Harrold Primary Academy

Computing Curriculum

Knowing Computing Past, Present and Future	**Using** Hardware and Software (Digital Literacy)
Computing Manage, Process, Communicate, Automate	

Analysing How Technology Works (Computer Science)	**Creating** Writing Programs (Coding)	**Evaluating** E-Safety and Debugging

Know	Understand	Use	Analyse	Create	Evaluate
Principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.	Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation	Children are responsible, competent, confident and creative users of information and communication technology.	Children can analyse problems in computational terms and have repeated practical experiences of writing computer programs in order to solve problems.	Create programs, systems and a range of content.	Evaluate and select hardware, software and elements of code for particular purposes, with due regard for safety.

Harrold Primary Academy

Computing Curriculum

EYFS

Birth to 5 Matters: Understanding the World – Technology (non-statutory guidance)

Range 5:

- Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support
- Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets
- Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images
- Knows that information can be retrieved from digital devices and the internet
- Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string to suspend the puppet

Range 6:

- Completes a simple program on electronic devices
- Uses ICT hardware to interact with age-appropriate computer software
- Can create content such as video recording, stories, and/or draw a picture on screen
- Develops digital literacy skills by being able to access, understand and interact with a range of technologies
- Can use the internet with adult supervision to find and retrieve information of interest to them

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Reception	Recognise that permission from an adult should be sought before using technology Understand the need for supervision when using the internet Consider what constitutes a healthy balance of 'screen time' Recognise that technological devices can have a high material value, so should be used carefully to avoid damage.		Recognise common uses of information technology beyond school. Roleplay use of telephones, computers Use CD player, remote control for IWB and cameras on iPads Retrieve information from computers, e.g., research on Espresso, or from a weather forecast. Use iPads, the desktop computer and the interactive whiteboard to interact with software including Bug Club, Espresso, phonics and maths games.	Use a range of different **inputs** – touch screen, keyboard, mouse, voice command Understand that computers cannot 'understand' in the same way as humans Recognise that computers are powered by batteries/electricity	Control and program simple toys e.g. Remote control cars, Beebots Control characters on simple iPad apps, e.g. Toca Boca World	

Key Stage 1

National Curriculum: Computing

Pupils should be taught to:

- 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
- 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.

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 1	Create, name and date digital creative work Safely search for images online Understand how to communicate safely online Understand what personal information needs to be kept safe Explore how to use email to safely communicate Apply online safety knowledge to help others make good choices online		Create digital content using Word, PowerPoint, Paint, or equivalent apps Use iPads or Surface Go devices to take videos, photos and voice recordings for a purpose Browse and engage with electronic communication through Microsoft Teams	When a computer does something, it is following **instructions** called **code** Giving computers instructions in code is called **programming** Code can represent **objects** and **actions** Code can be used to make an object do an action when it is **clicked** on or when a **program starts** and these are called **start events** and **click events**	Design and create simple programs Learn how to make own app or game, using click events and start events together Save and share apps so that they can be played on different computers and tablets/iPads **Espresso Units:** **1a On the move** **1b Simple inputs**	

Harrold Primary Academy

Computing Curriculum

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 2	Understand that information shared online leaves a digital footprint Use keywords in an online search to find out about a topic Recognise whether a website is appropriate for children Rate and review websites Identify kind and unkind behaviour online Apply knowledge of safe and sensible online activities to different situations		Create and edit digital content using Word, PowerPoint, Paint and equivalent apps, using a range of skills Create digital multimedia content for an audience, using audio, video, images and text Communicate electronically using Microsoft Teams	An **algorithm** is a set of instructions designed to perform a specific task Algorithms are implemented as programs Programs **execute** by following precise and unambiguous instructions Code is written in lines and needs to be precise Children can think **logically** to understand and explain their own code Objects can be programmed to do actions when a **key** is **pressed** - this is a **key-press event** Objects can be programmed to do an action when a **button** is clicked Different buttons can be programmed to make different actions happen A **character** in a game is an object that can be controlled to do actions using start events, key-press events and click events	Design, create and debug simple programs and games to run on computers and tablets Write code to move an object around a screen when keys are pressed Learn how to move an object on a touch screen using swipes Learn how to program buttons to move an object around a screen Learn how to give instructions to make objects on the screen move when the program starts Use click and start events Learn to make own app or game, programming objects logically with clear instructions and debugging code when there is a problem **Espresso Units:** **2a Different sorts of inputs** **2b buttons and instructions**	

