Computing at The Heath Academy - Skills Progression

	COMPUTING SYSTEMS & NETWORKS	CREATING MEDIA	DATA & INFORMATION	PROGRAMMING	E-SAFETY
NURSERY	**Technology around us** To begin to understand that there are different types of technology. **I am starting to understand technology is all around us in everyday items.** To learn to operate some forms of technology. **I can understand cause and effect with everyday forms of technology e.g. push handle down, the door opens.** To learn how to select an app on an iPad. **I can choose an app that I would like to use and select it on an iPad screen.**	**Digital photos** To begin to understand that information technology can be used to record real life. **With adult guidance, I can press the icon to take a photograph on an iPad.** **Digital painting** To use a device to create digital art. **With adult support, I can create a piece of digital art using an iPad or IWB.**	**Grouping data** To understand that objects can be sorted into a group. **I can notice that objects can be independent or part of a group e.g. 1 blue bear or multiple bears of different colours.**	**Following instructions** To understand that instructions can result in actions. **I am starting to understand that instructions are given for a purpose.**	**Online relationships:** Begin to recognise some ways in which the internet can be used to communicate. Begin to give examples of how they (might) use technology with people they know. **Online bullying:** Begin to describe ways that some people can be unkind online. Begin to offer examples of how this can make others feel. **Managing online information:** Begin to talk about how to use the internet as a way of finding information online. Begin to identify devices they could use to access information on the internet
YEAR R	**Technology around us** To understand that there are different types of technology. **I can describe technology that I have seen.** Understand that information technology can be used to communicate through text, images and sound. **I can understand that photographs can be taken using a device.** Understand that computers and other devices can be used to record and play back sounds. **I can understand that recorded sounds can be played back on a device.** To learn what a mouse is and to develop basic mouse skills such as moving and clicking. **I can move a mouse and notice the impact on screen.** To understand that a keyboard can be used to generate text on a computer and how to locate relevant keys. **I can type on a keyboard and notice the impact on screen.**	**Digital painting** To use a simple online paint tool to create digital art. **I can make marks by holding the mouse button and moving the mouse.** To add text to digital art. **I can use the keyboard to type text onto my picture.** To understand that created media can be printed from a computer. **With adult support, I can click the print icon to print my picture.**	**Grouping data** To understand that information can be collected both practically and by using a computer program. **I can collect information practically (e.g. collecting objects) and using a computer (e.g. by taking photos).** To sort objects into groups. **I can sort a selection of objects into groups.**	**Moving a robot** To understand that some devices need commands to operate and control them (e.g. traffic lights, car park barrier, games console) **I can talk about some devices that need commands in order to work.** To learn to give and receive instructions and understand the importance of precise instructions. **I can follow instructions.** To understand that technology can be programmed to move. **I can understand that a Beebot can be moved by pressing it's buttons.** To control a Beebot using the command buttons. **To experiment with programming a Beebot and to learn how to give simple commands.**	**Self-image and identity:** Name and recognise uncomfortable, embarrassed, and upset emotions. Recognise, online or offline, that anyone can say 'no thank you'/ 'please stop'/ 'I'll tell'/'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. **Health, wellbeing and lifestyle:** Identify rules that help keep us safe and healthy in and beyond the home when using technology. Give some simple examples of these rule. Apply these rules during play. Link feelings to online experiences. **Copyright and ownership:** Know that work they create belongs to them. Name their work so that others know it belongs to them. Express how they felt when they created this work. Share their work with a friend.
