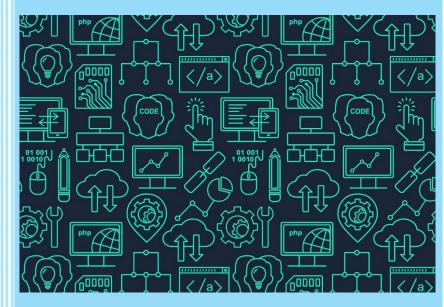
2019

Curriculum Skills and Progression Map Computing





The Nebula Federation

Hainford VC Primary School



	Computing Curriculum	
Early Years	Key Stage One	Key Stage Two
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes	 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. 	 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



Skills Map – Computing			
Early Years – Computing			
Shaping the Digital World	Communicating in the Digital World		
 Most children should be able to: Play with equipment that simulates control devices (push button toys) Play with simple adventure programme or simulation Explore outcomes when individual buttons are pressed on a robot 	 Most children should be able to: Begin to understand that technology can be used to communicate ideas in different ways Begin to use a keyboard (with support) and notice the effect on screen Understand there are a variety of tools in an art package Understand that cameras can take still and moving image (video) Understand that technological devices can be used to record and play back sounds 		
Exploring the Digital World	Online Safety		
 Most children should be able to: With help search for and choose images from the internet With support enter text into a search engine to find specific given web sites Contribute to whole class creation of pictograms Begin to develop simple classification skills by carrying out simple sorting activities Start to recognise simple technologies in the world around them 	 Most children should be able to: With help save their own content in their own electronic folder Understand their logon to a site is personal to them Know some personal information (name, address, age) Know to tell a trusted adult if anyone asks them to do something that makes them feel sad, embarrassed or upset Know to tell someone if they view content they think is inappropriate or upsetting 		



Skills Map – Computing		
Year 1 – Computing		
Painting	Programming Toys	Programming with ScratchJr
 Most children should be able to: Paint with different colours Paint with different shapes Create shapes Some children will be able to:	 Most children should be able to: Create step-by-step instructions using pictures Write and follow detailed step-by-step instructions Direct a Bee-Bot to a toy 	 Most children should be able to: Open the ScratchJr app and start a new project Add new characters and backgrounds Use blocks for movement in different directions
 Save their paintings in their folder Fill an area with colour Undo and redo 	 Program a Bee-Bot, one instruction at a time, using the arrow buttons 	Create short sets of sequenced instructions
• Add text	 Some children will be able to: Say what an algorithm is Say why it is important to be precise when writing an algorithm Check their work for mistakes (debug) Program a Bee-Bot using the arrow buttons Start their programming sequence again if they need to Check their work for mistakes to debug a program Plan and check an algorithm 	 Use different end blocks, including repeat forever Change the size of characters to grow or shrink Hide and show characters with an instruction block Program two or more characters with instructions at the same time
Computer Skills	Word Processing Skills	
 Most children should be able to: Click and drag with a mouse or trackpad. Switch on and shutdown a computer independently Launch an application by double clicking it 	 Most children should be able to: Type with two hands Use shift, space and enter correctly Use undo and redo Make text bold, italic or underline 	



 Some children will be able to: Log on and log off on a computer independently Manipulate an application window by moving and resizing it 	 Some children will be able to: Save their work in their folder Edit text using backspace, delete and the arrow key Format the font Select single words. 	
	Year 1 - Greater Depth	
Painting	Programming Toys	Programming with ScratchJr
 Format text Resize text and images 	 See how a product changes when they change the instructions Evaluate and improve their sequence (debug) 	 Use a repeat block for a section of instructions and specified number of times Predict the behaviour of a character, based on a sequence of instructions Edit the colours and other features of characters or sprites Create longer sequences of more complex instructions
Computer Skills	Word Processing Skills	
 Confidently double click with a mouse or trackpad Save their work in their folder independently. 	 Have some knowledge of the location of letters and symbols on the keyboard Select text in different ways 	



	Skills Map – Computing	
	Year 2 – Computing	
Computer Art	Preparing for Turtle Logo	Programming Turtle Logo and Scratch
 Most children should be able to: Access an appropriate program for achieving a specific task Switch between program tools to produce different techniques Alter the formatting of a tool to adjust the colour or size Some children will be able to: Recreate a piece of art using a computer program Manipulate shapes and objects to recreate an art style 	Most children should be able to: • Walk forward a number of steps Some children will be able to: • Turn accurately 90° (a quarter turn) • Walk squares and rectangles • Give and follow instructions	 Most children should be able to: Draw lines of different lengths using the fd command Move blocks into the Scripts Area Snap blocks together to combine commands Some children will be able to: Turn the turtle using rt 90 and lt 90 Draw squares and rectangles Create simple algorithms using a number of different blocks Use the repeat and green flag blocks to control algorithms
Presentation Skills	Using the Internet	
Most children should be able to:	 Most children should be able to: Search using the words "for kids" Follow a weblink Locate their own blog Understand how to blog safely and responsibly. Some children will be able to: Identify search results that will give some useful information Know where to find the address of a link Log in and post a blog or comments 	