Harrold Primary Academy

Computing Curriculum

Key Stage 2

National Curriculum: Computing

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 3	Know what cyberbullying is and how to address it Understand how websites use advertisements to promote products Create strong passwords and understand privacy settings Safely send and receive emails Explore different ways children can communicate online Use knowledge about online safety to plan a party online		Use a range of apps with proficiency and skill Print, save and retrieve digital content Respond to shared digital content remotely	Code can be programmed to execute at different times - these are called **time events** Time can be used in programming to control **physical systems** such as traffic lights Children use **logical reasoning** to explain how algorithms work and **detect** and **correct errors** as they work Objects can be programmed to **respond** to their **background** or **environment** A **condition** is the ability to test a **variable** against a **value** and act in one way **if** the condition is met by the variable or another way if not Children understand how different **conditional events** are used in computer programming for different purposes and that inputs on a tablet can be different to inputs on a computer Break down a challenge and use **computational thinking** to help them plan and write code	Design, write and debug programs that accomplish specific goals Create simple animations using time events to make objects perform actions in a sequence Program a sequence of objects to appear and disappear at specific times to simulate a physical system (traffic lights) Add own pictures and use time, buttons and click, start, keypress and after events in code to program them Use conditional 'if' statements and the tip function to program a ball to move in a maze game when the tablet/iPad tips Use 'if hit' statements to check if objects have collided Design and make own app using conditional events and debugging code when there is a problem **Espresso Units:** **3a Sequence and animation** **3b Conditional events (Selection)**	

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 4	Identify how a message can hurt someone's feelings and know how to respond to a hurtful message online Use a search engine accurately Understand the term 'plagiarism' and how to avoid it Create a safe online profile Explain how to be a responsible digital citizen Create an online safety superhero character		Organise digital content Use a variety of apps in efficient ways using shortcuts and hyperlinks Create and share digital content remotely	Variables can be used in computer programming A score in an app is written into the code as a variable The value of a variable can change as a result of an input or event, or in response to a condition being met Computers can use variables in **calculations** The concepts of '**repeat**' and '**loop**' allow you to do something repeatedly in a program	Design, write and debug programs that accomplish specific goals, using logical reasoning to explain how own code executes and to detect and correct errors as children work Add own pictures and events and use variables and conditions in own code Use variables to keep track of the score in a game Use conditional events in own code Assign different values to variables and program a computer to use variables in calculations. Count and total up objects simulating a shop till Use a loop to create different types of timers and animations that repeat infinitely Debug when there is a problem **Espresso Units:** **4a Introduction to variables** **4b Repetition and loops**	

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 5	Identify spam emails and what to do with them Write citations for the websites I use for research Create strong passwords Recognise when, why and how photographs we see online may have been edited Apply online safety rules to real-life scenarios		Evaluate and choose appropriate apps to complete given tasks Use a range of advanced formatting skills in a variety of apps Present and publish digital content for particular purposes Communicate and collaborate with groups remotely	Concept of working **iteratively** and **co-ordinates** in code Using negative numbers to alter the location of an object along an x axis when it hits moving waves Understand there are **programming values** specific to iPads Understand the concept of **assigning values** in code to control movements of an object (car), representing friction to speed up or slow down when it meets different surfaces The **value** of a variable can be programmed to **generate randomly** and **change in response** to an event or at set **time intervals** Can use (random) numbers to determine the direction in which an object will move	Use computational thinking to solve challenges Use variables to control the direction and speed of a car within a game Set values and use coordinates in code to control the movements and location of an object Make an object rotate to the orientation (angle) of an iPad Set friction as a variable to affect the speed and movement of a car in a driving game Use random number generation to determine how objects will move and to change their location Create a game using random numbers to move objects at random speeds Distinguish between times when use of a random number is effective and times when it is more appropriate to set a value Create tennis games and pinball games and own apps, using random directions, considering the most appropriate angles to use and choosing own objects and events **Espresso Units:** **5a Speed, direction and coordinates** **5b Random numbers and simulations**	