YEAR 1	**Technology around us** To identify technology. **I can locate examples of technology in the classroom.** To identify a computer and its main parts **I can name the main parts of a computer.** To use a mouse in different ways. **I can use a mouse to create a picture.** To use a keyboard to type on a computer **I can type my name using a keyboard.** To use the keyboard to edit text. **I can delete letters.** To create rules for using technology responsibly. **I can identify rules to keep us safe and healthy when we are using technology in and beyond the home.**	**Digital painting** To describe what different freehand tools do. **I can use the paint tools to draw a picture.** To use the shape tool and the line tools **I can make marks with the shape and line tools.** To make careful choices when painting a digital picture **I can make appropriate colour and shape choices.** To explain why I chose the tools I used **I can choose appropriate paint tools and colours to recreate the work of an artist.** To use a computer on my own to paint a picture **I can use dots of colour to create a picture in the style of an artist on my own.** To compare painting a picture on a computer and on paper **I can say whether I prefer painting using computer/paper.** **Digital writing** To use a computer to write **I can identify and find keys on a keyboard.** To add and remove text on a computer **I can enter text into a computer and use the backspace key.** To identify that the look of text can be changed on a computer **I can type capital letters.** To make careful choices when changing text **I can change the font before and after.** To explain why I used the tools that I chose **I can decide if my changes have improved my writing.** To compare writing on a computer with writing on paper **I can identify the difference between typing and writing.**	**Grouping data** To label objects. **I can match objects to a group.** To identify that objects can be counted. **I can count a group of objects.** To describe objects in different ways. **I can find objects with similar properties.** To count objects with the same properties. **I can group similar objects.** To compare groups of objects. **I can describe groups of objects & properties.** To answer questions about groups of objects. **I can compare groups of objects.**	**Moving a robot** To explain what a given command will do. **I can match a command to an outcome.** To act out a given word. **I can give directions.** To combine forwards and backwards commands to make a sequence. **I can start a sequence from the same place.** To combine four direction commands to make sequences. **I can experiment with 'turn' & 'move' commands to move a robot.** To plan a simple program. **I can identify what my program should do.** To find more than one solution to a problem. **I can identify several possible solutions.** **Introduction to animation** To choose a command for a given purpose. **I can find commands to move a Sprite.** To show that a series of commands can be joined together. **I can use a *start* block in a program.** To identify the effect of changing a value. **I can find blocks that have numbers.** To explain that each sprite has its own instructions. **I can show that a project can include more than one Sprite.** To design the parts of a project. **I can decide how each Sprite will move.** To use my algorithm to create a program. **I can add programming blocks based on my algorithm.**	**Online relationships:** Recognise some ways in which the internet can be used to communicate. Give examples of how they (might) use technology to communicate with people they know. Give examples of when they should ask permission to do something online and explain why this is important. Use the internet with adult support to communicate with people they know (e.g. video call apps or services). Explain why it is important to be considerate and kind to people online and to respect their choices. Explain why things one person finds funny or sad online may not always be seen in the same way by others. **Online reputation:** Identify ways that they can put information on the internet. Recognise that information can stay online and could be copied. Describe what information they should not put online without asking a trusted adult first. **Copyright and ownership:** Know that work they create belongs to them. Name their work so that others know it belongs to them. Explain why work they create using technology belongs to them. Say why it belongs to them (e.g. 'I designed it' or 'I filmed it'). Save their work under a suitable title/name so that others know it belongs to them (e.g. filename, name on content). Understand that work created by others does not belong to them even if they save a copy.
YEAR 2	**Information technology around us** To recognise the uses and features of information technology. **I can describe some uses of computers.** To identify information technology in the school. **I can identify that some IT can be used in more than one way.** To identify information technology beyond school. **I can talk about uses of information technology**. To explain how information technology benefits us. **I can say why we use IT.** To show how to use information technology safely. **I can say how rules can help keep me safe.** To recognise that choices are made when using information technology. **I can used IT for different types of activities.**	**Digital photography** To know what devices can be used to take photographs. **I can recognize what devices can be used to take photographs.** To use a digital device to take a photograph. **I can explain why a photo looks better in portrait or landscape format.** To describe what makes a good photograph. **I can improve a photograph by retaking it.** To decide how photographs can be improved. **I can explore the effect that light has on a photo.** To use tools to change an image. **I can use a tool to achieve a desired effect.** To recognise that photos can be changed. **I can apply a range of photography skills to capture a photo.** **Making music** To say how music can make us feel. **I can say what I do and don't like about a piece of music.** To identify that there are patterns in music. **I can create and play an instrument following a rhythm pattern.** To describe how music can be used in different ways. **I can use a computer to experiment with pitch.** To show how music is made from a series of notes. **I can refine my musical pattern on a computer.** To create music for a purpose. **I can create my animal's rhythm on a computer.** To review and refine our computer work. **I can explain how I changed my work.**	**Pictograms** To recognise that we can count and compare objects using tally charts. **I can record and compare totals in a tally chart.** To recognise that objects can be represented as pictures. **I can use pictograms to answer simple questions about objects.** To create a pictogram. **I can use a tally chart to create a pictogram.** To select objects by attribute and make comparisons. **I can answer 'more than/less than' and 'most/least' questions about an attribute.** To recognise that people can be described by attributes. **I can create a pictogram and draw conclusions from it.** To explain that we can present information using a computer. **I can use a computer program to present information in different ways.**	**Robot algorithms** To describe a series of instructions as a sequence. **I can give and follow clear instructions.