ISLINGTON

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Computer Science Steps

From NCCE Learning Graphs

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To explain what a given command will do • I can predict the outcome of a command on a device • I can match a command to an outcome • I can run a command on a device	**To describe a series of instructions as a sequence** • I can follow instructions given by someone else • I can choose a series of words that can be enacted as a sequence • I can give clear and unambiguous instructions	**To explore a new programming environment** • I can identify the objects in a Scratch project (sprites, backdrops) • I can explain that objects in Scratch have attributes (linked to) • I can recognise that commands in Scratch are represented as blocks	**To identify that accuracy in programming is important** • I can program a computer by typing commands • I can explain the effect of changing a value of a command • I can create a code snippet for a given purpose	**To control a simple circuit connected to a computer** • I can build a simple circuit to connect a microcontroller to a computer • I can program a microcontroller to light an LED • I can explain why I used an infinite loop	**To define a 'variable' as something that is changeable** • I can identify examples of information that is variable • I can explain that the way that a variable changes can be defined • I can identify that variables can hold numbers or letters
To act out a given word • I can follow an instruction • I can recall words that can be acted out • I can give directions	**To explain what happens when we change the order of instructions** • I can create different algorithms for a range of sequences (using the same commands) • I can use an algorithm to program a sequence on a floor robot • I can show the difference in outcomes between two sequences that consist of the same commands	**I can identify that each sprite is controlled by the commands I choose** • I can choose a word which describes an on-screen action for my design • I can create a program following a design	**To create a program in a text-based language** • I can use a template to create a design for my program • I can write an algorithm to produce a given outcome • I can test my algorithm in a text-based language	**To write a program that includes count-controlled loops** • I can connect more than one output device to a microcontroller • I can design sequences for given output devices • I can decide which output devices I control with a count controlled loop	**To explain why a variable is used in a program** • I can identify a program variable as a placeholder in memory for a single value • I can explain that a variable has a name and a value • I can recognise that the value of a variable can be changed
To combine forwards and backwards commands to make a sequence • I can compare forwards and backwards movements • I can start a sequence from the same place • I can predict the outcome of a sequence involving forwards and backwards commands	**To use logical reasoning to predict the outcome of a program (series of commands)** • I can follow a sequence • I can predict the outcome of a sequence • I can compare my prediction to the program outcome	**To explain that a program has a start** • I can start a program in different ways • I can create a sequence of connected commands • I can explain that the objects in my project will respond exactly to the code	**To explain what 'repeat' means** • I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves • I can identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' • I can use a count-controlled loop to produce a given outcome	**To explain that a loop can stop when a condition is met, e.g. number of times** • I can explain that a condition is something that can either be true or false (e.g. whether a value is more than 10, or whether a button has been pressed) • I can experiment with a do until loop • I can program a microcontroller to respond to an input	**To choose how to improve a game by using variables** • I can decide where in a program to change a variable • I can make use of an event in a program to set a variable • I can recognise that the value of a variable can be used by a program
To combine four direction commands to make sequences • I can compare left and right turns • I can experiment with turn and move commands to move a robot • I can predict the outcome of a sequence involving up to four commands	**To explain that programming projects can have code and artwork** • I can explain the choices I made for my mat design • I can identify different routes around my mat • I can test my mat to make sure that it is usable	**To recognise that a sequence of commands can have an order** • I can explain what a sequence is • I can combine sound commands • I can order notes into a sequence	**To modify a count-controlled loop to produce a given outcome** • I can identify the effect of changing the number of times a task is repeated • I can predict the outcome of a program containing a count-controlled loop • I can choose which values to change in a loop	**To conclude that a loop can be used to repeatedly check whether a condition has been met** • I can explain a condition being met can start an action • I can identify a condition and an action in my project • I can use selection (an if… then… statement) to direct the flow of a program	**To design a project that builds on a given example** • I can choose the artwork for my project • I can explain my design choices • I can create algorithms for my project
To plan a simple program • I can explain what my program should do • I can choose the order of commands in a sequence • I can debug my program	**To design an algorithm** • I can explain what my algorithm should achieve • I can create an algorithm to meet my goal • I can use my algorithm to create a program	**To change the appearance of my project** • I can build a sequence of commands • I can decide the actions for each sprite in a program • I can make design choices for my artwork	**To decompose a program into parts** • I can identify 'chunks' of actions in the real world • I can use a procedure in a program • I can explain that a computer can repeatedly call a procedure	**To design a physical project which includes selection** • I can identify a condition to start an action (real world) • I can describe what my project will do (the task) • I can create a detailed drawing of my project	**To use my design to create a project** • I can create the artwork for my project • I can choose a name that identifies the role of a variable • I can test the code that I have written
To find more than one solution to a problem • I can identify several possible solutions • I can plan two programs • I can use two different programs to get to the same place	**To create and debug a program that I have written** • I can plan algorithms for different parts of a task • I can test and debug each part of the program • I can put together the different parts of my program	**To create a project from a task description** • I can identify and name the objects I will need for a project • I can relate a task description to a design • I can implement my algorithm as code	**To create a program that uses count-controlled loops to produce a given outcome** • I can design a program that includes count-controlled loops • I can make use of my design to write a program • I can develop my program by debugging it	**To create a controllable system which includes selection** • I can write an algorithm to control lights and a motor • I can use selection to produce an intended outcome • I can test and debug my project	**To evaluate my project** • I can identify ways that my game could be improved • I can extend my game further using more variables • I can share my game with others