	E-Safety		Digital Literacy	Computer Science	Coding & Debugging	
	Use	Evaluate	Use	Analyse	Create	Evaluate
Year 6	Find similarities and differences between in-person and cyberbullying and identify good strategies to deal with cyberbullying Identify secure websites by identifying privacy seals of approval Understand the benefits and pitfalls of online relationships and identify information that should never be shared online Identify how the media plays a powerful role in shaping ideas about girls and boys Use knowledge of online safety to create a multiple-choice quiz		Select and combine the use of a range of apps for planned results Target digital content to a remote audience Collect, sort and analyse data digitally Stream multimedia content Safely schedule and engage with face-to-face online meetings	**Properties of an object** can be **dependent** on a variable The value of a variable can be dependent on another variable Values for variables can be input by a user **Algebraic formulae** can be written into code to perform calculations which use variables and outputs can be **written to the screen** to solve maths challenges Code can be used to **detect** the length of a swipe or drag event and set the **speed of a variable** **Parameters** can be set for how objects move by writing code to detect the movements of other objects. **Coordinates**, **conditional events**, **random numbers** and variables can be used in combination to create more sophisticated games	Program own apps, choosing own objects and events and using formulae in code Write code that uses prompt boxes to ask the user to input values for variables Use variables and formulae in code to create an area calculator Create mobile unit conversion apps using variables and calculations to convert between imperial and metric units of measure for different uses (inches to centimetres and miles to kilometres) Use variables and loops to solve maths challenges Create analogue and digital clock apps using code that detects the time from the computer Explore displaying the time and converting between 12 and 24 hour clock formats Use dragend events Create own apps, choosing own objects and events and detecting values to set parameters **Espresso Units:** **6a More complex variables** **6b Object properties**	