** To explain what happens when we change the order of instructions. **I can use an algorithm to program a sequence on a floor robot.** To use logical reasoning to predict the outcome of a program (series of commands). **I can compare my prediction to the program outcome.** To explain that programming projects can have code and artwork. **I can test my mat to make sure that it is usable.** To design an algorithm. **I can create an algorithm to meet my goal.** To create and debug a program that I have written. **I can test and debug each part of the program.** **Introduction to quizzes** To explain that a sequence of commands has a start. **I can identify the start of a sequence.** To explain that a sequence of commands has an outcome. **I can predict the outcome of a sequence of commands.** To create a program using a given design. **I can work out the actions of a sprite in an algorithm.** To change a given design. **I can choose backgrounds and characters for the design.** To create a program using my own design. **I can build sequences of blocks to match my design.** To decide how my project can be improved. **I can compare my project to my design.**	**Self-image and identity:** Explain how other people may look and act differently online and offline. Give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened. Give examples of how they might get help. **Online bullying:** Explain what bullying is, how people may bully others and how bullying can make someone feel. Explain why anyone who experiences bullying is not to blame. Talk about how anyone experiencing bullying can get help. **Health, wellbeing and lifestyle:** Explain simple guidance for using technology in different environments and settings (e.g. accessing online technologies in public places and the home environment). Say how those rules/guides can help anyone accessing online technologies.

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YEAR 3	**Connecting computers** To explain how digital devices function. **I can understand that digital devices accept inputs and produce outputs.** To identify input and output devices. **I can describe a simple process.** To recognise how digital devices can change the way we work. **I can explain how I use digital devices for different activities.** To explain how a computer network can be used to share information. **I can recognize different connections.** To explore how digital devices can be connected. **I can recognise that a computer network is made up of a number of devices.** To recognise the physical components of a network. **I can identify networked devices around me.**	**Stop-frame animation** To explain that animation is a sequence of drawings or photographs. **I can create an effective flip-book style animation.** To relate animated movement with a sequence of images. **I can predict what an animation will look like.** To plan an animation. **I can describe an animation that is achievable on screen.** To identify the need to work consistently and carefully. **I can use onion skinning to help me make small changes between frames.** To review and improve an animation. **I can explain ways to make my animation better.** To evaluate the impact of adding other media to an animation. **I can add other media to my animation.** **Desktop publishing** To recognise how text and images convey information. **I can explain the difference between text and images.** To recognise that text and layout can be edited. **I can change font style, size and colours for a given purpose.** To choose appropriate page settings. **I can explain what 'page orientation' means.** To add content to a desktop publishing publication. **I can paste text and images to create a magazine cover.** To consider how different layouts can suit different purposes. **I can match a layout to a purpose.** To consider the benefits of desktop publishing. **I can say why desktop publishing might be helpful.**	**Branching databases** To create questions with yes/no answers. **I can make a yes/no question about a collection of objects.** To identify the object attributes needed to collect relevant data. **I can select an attribute to separate objects into groups.** To create a branching database. **I can group objects using my own yes/no questions.** To explain why it is helpful for a database to be well structured. **I can create yes/no questions using given attributes.** To identify objects using a branching database. **I can independently create questions to use in a branching database.** To compare the information shown in a pictogram with a branching database. **I can create a branching database that reflects my plan.**	**Sequence in music** To explore a new programming environment **I can recognise that commands in Scratch are represented as blocks.**. To identify that commands have an outcome. **I can identify that each sprite is controlled by the commands I choose.** To explain that a program has a start. **I can create a sequence of connected commands.** To recognise that a sequence of commands can have an order. **I can order notes into a sequence.** To change the appearance of my project. **I can build a sequence of commands.** To create a project from a task description. **I can implement my algorithm as code.** **Events and actions** To explain how a sprite moves in an existing project. **I can choose which keys to use for actions and explain my choices.** To create a program to move a sprite in four directions. **I can program movement.** To adapt a program to a new context. **I can use a programming extension.** To develop my program by adding features. **I can choose suitable keys to turn on additional features.** To identify and fix bugs in a program. **I can match a piece of code to an outcome.** To design and create a maze-based challenge. **I can implement my design.**	**Online relationships:** Describe ways people who have similar likes and interests can get together online. Explain what it means to 'know someone' online and why this might be different from knowing someone offline. Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online, including what information and content they are trusted with. Explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. Explain how someone's feelings can be hurt by what is said or written online. Explain the importance of giving and gaining permission before sharing things online and how the principles of sharing online are the same as sharing offline (e.g. sharing images and videos). **Managing online information:** Demonstrate how to use key phrases in search engines to gather accurate information online. Explain what autocomplete is and how to choose the best suggestion. Explain how the internet can be used to sell and buy things. Explain the difference between a belief, an opinion and a fact and can give examples of how and where they might be shared online (e.g. in videos, memes, posts, news stories). Explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). Describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. **Privacy and Security:** Describe simple strategies for creating and keeping passwords private. Give reasons why someone should only share information with people they choose and can trust. Explain that if they are not sure or feel pressured, they should tell a trusted adult. Describe how connected devices can collect and share anyone's information with others.
