Haresfield Computing Essential Knowledge End Points

Year Group	Essential Knowledge
EYFS **Early Learning Goals**	Learn how to type letters correctly using a keyboard. Explore combining painting tools to make digital art. Use ICT hardware to interact with age-appropriate computer software.
Year One Computing Systems and Networks Creating Media Data and Information Programming	To identify and name the main parts of a computer To know how to use a mouse in different ways To know how to use a keyboard to type on a computer To know how to save my work to a file To Know how to open my work from a file To create rules for using technology responsibly To know how to add and remove text on a computer To identify that the look of text can be changed on a computer To explain the choices I have made when changing text To explain why I chose the tools I used when creating a digital picture To choose appropriate paint tools and colours to recreate the work of an artist To know how to describe and label objects in different ways and create groups that can be counted To compare groups of objects and decide how to group objects to answer a question. To explain what a given command will do and predict the outcome of a command on a device To combine four direction commands to make sequences To know how to plan a simple program To know how to debug my program I know that a series of commands can be joined together To talk about the effect of changing a value in Scratch To explain that each sprite has its own instructions I know how to use my algorithm to create a program

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Year Two Computing Systems and Networks	To identify technology in the classroom and explain how technology helps us To know that a mouse can be used in different ways To know how to use the keyboard to edit text To create rules for using technology responsibly
Creating Media	To use a digital device to take a photograph and explain what I did to capture a digital photo To use tools to change an image and recognise which photos have been changed To know how to create and experiment with sound using a computer To use a computer to create a musical pattern
Data and Information	To know that objects can be represented as pictures and enter data onto a computer. To know how to view data in a different format and use the data to answer simple questions. To know how to create a pictogram and explain what the pictogram shows. To explain that we can present information using a computer.
Programming	To use logical reasoning to predict the outcome of a program and compare my prediction to the program outcome To explain that programming projects can have code and artwork To know how to design an algorithm to create a program and test and debug it To explain what happens when we change the order of instructions I can show the difference in outcomes between two sequences that consist of the same instructions To explain that a sequence of commands has a start and an outcome. To know how to create a program, sequencing blocks to change the actions of a sprite.

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Year Three Computing Systems and Networks	To explain how digital devices accept inputs and produce outputs To recognise how to use digital devices for different activities To explain how a computer network can be used to share information To explain the role of a switch, server, and wireless access point in a network
Creating Media	To know the difference between text and images Know that text can be changed to communicate more clearly To add content to a desktop publishing publication and make changes to content after it has been added To know that animation is a sequence of drawings or photographs and explain how an animation/flip book works
Data and Information	To identify the attributes needed to collect data about an object and organise them into a tree structure. To know how to create a branching database To explain that questions need to be ordered carefully to split objects into similarly sized groups
Programming	To know that commands in Scratch are represented as blocks To know that commands have an outcome To know that the objects in my project will respond exactly to the code To create a project from a task description To explain the relationship between an event and an action To create a program to move a sprite in four directions To know how to adapt a program to a new context using a programming extension To develop my program by adding features To identify and fix bugs in a program To design and create a maze-based challenge

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Year Four Computing Systems and Networks	To describe how networks physically connect to other networks To recognise how networked devices make up the internet To know how content can be added and accessed on the World Wide Web (WWW) To know that there are rules to protect content on the internet To know that some information I find online may not be honest, accurate, or legal
Creating Media	To know that audio recordings can be edited To know how sounds can be combined to make a podcast To know the difference between saving a project and exporting an audio file To know that the composition of digital images can be changed To explain that colours can be changed in digital images To explain how cloning can be used in photo editing To know that images can be combined for a purpose
Data and Information	To know that data gathered over time can be used to answer questions To know what data can be collected using sensors To know that a data logger collects 'data points' from sensors over time To know that a computer can help us analyse data
Programming	To know that accuracy in programming is important To know how to create a program in a text-based language To know what 'repeat' means To know how to modify a count-controlled loop to produce a given outcome To know that a computer can repeatedly call a procedure To create a program that uses count-controlled loops to produce a given outcome To know how to develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count-controlled loops To know that some programming languages enable more than one process to be run at once To develop a design that includes two or more loops which run at the same time

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Year Five	
Computing Systems and Networks	To know that computers can be connected together to form systems To identify tasks that are managed by computer systems To know how to use a search engine and describe how search engines select results To explain how search results are ranked and that a search engine follows rules to rank results To recognise why the order of results is important, and to whom To explain how search engines make money
Creating Media	To know that drawing tools can be used to produce different outcomes To know how to create a vector drawing by combining shapes To explain that each element added to a vector drawing is an object To know how alignment grids and resize handles can be used to improve consistency To know that vector drawings consist of layers To know how to group objects to make them easier to work with To know that video is a visual media format To know how to use a digital device to record video using a range of techniques To know that video can be improved through reshooting and editing
Data and Information	To know how to navigate a flat-file database to compare different views of information To know that data can be grouped using chosen values To know that tools can be used to select specific data To explain that computer programs can be used to compare data visually I can explain the benefits of using a computer to create charts
Programming	To know how to control a simple circuit connected to a computer To explain what an infinite loop does To explain that a loop can stop when a condition is met To know how to write a program that includes count-controlled loops To explain that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection To create a program that controls a physical computing project To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome I can create a program that uses selection to produce different outcomes To explain how selection directs the flow of a program To design and create a program that uses selection

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Year Six Computing Systems and Networks	To explain that internet devices have addresses To know that all data transferred over the internet is in packets To know that the internet allows different media to be shared To explain how the internet enables effective collaboration and that working together on the internet can be public or private
Creating Media	To know that you can work in three dimensions on a computer To know that digital 3D objects can be modified To know that objects can be combined in a 3D model To know how to create a 3D model for a given purpose To review an existing website and consider its structure and know that websites are written in HTML To recognise the common features of a web page To know that I should use copyright-free images and describe what is meant by the term 'fair use' To explain what a navigation path is and why navigation paths are useful To know the implications of linking to content owned by other people
Data and Information	To know how to create a data set in a spreadsheet To explain that formulas can be used to produce calculated data To know that changing inputs changes outputs To know how to apply formulas to data
Programming	To define a 'variable' as something that is changeable To know that variables can hold numbers or letters To explain why a variable is used in a program To know how to improve a game by using variables To know that the value of a variable can be used by a program To design a project that builds on a given example To know how to create a program to run on a controllable device To explain that selection can control the flow of a program To know how to update a variable with a user input To know that checking a variable doesn't change its value To use an conditional statement to compare a variable to a value To design a project that uses inputs and outputs on a controllable device To know how to find and fix bugs in my program