Skills Breakdown

To Respect		To Select	To Communicate	To Troubleshoot		To Design
Use	Evaluate	Use	Use	Analyse	Evaluate	Create
Children become aware of the social and emotional impact of technology and learn to use it safely and responsibly, respecting the risks to themselves and others.		Children are taught to select and use the most appropriate approach, software, hardware, and system for a variety of purposes. They understand document storage, organisation, and retrieval. They use digital media to express themselves effectively.	Children use digital devices to record, edit, publish and present ideas with clarity to both local and remote audiences. They use electronic communication in a safe and appropriate way to exchange and collaborate with others.	Children ensure the successful working of algorithms, systems and projects by debugging, evaluating processes and suggesting improvements.		Children use their problem-solving skills to design and create their own apps to achieve a range of ambitious goals.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate		To Troubleshoot		To Design
		Analyse	Evaluate	Use		Analyse	Evaluate	Create
Surface learning	**Reception**	**To respect:** with support and modelling, I can sort between online and offline toys and devices. **To respect:** with support and modelling, I treat technology with respect, showing awareness that devices can be damaged and have a high material value.		**To select/communicate: with support and modelling/ with support/ independently** I can operate simple equipment, e.g. turn on CD player, use remote control, can navigate touch-capable technology with support. I show an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets. I know that information can be retrieved from digital devices and the internet. I can complete a simple program on electronic devices. I use ICT hardware to interact with age-appropriate computer software. I can select, access, understand and interact with a range of technologies with a particular purpose in mind. I can use the internet with adult supervision to find and retrieve information of interest to me.		**To troubleshoot:** I show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. **To troubleshoot:** I play with a range of materials to learn cause and effect, for example, make a string puppet using dowels and string to suspend the puppet.	**To design:** with support and modelling I can create content such as video recordings, stories, and/or draw a picture on screen.
Enhanced Learning		**To respect:** with modelling, I can acknowledge that the internet is a public place and can sort between online and offline toys and devices, making prediction about the likelihood of internet capability. **To respect:** with modelling, I treat technology with respect, showing awareness that devices can be damaged and have a high material value.				**To troubleshoot:** I play with a range of materials to learn cause and effect and explain how things work, with support.		**To design:** with modelling I can create content such as video recordings, stories, and/or draw a picture on screen.
Deep Learning		**To respect:** I understand that the internet is a public place that presents risks and can independently sort between online and offline toys and devices, making predictions about the likelihood of internet capability. **To respect:** I habitually treat technology with respect, showing awareness that devices can be damaged and have a high material value.				**To troubleshoot:** I play with a range of materials to learn cause and effect and independently explain how things work.		**To design:** I can independently create content such as video recordings, stories, and/or draw a picture on screen.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	**Year 1**	**To respect:** with support and modelling, I can recall some of the SMART rules for internet safety. **To respect:** with support and modelling, I can explain who to tell if someone online asks for personal information. **To respect:** with support and modelling, I can choose the correct Safe Search filter when using a search engine.		**To select/communicate: with support and modelling/ with support/ independently** **Systems Skills** I can login to a computer/website using a card with my login details written down. I can swipe, drag and drop on a touchscreen. I can use a touchpad mouse to open programs. I can minimise close and minimise windows. **Word Processing** I can type words using the sounds that I have learnt on a digital device. I can use the space bar to create spaces and backspace to delete letters/words. I can make a new line using enter/return. **Presentations** I can create a simple PowerPoint presentation using a template. I can create new slides of different types. I can add pictures and type text into my presentation. **Data handling** I can sort images or text into two or more categories on a digital device. I can create a tally chart and pictogram using Activinspire software. **Multimedia** I can recognise text, images and sound when using technology. I can use a Surface Go device or iPad to take photographs and record my voice. I can use paint programs such as Microsoft Paint and Activinpire to create pictures. **Electronic Communication** I understand that people can communicate remotely using technology, through text, pictures and videos. I can recognise different forms of digital communication (e.g. email addresses, Twitter handles) I can browse Teams and 'react' to posts to express my thoughts or feelings.	**To troubleshoot:** with support and modelling I can understand that computers are programmed with instructions, referred to as 'code'. **To troubleshoot:** with support and modelling I can recognise 'objects', 'actions', 'start events', and 'click events' within algorithms.		**To design:** with support and modelling I can design, create and share my own game using a click event and start event.
Enhanced Learning		**To respect:** with modelling, I can recall all of the SMART rules for internet safety. **To respect:** with modelling, I can recognise which personal information I should keep safe from strangers. **To respect:** with modelling, I can choose the correct Safe Search filter when using a search engine.			**To troubleshoot:** with modelling I can understand that computers are programmed with instructions, referred to as 'code'. **To troubleshoot:** with modelling I can recognise and use the correct vocabulary for 'objects', 'actions', 'start events', and 'click events' within algorithms.		**To design:** with modelling I can design, create and share my own game using a click event and start event.