Year 2 - Greater Depth		
Computer Art	Preparing for Turtle Logo	Programming Turtle Logo and Scratch
Select appropriate tools with confidence and independence	 Write an algorithm for a shape or a route Debug errors in an algorithm 	 Write an algorithm for a shape Use the repeat command Combine a range of blocks to achieve a purpose Use more than one sprite and combine algorithms
Presentation Skills	Using the Internet	
 Save files in an organised folder structure Search for files on the computer Set windows side by side Format text boxes and images Reorder slides and present their presentation 	 Recognise common websites to which search results are linked Upload photos to a blog 	



Skills Map – Computing		
Year 3 – Computing		
Drawing and Desktop Publishing	Programming Turtle Logo and Scratch	Word Processing
Most children should be able to:	Most children should be able to: Create and debug algorithms to draw regular polygons using the repeat command/ block (Turtle Logo and Scratch) Some children will be able to: Draw shapes with spaces between using penup and pendown (Turtle Logo) Change and alter the pen settings (Scratch)	Most children should be able to: Use undo and redo Make text bold, italic or underline Select text in different ways Change case Align text Some children will be able to: Select single words Cut, copy and paste text Format the font Insert images Copy a screenshot into another application Use a secure password Use keyboard shortcuts
Presentation Skills	Internet Research and Communication	
 Most children should be able to: Create a simple presentation Create shapes Some children will be able to: Create a hyperlink to another slide 	To know and understand how word order affects the results returned They will know how to bookmark or favourite a page and name different types of online communication	
 Use slide transitions Insert audio and video files Record audio onto a slide Plan a branching story Create simple slide templates 	 Children will know what to do if they feel uncomfortable when communicating online They will be able to identify how they should behave online 	



Copy and organise slides as required	 Some children will be able to: Identify which word order gives the better results when searching online and be able to support this with examples They will be able to share a webpage with others Children will be able to research the different types of online communication used by their peers 	
	Year 3 - Greater Depth	
 Drawing and Desktop Publishing Manipulate objects Create a layout of objects with no unnecessary space using colour and font effectively 	Programming Turtle Logo and Scratch Draw regular polygons using Logo to calculate the angle (Turtle Logo) Create and debug algorithms to draw patterns by repeating regular polygons	 Word Processing Select text in different ways Format images Use an effective layout Use the Snipping Tool
Presentation Skills	(Scratch) Internet Research and Communication	 Use bullets and numbering effectively Insert and format text boxes effectively
 Use animations to introduce objects to a slide Find out which audio and video formats work in a particular presentation application Can set when the audio or video plays Can evaluate the layout of presentation slides effectively 	 Explain why particular results are returned by a search engine They will be able to explain who can access their online communication when they use different forums Children will know how and why online activity leaves a digital footprint 	



Skills Map – Computing		
Year 4 – Computing		
Animation	Programming Turtle Logo	Scratch: Questions and Quizzes
 Explain what is meant by animation Create a series of linked frames that can be played as a short animation Control and adjust a time slider to locate a different point in a film clip Insert images to create a simple stopmotion animation short film clip Evaluate the good and bad points about some animation software Describe one or more traditional methods of animation Make slight changes to an image using onion skinning, understanding the term Use a time slider to find a specific point in a film clip to insert or edit an object Edit and refine images in a stop-motion animation short film clip Compare different animation software by analysing good and bad points. 	 Most children should be able to: Write procedures using simple algorithms Change the colour of the pen Write text using the label command Some children will be able to: Draw shapes using setpos or setxy Fill shapes in different colours Draw arcs of different sizes as required 	 Write a program which accomplishes a specific goal Create a program that includes a logical sequence Debug a program they have written Some children will be able to: Use repetition and selection Work with variables and adjust these depending on the effect they wish to create Understand and use the duplicate function Demonstrate that they understand how to combine a range of different effects to create their own quiz.
Word Processing		
 Most children should be able to: Select, edit and manipulate text in different ways Insert an image into a document Format an image 		