YEAR 4	**The internet** To describe how networks physically connect to other networks. **I can describe the internet as a network of networks.** To recognise how networked devices make up the internet. **I can explain that the internet is used to provide many services and contains websites and pages.** To outline how websites can be shared via the World Wide Web. **I can identify the types of media that can be shared on the WWW.** To describe how content can be added and accessed on the World Wide Web. **I can explain that internet services can be used to create content online.** To recognise how the content of the WWW is created by people. **I can discuss that websites and their content are created by people.** To evaluate the consequences of unreliable content. **I can explain why I need to think carefully before I share or reshare content.**	**Audio editing** To identify that sound can be digitally recorded. **I can use a computer to record audio.** To use a digital device to record sound. **I can edit using trimming and re-recording.** To explain that a digital recording is stored as a file. **I can plan and save appropriate content for a podcast.** To explain that audio can be changed through editing. **I can record content following my plan.** To show that different types of audio can be combined and played together. **I can arrange multiple sounds to create the effect I want.** To evaluate editing choices made. **I can evaluate the effectiveness of my / another podcast.** **Photo editing** To explain that digital images can be changed. **I can use photo editing software to crop an image and explain why.** To change the composition of an image. **I can experiment with different colour effects.** To describe how images can be changed for different uses. **I can identify how a photo edit can be improved.** To make good choices when selecting different tools. **I can experiment with tools to select and copy part of an image.** To recognise that not all images are real. **I can create a project that is a combination of other images.** To evaluate how changes can improve an image. **I can use feedback to guide making changes.**	**Data logging** To explain that data gathered over time can be used to answer questions. **I can choose a data set to answer a given question.** To use a digital device to collect data automatically. **I can identify that data from sensors can be recorded.** To explain that a data logger collects 'data points' from sensors over time. **I can talk about the data that I have captured.** To use data collected over a long duration to find information. **I can explain that there are different ways to view data.** To identify the data needed to answer questions. **I can use data loggers to collect data to answer questions.** To use collected data to answer questions. **I can identify the benefits of using a data logger.**	**Repetition in shapes** To identify that accuracy in programming is important. **I can program a computer by typing commands.** To create a program in a text-based language. **I can use a template to draw what I want my program to do.** To explain what 'repeat' means. **I can identify repetition in everyday tasks.** To modify a count-controlled loop to produce a given outcome. **I can predict the outcome of a program containing a count-controlled loop.** To decompose a task into small steps. **I can explain that a computer can repeatedly call a procedure.** To create a program that uses count-controlled loops to produce a given outcome. **I can make use of my design to write a program.** **Repetition in games** To develop the use of count-controlled loops in a different programming environment. **I can list an everyday task as a set of instructions including repetition.** To explain that in programming there are infinite loops and count controlled loops. **I can explore loops to produce a given outcome.** To develop a design which includes two or more loops which run at the same time. **I can explain what the outcomes of a repeated action should be.** To modify an infinite loop in a given program. **I can identify which parts of a loop can be changed.** To design a project that includes repetition. **I can develop my own design explaining what my project will do.** To create a project that includes repetition. **I can build a program that follows my design.**	**Online bullying:** Recognise when someone is upset, hurt or angry online. Describe ways people can be bullied through a range of media (e.g. image, video, text, chat). Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation). **Self image and identity:** Explain how their online identity can be different from their offline identity. Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. Explain that others online can pretend to be someone else, including their friends, and they can suggest reasons why they might do this. **Online reputation:** Describe how to find out information about others by searching online. Explain ways that some of the information about anyone online could have been created, copied or shared by others.