Deep Learning		**To respect:** I can independently recall the SMART rules for internet safety. **To respect:** I recognise which personal information I should keep safe from strangers. **To respect:** I can independently choose the correct Safe Search filter when using a search engine.			**To troubleshoot:** I can independently understand that computers are programmed with instructions, referred to as 'code'. **To troubleshoot:** I can independently recognise and use the correct vocabulary for 'objects', 'actions', 'start events', and 'click events' within algorithms.		**To design:** I can independently design, create and share my own game using a click event and start event.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	**Year 2**	**To respect:** with support and modelling, I can explain what a digital footprint is. **To respect:** with support and modelling, I can begin to identify possible dangers online. **To respect:** with support and modelling, I can begin to consider who a website might be aimed at.		**To select/communicate: with support and modelling/ with support/ independently** **Systems Skills** I can login to a computer/website, remembering my own login details. I can open a familiar program using the start menu. I can double click to open shortcuts. I can open websites that are saved as 'favourites'. **Word Processing** I can use index fingers (left and right hand) on a keyboard to build words & sentences. I can use the space bar only once between words. I can use caps locks for capital letters. I can change the font and style of text. **Presentations** I can import images to a project from the web and from the server. I can order images to create a simple storyboard. I can add a caption to an image. I can add sound to a slide. I can add a speech bubble to an image. I can create a simple spider diagram. **Data handling** I can sort digital images/text into Venn diagrams and Carroll diagrams (e.g. using ActivInspire). I can enter simple data into an Excel spreadsheet. **Multimedia** I can record my own voice and play it back to an audience. I can use a video or photos to record an activity. I can add text and images to a template document to create a newsletter. **Electronic Communication** I can create new posts and reply to existing posts in Teams to communicate with my classmates. I can use emojis to express my feelings. I understand when reactions and emojis are appropriate and how they might make others feel.	**To troubleshoot:** with support and modelling I can understand what algorithms and programs are. **To troubleshoot:** with support and modelling I can recognise a range of inputs and outputs and how they interact with code. **To troubleshoot:** with support and modelling I can recognise key-press and click events.		**To design:** with support and modelling I can create my own app or game to work on a computer or tablet, programming objects logically with clear instructions and debugging code when there is a problem.
Enhanced Learning		**To respect:** with modelling, I can explain what a digital footprint is. **To respect:** With modelling, I can identify possible dangers online. **To respect:** with modelling, I can explain how to identify websites suitable for my age.			**To troubleshoot:** with modelling I can understand what algorithms and programs are. **To troubleshoot:** with modelling I can recognise a range of inputs and outputs and how they interact with code. **To troubleshoot:** with modelling I can recognise key-press and click events.		**To design:** with modelling I can create my own app or game to work on a computer or tablet, programming objects logically with clear instructions and debugging code when there is a problem. **To design:** I can predict the outcome of a set of instructions in block code.
Deep Learning		**To respect:** I can independently explain what a digital footprint is and how it is generated. **To respect:** I can identify possible dangers online and explain what to do about them. **To respect:** I can choose appropriate websites for my age.			**To troubleshoot:** I can independently understand what algorithms and programs are. **To troubleshoot:** I can independently recognise a range of inputs and outputs and how they interact with code. **To troubleshoot:** I can independently recognise key-press and click events.		**To design:** I can independently create my own app or game to work on a computer or tablet, programming objects logically with clear instructions and debugging code when there is a problem. **To design:** I can appreciate that some algorithms are more efficient than others.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	Year 3	**To respect:** with support and modelling, I navigate websites and apps, with minimum supervision, only leaving the domain with permission. **To respect:** with support and modelling, I recognise cyberbullying and can identify a safe person to tell if I encounter it. **To respect:** with support and modelling, I can identify targeted adverts online and explore how companies use websites to promote products. **To respect:** with support and modelling, I can create a strong password.		**To select/communicate: with support and modelling/ with support/ independently** **Systems Skills** I can navigate the start bar, File Explorer and the default web browser to find the app or file that I need. I can create a 'favourite' website. I can print, save and load (retrieve) my work on a range of devices. I can use search technologies effectively, safely refining and sorting results. I can use a webpage as a resource to find information. **Word Processing** I can use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g, and use right fingers for h/j/k/l. I can use the shift key to capitalise letters. I can edit the style and effect of my text and images to make my document more reader-friendly. For example, by using bold/italic/underline. I can use cut, copy and paste to quickly duplicate and organise text. I can insert images into a document that are saved on my computer. **Presentations** I can create an interactive presentation with sounds, formatted text and video. I can change the order of slides, inserting new slides in between existing slides. I can present to a group using the presentation function. **Data handling**. I can create a branching database using yes and no questions in PowerPoint. I can use simple formulae to add and subtract values in an Excel spreadsheet. I can create simple block graphs and pie charts using Excel. **Multimedia** I can use an increasing variety of tools and effects in paint programs and talk about my choices. I can take and edit photographs by cropping, resizing, rotating and changing the colour effects. I can create a simple podcast. **Electronic Communication** I can begin a thread on Microsoft Teams and reply to posts. I can download and view attachments on Teams posts. I can browse and leave feedback on Stream videos. I can explore and find information from the school website.	