 Use formatting tools to improve the layout Use the spellcheck tool Insert a simple table Change the size of the page Some children will be able to: Use some of the main keyboard shortcuts Suggest ways to improve a layout Apply specific effects to an image Add a spelling to the spelling dictionary Add or delete rows or columns in a table Suggest ways to change a table Type at an appropriate speed Choose a relevant website to link a document to Create a hyperlink 		
	Year 4 - Greater Depth	
Animation	Programming Turtle Logo	Scratch: Questions and Quizzes
 Explain how computer software has improved animation techniques Edit and refine still images with multiple layers of onion skins Make extensive use of a time slider to animate multiple objects simultaneously Use webcam or digital camera to create their own images for a stop-motion animation short film clip Recognise limitations of animation software and suggest improvements 	 Create sophisticated algorithms and procedures Include procedures with variables 	 Design a program Successfully decompose a problem into its smaller parts Analyse the software to check it is fit for purpose Build on their existing knowledge to experiment and innovate when programming.



Word Processing	
 Change a homophone that is in the incorrect form Format the borders of the cells within a 	
 Apply their knowledge of tools and techniques to improve the layout of a document 	
 Change the background colour of the page Format a hyperlink and find an appropriate place to insert it 	



Skills Map – Computing Year 5 – Computing		
Most children should be able to:	Most children should be able to:	Most children should be able to:
 Draw 2D shapes or lines Draw simple 3D models Manipulate 2D shapes into 3D shapes Import 3D models from the 3D warehouse Use a range of SketchUp tools including: shape, push, pull, orbit, pan, zoom, erase and fill 	 Record and play their own sounds in recording software Import an existing sound file into recording software to play Choose appropriate software for sound recording Plan and record a radio advert 	 Move and edit blocks as part of an algorithm Some children will be able to: Program an algorithm as a sequence of game instructions with actions and consequences
 Some children will be able to: Draw and manipulate 3D models independently Use inference points to draw lines and shapes Use a wide range of SketchUp tools and concepts including: the dimensions toolbar and guides, tape measure, zoom extents and the 3D warehouse 	 Listen to and improve on their own recordings by re-recording Locate and download existing sound files to be imported into recording software Combine two or more tracks to make a new, original recording Plan and record appropriate audio content for a podcast Evaluate what features makes good quality audio content 	
Flowol	Internet Research and Webpage Design	
Most children should be able to:	Most children should be able to:	
 Follow written instructions to draw a simple flowchart Insert symbols into a flowchart Add inputs into a flowchart Identify conventional symbols, understanding the process of each stage 	 Comment on the features and layout of a webpage Create a new webpage with a chosen layout and format text in the webpage Independently search for images that can be used in document 	



 Some children will be able to: Create a program to control a simple sequence Modify symbols in a flowchart for effect Create flowcharts for multiple inputs and outputs Use decisions and subroutines Program inputs and outputs 	 Some children will be able to: Insert and format an image in a webpage Independently create a hyperlink Learn how to share a webpage so it can be viewed by anyone Use the advanced features of Google's web search 	
	Year 5 - Greater Depth	
3D Modelling: SketchUp	Radio Station	Scratch 3.0 Developing Games
 Draw and manipulate scale 3D models Select the correct tools for different features Independently use a wide range of SketchUp tools and concepts including: making groups and components, offset, inference, arc, scale and follow me (only on the large toolbar) 	 Enhance sound recordings using software effects Be discerning about the digital content of existing sound files and their suitability Rehearse and improve script ideas based on their own evaluation Present audio information confidently and clearly 	Add additional effects and features, such as sound or point scoring, to enhance the appeal of a game
Flowol	Internet Research and Webpage Design	
 Solve a given problem independently with a flowchart solution, organized into multiple subroutines Create a program to control a sequence with variables 	 Understand and explain bias and authority in webpages Know how to use the different share settings in Google Sites 	



Skills Map – Computing			
Year 6 – Computing			
Film-Making	Scratch: Animated Stories	Kodu Programming	
 Most children should be able to: Plan and write a script using appropriate software Search for relevant information using appropriate websites Use a digital video camera (or similar device) to record Plan suitable questions to ask an interviewee Import video files into video editing software Some children will be able to: Plan additional elements for film-making such as locations and props Evaluate whether information is reliable or not Speak clearly into the camera when being recorded Frame an appropriate filming shot when interviewing Arrange video files to form a complete film 	Most children should be able to: Select appropriate characters to match a scene Animate characters with movement and speech in a story scene Use broadcast and receive blocks correctly in code Use show and hide blocks correctly in code Some children will be able to: Create a sequence of story scenes with added audio Structure and sequence the animation of characters in each scene Use the repeat command to create animation effect Make a character visible or invisible at the correct times	 Most children should be able to: Open Kodu and navigate the programming environment using keyboard or mouse Add objects to a world and program them using When and Do instructions Plan and design the features of an original virtual environment Program a character to move around a track Create a path for a character to follow Some children will be able to: Follow instructions given in the Kodu programming environment Describe the actions of a sequence of Kodu commands Use tools to change the size of the ground and raise or lower the landscape Decompose code into smaller parts and explain it in their own words Create a race track with an end goal for a game Program a character to follow a path 	
Spreadsheets			
Most children should be able to: • Enter text and numbers into a spreadsheet			



