Viewpoint	Database Report	Connections
BCC – Blind Carbon Copy	**Logo**	Field	Commenting
CC – Carbon Copy	Debugging	Group	Approval
Communication	Grid	Record	**Text Adventures**
Compose	Logo	Search	Text adventure
Email	Logo Commands (e.g. FD, BK, RT, LT)	Sort	Sprite
Inbox	Multi Line Mode	Statistics	Link
Link	Pen Down	**Game Creator**	Functions
Mind mapping	Pen Up	Evaluation	Selection
Node	Prediction	Feedback	Variables
Password	Procedure	Image	Repeat
Personal Information	Repeat	Instructions	Functions
Save to draft	Run Speed	Promotion	Selection
Trusted Contact	SETPC	Quest	Variables
Branching Databases	SETPS	Scene	Repeat
Binary Tree	**Animation**	Screenshot	Debugging
Branching Database	Animation	Texture	QR Code
Data	FPS	Theme	**Networks**
Database	Frame	**3D modelling**	Internet
Debugging	Onion skinning	Net	World Wide Web
Simulations	Pause	Template	Website
Advantages	Stop motion	3D View	Network
Analysis	**Effective Searching**	Pattern fill	Web server
Decision	Balanced view	Points	Web page
Disadvantages	Easter eggs	Design brief	Hosting
Evaluation	Internet	3D Printing	Data
Modelling	Key words	**Concept Maps**	LAN
Point-of-view	Reliability	Concept	WAN
Realistic	Results page	Node	WLAN
Simulation	Search engine	Connections	Router
Solution	**Hardware Investigators**	Story mode	Switch

Unrealistic	Components	Heading	Hub
Graphing	CPU	Sub-heading	Ethernet
Axis	Graphics Card	Collaborate	Wi-Fi
Chart	Hard Drive	Presentation mode	Search engine
Column	Hardware	**Word Processing**	IP address
Data	Input	Word Processing Tool	ISP
Graph	Motherboard	Document	DNS
Investigation	Network Card	Front screen	**Quizzing**
Row	Output	Caps lock	Quiz
Sorting	Peripherals	Cursor	Audience
Survey	RAM	Selecting\highlighting	Copy\paste
Tally Chart	Software	Font	Selfie
Title	**Making Music**	Formatting	Undo\redo
Presenting	BPM	Page orientation	Audio
Animation	Dynamics	Copyright	Clipart
Audio	Harmonious	Creative commons	Image
Border Properties	Melody	Attributing	Image filter
Duration	Pitch	Cropping	Preview
Editing	Pulse	Text wrapping	Case-sensitive
Fill colour	Rhythm	Image editing	Clone
Font formatting	Tempo	Text styles	Cloze
Layer	Texture	Bulleted lists	Database
Media	Synths	Numbered lists	Record
Presentation		Text boxes	Field
Presentation Design		Captions	Statistics
Preview		Breaks	**Understanding Binary**
Review		Hyperlinks	Input
Slide		Editor options	Decimal
Slideshow		Sharing	Binary
Sound effect		Merge cells	Integer
Textbox		Column	Denary
Theme		Row	Base 10
Timing		Template	Base 2
Transition		Spell check	Transistor
Video		Grammar check	Microprocessor
WordArt			Chip
			Nanotechnology
			Bit
			Nibble

			Byte Kilobyte Megabyte Gigabyte Terabyte Sequence Switch Remainder Game states Variable

Resources we use

- Purple Mash – National Curriculum Links, Lesson topics, Software tools.
- BBC Micro:Bit Projects - https://makecode.microbit.org/ - Projects using BBC Micro:Bits in class.
- Google Classroom – Share documents with pupils, set assignments for pupils to complete, set weekly homework, Share links to resources for pupils to use, Share lesson resources electronically.
- Google Drive – Class drives, Staff shared drives, personal file storage drives.
- Google Docs, Google Slides, Google Sheets – Lessons on word processing, presenting and spreadsheet skills.
- TinkerCAD – 3D modelling Software, used to create models that can be printed.
- Online Safety Information - Various resources - https://www.parkgatejm.herts.sch.uk/online-safety/
- Cross curricular resources - TT Rockstars, Numbots, Charanga,
- Elastik – Online assessment tool
- BBC Micro:Bits – Hardware to apply coding skills and knowledge. (1x Class set)
- 3D Printer – Printing 3D models in code club, DT, Computing
- Chromebooks – 4 Class sets upstairs, 1 class set downstairs – Pupils access to Google Classroom and the Internet.

- Project Evolve Online Safety strand resources and knowledge map assessments - https://projectevolve.co.uk/

Year 3 Assessment Endpoints

Working towards ARE
● Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.
● Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges. Children's program designs display a growing awareness of the need for logical, programmable steps.
● Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.
● Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.
● Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge by publishing work. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.
● Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work on Google Classroom. They develop an understanding of using email safely and know ways of reporting inappropriate behaviours and content to a trusted adult.

Working at ARE
● Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.
● Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.
● Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
● Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.
● Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine or internet-wide search engines.
● Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.
● Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact.

Working above ARE
● When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.
● Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'.

- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
- Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.
- Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.
- Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community, i.e. using Virtual Display Boards.
- Children can explore key concepts relating to online safety using concept mapping. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.

Year 4 Assessment Endpoints

Working towards ARE
- Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.
- Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.
- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
- Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.
- Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine or internet-wide search engines.
- Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.
- Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact.

Working at ARE
- When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.
- Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'.
- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
- Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.
- Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.
- Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community, i.e. using Virtual Display Boards.

- Children can explore key concepts relating to online safety using concept mapping. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.

Working above ARE

- Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.
- Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.
- When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.
- Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content.
- Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.
- Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content.
- Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.

Year 5 Assessment Endpoints

Working towards ARE

- When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.
- Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'.
- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
- Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.
- Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.
- Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community, i.e. using Virtual Display Boards.
- Children can explore key concepts relating to online safety using concept mapping. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.

Working at ARE

- Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.
- Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.
- When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.

- Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content.
- Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.
- Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content.
- Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.

Working above ARE

- Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.
- Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.
- Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.
- Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.
- Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.
- Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.
- Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking. They recognise the value in preserving their privacy when online for their own and other people's safety.

Year 6 Assessment Endpoints

Working below ARE

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- Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.
- Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify a wide range of discreet inappropriate behaviours through developing critical thinking. They recognise and can explain the value in preserving their privacy when online for their own and other people's safety.