**To troubleshoot:** with support and modelling I can recognise time events and conditional events. **To troubleshoot:** with support and modelling I can use logical reasoning to explain how algorithms work and detect and correct errors. **To troubleshoot:** with support and modelling I can understand how code can interact with physical systems and environments.		**To design:** with support and modelling I can design, write and debug programs that accomplish specific goals using conditional statements.
Enhanced Learning		**To respect:** with modelling, I navigate websites and apps internally, with minimum supervision, only leaving the domain with permission, and articulating the risks of unsupervised navigation. **To respect:** with modelling, I can recognise and define cyberbullying and can identify safe people to report it to. **To respect:** with modelling, I can identify a range of targeted online adverts and explain how companies use websites to promote products. **To respect:** with modelling, I can create a strong password, explaining why it is important.			**To troubleshoot:** with modelling I can recognise time events and conditional events. **To troubleshoot:** with modelling I can use logical reasoning to explain how algorithms work and detect and correct errors. **To troubleshoot:** with modelling I can understand how code can interact with physical systems and environments.		**To design:** with modelling I can design, write and debug programs that accomplish specific goals using conditional statements.
Deep learning		**To respect:** independently I navigate websites and apps internally, with minimum supervision, only leaving the domain with permission, articulating the risks of unsupervised navigation. **To respect:** with modelling, I can recognise and define cyberbullying, the effect it has, and can give examples of people I can report it to, explaining why they are good choices. **To respect:** with modelling, I can identify a range of targeted online adverts and explain how companies use websites to promote products. **To respect:** I can identify a range of targeted online adverts and explain how companies use websites and other online methods to promote products. **To respect:** I can create a strong password, explaining why it is important and giving tips to help others create a strong password.			**To troubleshoot:** I can independently recognise time events and conditional events. **To troubleshoot:** I can independently use logical reasoning to explain how algorithms work and detect and correct errors. **To troubleshoot:** I can independently understand how code can interact with physical systems and environments.		**To design:** I can independently design, write and debug programs that accomplish specific goals using conditional statements.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	**Year 4**	**To respect:** with support and modelling, I can explain how to respond to a hurtful message or comment online. **To respect:** with support and modelling, I can explain what plagiarism is. **To respect:** with support and modelling, I can explain what a digital citizen is.		**To select/communicate: with support and modelling, with support, independently I can login to computers and programs** **Systems Skills** I can organise my saved files in File Explorer by creating new folders and moving, duplicating and deleting files and folders. I can organise my 'favourites' in a web browser using the favourites bar. I can use keyboard shortcuts such as ctrl c (copy), ctrl v (paste), ctrl z (undo) and ctrl y (repeat). I can order and filter search results on a search engine.	**To troubleshoot:** with support and modelling I can understand variables and what can influence them. **To troubleshoot:** with support and modelling I can recognise repeats and loops in code.		**To design:** with support and modelling I can design, write and debug programs that accomplish specific goals, using logical reasoning to explain how own code executes and to detect and correct errors. **To design:** with support and modelling I can use variables and loops for different purposes.
Enhanced Learning		**To respect:** with support I can explain how to respond to a hurtful message or comment online and identify comments or messages that may be hurtful to others. **To respect:** with modelling, I can explain what plagiarism is and how to use another person's work respectfully. **To respect:** with modelling, I can explain how to be a good digital citizen.		**Word Processing** I can combine digital content from different sources to create stories, reports, scripts and letters. I can use font sizes appropriately for an audience and purpose. I can use the spell check and thesaurus functions of Microsoft Word. I can edit the margins of my document. I can choose the appropriate text-wrapping format for a shape or picture. **Presentations** I can use hyperlinks, transitions and buttons to create and interactive presentation. I can record timings for a presentation.	**To troubleshoot:** with modelling I can understand variables and what can influence them **To troubleshoot:** with modelling I can recognise repeats and loops in code.		**To design:** with modelling I can design, write and debug programs that accomplish specific goals, using logical reasoning to explain how own code executes and to detect and correct errors. **To design:** with modelling I can use variables and loops for different purposes.