column Begin to enter formulae with the SUM function Some children will be able to: Be able to enter formulae into cells Edit data and discuss the effect on results Use further functions including AVERAGE, MIN and MAX Create graphs Design their own spreadsheet for a specific purpose	Year 6 – Greater Depth	
Film-Making	Scratch: Animated Stories	Kodu Programming
 Structure the timing of sections to meet a given running time Cross-check information using different sources Use a variety of camera angles and shots to record Improvise and react to responses by an interviewee Preview a movie project using software and refine, based on the preview 	 Use rapid costume changes to give an animation effect Add interactive features to a scene Program the use of a single button to control background changes Control smooth transitions between characters, scenes and audio 	 View existing code and explain how it works Create unique worlds with particular attention to detail in the addition of appropriate objects Use ideas from existing codes to adapt and write their own programs Edit and refine a race track design to improve playability Adjust character and path settings to create an appealing game
Spreadsheets		
Enter and edit text		



independently Understand the advantages of spreadsheets over comparative manual methods Explore further functions Select data and create graphs with appropriate formatting Design their own spreadsheet for a specific purpose and present it appropriately	Under spread with the spread w	•
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	Skills Map - Computing	
	Online Safety	
	Year 1	
Most children will be able to:	Some children will be able:	Greater depth:
 Type their name on a piece of work they have created Open a web browser Recall some of the SMART rules for Internet safety Know who to tell if someone online asks for personal information Understand why email is a good way to communicate 	 Type their name and the date on a piece of work they have created Choose the correct Safe Search filter when using a search engine Make links between the online and offline world Recall all of the SMART rules for Internet safety Recognise which personal information they should keep safe from strangers Help to construct an email 	 Save images to a folder of their choice Construct an email using a computer or digital device Apply their knowledge of online safety to help others make safe choices
	Year 2	
Most children will be able to:	Some children will be able:	Greater depth:
 Know what 'digital footprint' means Know that people can use the information they put online Know that a digital footprint contains information about a person Identify keywords that will give good search results Use a website to search for information Begin to identify possible dangers online Identify websites suitable for their age Know when to ask an adult for advice about accessing a website Know what to do if a website makes them uncomfortable 	 Explain what 'digital footprint' means Know how people can use the information they put online Know that a digital footprint contains information about a person Know how to use keywords to give better search results Use a website to search for information Identify possible dangers online Explain how to identify websites suitable for their age Know when and how to ask an adult for advice about accessing a website Explain what to do if a website makes 	 Explain what a 'digital footprint' is and how it is generated Use keywords to give better search results Use a website to safely search for information Identify dangers online and know what to do about them Know when and how to ask an adult for advice about accessing a website Explain what to do if a website makes them uncomfortable and why this is important Determine whether a website is useful or



- Talk about what people might want to know about a website
- Give their opinion about a website
- Say what they like and dislike about a website
- Begin to consider who a website could be aimed at
- Identify unkind online behaviour
- Know what to do if they think someone is being unkind to them online
- Know how to safely search for information online
- Choose appropriate websites for their age

- them uncomfortable
- Know what people might want to know about a website in order to determine its usefulness
- Explain their likes and dislikes about a website
- Identify who a website could be aimed at
- Identify unkind online behaviour
- Know the course of action to take if they think someone is being unkind to them online
- Safely search for information online
- Choose appropriate websites for their age

- not
- Review a website
- Identify unkind online behaviour
- Know the course of action to take if they think someone is being unkind to them or others online
- Choose a range of appropriate websites for their age.