Deep Learning		**To respect:** I can explain how to respond to a hurtful message or comment online and understand why other people may be hurt by my messages or comments. **To respect:** I can explain plagiarism and how to use other people's work respectfully. **To respect:** I can explain how being a good digital citizen is linked to being a good citizen in real life.		**Data handling** I can create my own multiple-choice questionnaire using Microsoft Forms. I can input data into a spreadsheet and export the data in a variety of diagrams and charts, choosing the most appropriate for the data in question, labelling the axis and adding a title. I can order and format cell borders, types, text and colour to make the data easier to read and digest. **Multimedia** I can explore evaluate the use of multimedia to enhance communication. I can use a range of effects in art programs including brush sizes, repeats, rotations and reflections. I can Animate and add effects to objects in PowerPoint. I can create music for a digital project. **Electronic Communication** I can attach files to my Microsoft Teams posts. I can create, share and collaborate on a Microsoft document.	**To troubleshoot:** I can independently understand variables and what can influence them **To troubleshoot:** I can independently recognise repeats and loops in code.		**To design:** I can independently design, write and debug programs that accomplish specific goals, using logical reasoning to explain how own code executes and to detect and correct errors **To design:** I can independently use variables and loops for different purposes.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	**Year 5**	**To respect:** with support and modelling, I can identify a spam email and explain what to do with it. **To respect:** with support and modelling, I can create a strong password, using a set of rules. **To respect:** With support and modelling, I can explain why I should cite a source. **To respect:** With support and modelling, I can explain why I should cite a source. **To respect:** with support and modelling, I recognise that not everything I see online is true.		**To select/communicate: with support and modelling, with support, independently I can login to computers and programs** **Systems skills** I can choose an appropriate program to accomplish a given task. I can export files as different types, including printing to PDF. I can open previous versions of a document. **Word Processing** I can use hyperlinks in my documents. I can organise and reorganise text on screen to suit a purpose. I can format paragraphs to space my document appropriately and create columns. I can use bullets and numbering to create lists. I can create a simple table in Microsoft Word. I can use the 'find and replace' function to edit my document. I can layer objects in a document. **Presentations** I can create and export an interactive presentation including a variety of media, animations, transitions and other effects. I can format pictures in a document to create 'buttons' for hyperlinks. I can record a slideshow with audio or video. I can use the 'presenter notes' function to aid me in presenting. I can export my Presentation to video format. I can print slides, handouts and notes pages. **Data handling** I can create and publish my own questionnaire on Microsoft Teams, using Microsoft Forms and then analyse the results. I can use simple formulae to solve calculations including using + - / * and sum. I can format cells in a spreadsheet for different purposes (currency, sum, general). **Multimedia** I can explore how multimedia can create atmosphere & appeal to different audiences I can use art programs & online tools to modify photos for a specific purpose using a range of effects. I can create and publish a video for a purpose on the school Stream channel I can use Microsoft Sway to create a digital newsletter. **Electronic Communication** I can compose, send and reply to emails. I can add attachments to emails and Microsoft Teams posts, formatting my post to make it appealing to the reader. I can write a blog post for the school website. I can participate in a meeting on Microsoft Teams using the 'mute', 'camera on/off' and 'hands up' options.	**To troubleshoot:** with support and modelling I can understand how values are assigned to control movements of objects in algorithms. **To troubleshoot:** with support and modelling I can recognise where values of variables are generated randomly and in response to events or at set time-intervals.		**To design:** with support and modelling I can use computational thinking to solve challenges. **To design:** with support and modelling I can create games that use variables to make objects move in random directions and at random speeds within appropriate parameters.
Enhanced Learning		**To respect:** with modelling, I can identify a dangerous spam email and explain what to do with it. **To respect:** with modelling, I can create multiple strong passwords for use across different platforms. **To respect:** with support and modelling, I can explain why I should cite a source and spot citations online. **To respect:** with support and modelling, I recognise that not everything I see online is true and alter a photograph.			**To troubleshoot:** with modelling I can understand how values are assigned to control movements of objects in algorithms. **To troubleshoot:** with modelling I can recognise where values of variables are generated randomly and in response to events or at set time-intervals.		**To design:** with modelling I can use computational thinking to solve challenges. **To design:** with modelling I can create games that use variables to make objects move in random directions and at random speeds within appropriate parameters.
Deep Learning		**To respect:** with support and modelling, I can identify a dangerous spam email, explain what to do with it and what steps to take to avoid receiving spam. **To respect:** I can create multiple strong passwords for use across different platforms and explain why having a strong password is important. **To respect:** with support and modelling, I can explain why I should cite a source, spot citations online and cite a website source. **To respect:** with support and modelling, I recognise that not everything I see online is true, alter a photograph and explain how false photographs make people feel bad about themselves.			**To troubleshoot:** I can independently understand how values are assigned to control movements of objects in algorithms. **To troubleshoot:** I can independently recognise where values of variables are generated randomly and in response to events or at set time-intervals.		**To design:** I can independently use computational thinking to solve challenges. **To design:** I can independently create games that use variables to make objects move in random directions and at random speeds within appropriate parameters.

Harrold Primary Academy

Computing Curriculum

Depth of Learning		To Respect		To Select / To Communicate	To Troubleshoot		To Design
		Analyse	Evaluate	Use	Analyse	Evaluate	Create
Surface learning	Year 6	**To respect:** with support and modelling, I can identify warning signs that a website might not be secure. **To respect:** with support and modelling, I can explain some of the dangers of revealing personal information to an online friend. **To respect:** with support and modelling, I can compare bullying and cyberbullying. **To respect:** with support and modelling, I can explain what a stereotype is.		**To select/communicate: with support and modelling, with support, independently** **I can login to computers and programs** **Systems skills** I can select and combine the use of a range of apps to achieve a planned result. I can use sharing and privacy settings to choose who can access my content **Word Processing** I can confidently choose the best application to use for a given purpose. I can format text to suit a purpose. I can use the 'style' function on Microsoft Word to standardise headings throughout a document and create a contents page. I can publish my documents online and discuss the audience and purpose of my content. **Presentations** I can independently collect and present data. I can collect information and media from a range of sources, considering copyright issues, into a presentation for a specific audience. I can evaluate my own content and consider ways to improve it. I can record and export my presentation to video format and share it on Stream **Data handling** I can analyse the results of my own Microsoft Forms survey by manipulating results data in Excel. I can design and compile spreadsheet formulae to solve more challenging maths problems. I can use conditional formatting to visually sort data values. I can analyse data using appropriate graphs and charts of my choosing. **Multimedia** I can explore the effects of multimedia (photos, video, sound) in a presentation or video and show how they can be modified. I can use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness. I can publish and share my multimedia creations to Microsoft Teams and Microsoft Stream. **Electronic Communication** I can send a group email to a selected audience using the CC and forward functions. I can use hashtags to sort my Stream uploads and amend the privacy setting to target an audience. I can use hyperlinks to direct readers of my Teams posts to direct them to channels, files and websites. I can design and create a range of content for the school website, including hyperlinks, pictures and file uploads. I can use a Wiki to collaborate on a project. I can create an event using the calendar function of Outlook, inviting selected classmates. I can safely videocall using Skype and Microsoft Teams.	**To troubleshoot:** with support and modelling I can understand that variables can be dependent on other variables, which can be defined by users' inputs. **To troubleshoot:** with support and modelling I can understand the use of algebraic formulae in algorithms. **To troubleshoot:** with support and modelling I can recognise where coordinates, conditional events, random numbers and variables have been used in combination.		**To design:** with support and modelling I can program my own app, choosing my own objects and events and using formulae. **To design:** with support and modelling I can write code that detects user input values to set parameters.
Enhanced Learning		**To respect:** with modelling, I can check for security by looking in the address bar of a website for the lock symbol. **To respect:** with modelling, I can explain why someone might have an online friendship and identify the dangers of revealing personal information to them. **To respect:** with modelling, I can explain why cyberbullying can be as harmful as in-person bullying. **To respect:** with modelling, I can explain why a stereotype can be harmful and compare gender stereotypes.			**To troubleshoot:** with modelling I can understand that variables can be dependent on other variables, which can be defined by users' inputs. **To troubleshoot:** with modelling I can understand the use of algebraic formulae in algorithms. **To troubleshoot:** with modelling I can recognise where coordinates, conditional events, random numbers and variables have been used in combination.		**To design:** with modelling I can program my own app, choosing my own objects and events and using formulae. **To design:** with modelling I can write code that detects user input values to set parameters.
Deep Learning		**To respect:** I can check for security by looking in the address bar of a website for the lock symbol and finding a link for a privacy policy. **To respect:** I can explain why someone might have an online friendship and identify the dangers of revealing personal information to them. **To respect:** I can explain why cyberbullying can be as harmful as in-person bullying. **To respect:** I can explain why a stereotype can be harmful and identify a gender stereotype in a media message.			**To troubleshoot:** I can independently understand that variables can be dependent on other variables, which can be defined by users' inputs. **To troubleshoot:** I can independently understand the use of algebraic formulae in algorithms. **To troubleshoot:** I can independently recognise where coordinates, conditional events, random numbers and variables have been used in combination.		**To design:** I can independently program my own app, choosing my own objects and events and using formulae. **To design:** I can independently write code that detects user input values to set parameters.

Cross-Curricular Opportunities

Art and Design

Children use digital technology including photography, video and sound recording as part of the artistic process. They make digital art including moving pictures, sound, graphics, and photography. They safely use the internet as a virtual art gallery.

Dance

Children are supervised to access musical and visual stimulus, using the internet. They can view online dances across a variety of cultures and traditions.

Children record their dances for evaluation purposes and to share them through electronic communication platforms.

History

Online access to primary and secondary sources adds value to children's History learning. Children can experience online museums and locations of historical significance remotely. In contrasting more than one source, an important message may be learned about the reliability of online information and how much we trust websites.

Geography

Digital mapping software is used by children to map routes, compare terrains, and learn about countries, continents and oceans.

The internet enables children to remotely experience distant locations and participate in supervised electronic correspondence with peers around the world.

Languages

The use of interactive online games supports the children's language learning.

Children are supported to use the internet as a resource for discovering labels, graphics, design, packaging, and images from foreign cultures, to contrast with our own.

Mathematics

There is shared skill development in: breaking down problems into logical steps, writing logical algorithms, and troubleshooting poor logic.

Children use spreadsheet and database software to support their learning in statistics and data handling.

They use a variety of applications to consolidate their number bond and times table recall and their subitising skills.

Music

Children record, manipulate, edit, layer and mix singing and other musical performances.

They learn about file formats, downloading and converting musical recordings and the associated risks and legal

English

Children communicate effectively online for a variety of purposes and audiences. They present using digital technology and are able to play back and evaluate their spoken work.

Children draft and redraft texts using word processing software. They access literature online and support their early reading skills using appropriate digital apps.

Physical Education

Children use results spreadsheets, video and still photography to evaluate, analyse and improve performance. They use internet archives to learn about sporting heroes and study the techniques of athletes.

Religious Education

Children use the internet to access religious source materials, holy texts and stories. They record their ideas, beliefs and opinions digitally, using computers to express learning creatively.

Science

Certain applications such as data loggers lend themselves to science. Children should use spreadsheets to log data, statistics and findings, applying maths and science to computing. In addition, the concepts of computer science should be taught, including logic, abstraction and representation.

SMSC

The ethics of online communication and the perils of data sharing runs through the computing curriculum where e-safety is represented by the "to respect" strand. Respecting others and taking responsibility for our own safety and the consequences of our actions, underpins the teaching of e-safety.