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Most children should be able to:	Some children will be able to:	Greater depth:	
Recognise cyberbullying Identify a safe person to tall if they	Recognise and define cyberbullying	 Recognise and define cyberbullying and the affect it has 	
 Identify a safe person to tell if they encounter cyberbullying 	 Identify safe people to report cyberbullying to 	 Give examples of people they can report 	
 Know that cyberbullying can happen via a range of devices 	 Know how cyberbullying can happen via a range of devices 	cyberbullying to and explain why they are good choices	
 Identify adverts online 	 Identify a range of targeted online 	 Give examples of how cyberbullying can 	
 Identify a targeted advert 	adverts	happen via a range of devices	
 Explore how companies use websites to promote products 	 Explain how companies use websites to promote products 	 Identify a range of targeted online adverts and how they are used 	
Create a strong password	 Create a strong password, explaining 	 Explain how companies use websites and 	
 Explain why a strong password is 	why it is important	other online methods to promote	
important	 Explain what privacy settings are and 	products	
 Explain what privacy settings are 	how to use them safely	 Create a strong password, explaining 	
 Discuss email as a form of communication 	 Discuss the benefits and disadvantages of email as a form of communication 	why it is important and giving tips to help others create a strong password	



- Identify an email that they should not open
- Write an email with an address and subject
- Know how to safely send an email
- Know how to safely receive an email
- Identify online communities they are a part of
- Identify different forms of online communication
- Discuss the positive and negative aspects of online communities
- Discuss the differences between communication in real life and online
- Discuss what they have learnt about online safety
- Communicate their ideas with a group clearly and listen to others' contributions
- Use what they know about online safety to plan a party using online methods

- Identify an email that may be unsafe to open, explaining why
- Write a clear email, explaining why an address and subject is important
- Know how to safely send and receive emails
- Explain what an online community is, giving examples of ones they are a part of
- Identify and explain different forms of online communication
- Explain the positive and negative aspects of online communities
- Explain the differences between communication in real life and online
- Share and explain what they have learnt about online safety
- Communicate their ideas with a group clearly, listening to others' contributions and making connections
- Apply their learning to a planning activity

- Explain what privacy settings are, why they are important and how they can be used safely
- Discuss the benefits and disadvantages of email as a form of communication
- Explain how to identify an email that may be unsafe to open
- Write a clear email, explaining why an address and subject is important, and know how to send it
- Explain what an online community is and how people belong to them
- Identify and explain different forms of online communication
- Share and explain what they have learnt about online safety, recalling key facts
- Communicate their ideas with a group clearly, listening to others' contributions, making connections and suggesting improvements
- Choose and apply their learning to a planning activity

Year 4			
Most children should be able to:	Some children will be able:	Greater depth:	
Define cyberbullyingKnow how to respond to a hurtful	 Identify comments or messages that may be hurtful to others 	 Understand why other people may be hurt by messages or comments 	
message or comment online Access a trusted search engine	 Edit their own messages and comments to make sure they are kind 	 Consider the differences and similarities between online and real-life 	
 Understand that different search terms give different results 	 Understand that search results are ranked 	communication Identify factors that affect the ranking of	
 Know what plagiarism is 	 Choose an appropriate number of words 	search results	



 Identify which information to keep private online Explain what digital citizenship is Tell someone else at least one way to stay safe online 	 for a search term Explain how to use other people's work respectfully Explain why it may be dangerous to share private information Explain how to be a good digital citizen Tell someone else more than one way to stay safe online 	 Use strategies which improve results when searching online Look for citations online Write a citation Understand why some websites ask for registration information Explain how being a good digital citizen is linked to being a good citizen in real life Advise others on the key ways to stay safe online 		
	Year 5			
Most children should be able to:	Some children will be able to:	Greater depth:		
 Identify a spam email Explain what to do with spam email Understand why they should cite a source Explain the rules for creating a strong password Create a strong password using a set of rules Know that not everything they see online is true Explain how to stay safe online Identify unsafe online behaviour 	 Identify a dangerous spam email Create multiple strong passwords for use across different platforms Spot citations online Alter a photograph 	 Explain the steps to take to avoid receiving spam Cite a website Explain why having a strong password is important Understand how false photographs can make people feel bad about themselves 		
	Year 6			
Most children should be able to:	Some children will be able to:	Greater depth:		
 Say what bullying and cyberbullying are Say how people should deal with cyberbullying 	 Look in the address bar of a website so check for security Identify the lock symbol in an address 	 Explain why cyberbullying can be as harmful as in-person bullying Find a link to a privacy policy 		



- Understand why I should ask an adult if I am unsure
- Identify warning signs that a website might not be secure
- Identify personal information
- Explain what to do if I am asked or told something online which makes me uncomfortable
- Explain some of the dangers of revealing personal information to an online friend
- Choose an appropriate action online to stay safe
- Identify a situation I should be careful in online
- Understand how a stereotype can be harmful

bar

- Explain why someone might have an online friendship
- Explain what the SMART acronym means
- Explain what a stereotype is
- Compare gender stereotypes

Identify a gender stereotype in a media message