To choose a command for a given purpose • I can find which commands move a sprite • I can use commands to move a sprite • I can compare different programming tools	**To explain that a sequence of commands has a start** • I can identify the start of a sequence • I can identify that a program needs to be started • I can show how to run my program	**To explain how a sprite moves in an existing project** • I can explain the relationship between an event and an action • I can choose which keys to use for actions and explain my choices • I can identify a way to improve a program	**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 • I can predict the outcome of a snippet of code • I can modify a snippet of code to create a given outcome	**To explain how selection is used in computer programs** • I can recall how conditions are used in selection • I can identify conditions in a program • I can modify a condition in a program	**To create a program to run on a controllable device** • I can apply my knowledge of programming to a new environment • I can test my program on an emulator • I can transfer my program to a controllable device
To show that a series of commands can be joined together • I can use more than one block by joining them together • I can use a start block in a program • I can run my program	**To explain that a sequence of commands has an outcome** • I can predict the outcome of a sequence of commands • I can match two sequences with the same outcome • I can change the outcome of a sequence of commands	**To create a program to move a sprite in four directions** • I can choose a character for my project • I can choose a suitable size for a character in a maze • I can program movement	**To explain that in programming there are infinite loops and count controlled loops** • I can modify loops to produce a given outcome • I can choose when to use a count-controlled and an infinite loop • I can recognise that some programming languages enable more than one process to be run at once	**To relate that a conditional statement connects a condition to an outcome** • I can use selection in an infinite loop to check a condition • I can identify the condition and outcomes in an if.. then… else statement • I can create a program with different outcomes using selection	**To explain that selection can control the flow of a program** • I can identify examples of conditions in the real world • I can use a variable in an if… then… else… statement to select the flow of a program • I can determine the flow of a program using selection
To identify the effect of changing a value • I can find blocks which have numbers • I can change the value • I can say what happens when I change a value	**To create a program using a given design** • I can tell the actions of a sprite in an algorithm • I can decide which blocks to use to meet the design • I can build the sequences of blocks I need	**To adapt a program to a new context** • I can use a programming extension • I can consider the real-world when making design choices • I can choose blocks to set up my program	**To develop a design which includes two or more loops which run at the same time** • I can choose which action will be repeated for each object • I can explain what the outcome of the repeated action should be • I can evaluate the effectiveness of the repeated sequences used in my program	**To explain how selection directs the flow of a program** • I can explain that program flow can branch according to a condition • I can design the flow of a program which contains if… then… else... • I can show that a condition can direct program flow in one of two ways	**To update a variable with a user input** • I can use a condition to change a variable • I can experiment with different physical inputs • I can explain that if you read a variable, the value remains
To explain that each sprite has its own instructions • I can show that a project can include more than one sprite • I can delete a sprite • I can add blocks to each of my sprites	**To change a given design** • I can choose backgrounds for the design • I can choose characters for the design • I can create a program based on the new design	**To develop my program by adding features** • I can identify additional features (from a given set of blocks) • I can choose suitable keys to turn on additional features • I can build more sequences of commands to make my design work	**To modify an infinite loop in a given program** • I can identify which parts of a loop can be changed • I can explain the effect of my changes • I can re-use existing code snippets on new sprites	**To design a program which uses selection** • I can outline a given task • I can use a design format to outline my project • I can identify the outcome of user input in an algorithm	**To use an conditional statement to compare a variable to a value** • I can explain the importance of the order of conditions in else if statements • I can use an operand (e.g. <>=) in an if… then… statement • I can modify a program to achieve a different outcome
To design the parts of a project • I can choose appropriate artwork for my project • I can decide how each sprite will move • I can create an algorithm for each sprite	**To create a program using my own design** • I can choose the images for my own design • I can create an algorithm • I can build sequences of blocks to match my design	**To identify and fix bugs in a program** • I can test a program against a given design • I can match a piece of code to an outcome • I can modify a program using a design	**To design a project that includes repetition** • I can evaluate the use of repetition in a project • I can select key parts of a given project to use in my own design • I can develop my own design explaining what my project will do	**To create a program which uses selection** • I can implement my algorithm to create the first section of my program • I can test my program • I can share my program with others	**To design a project that uses inputs and outputs on a controllable device** • I can decide what variables to include in a project • I can design the algorithm for my project • I can design the program flow for my project
To use my algorithm to create a program • I can use sprites which match my design • I can add programming blocks based on my algorithm • I can test the programs I have created	**To decide how my project can be improved** • I can compare my project to my design • I can improve my project by adding features • I can debug	**To design and create a maze based challenge** • I can make design choices and justify them • I can implement my design • I can evaluate my project	**To create a project that includes repetition** • I can refine the algorithm in my design • I can build a program that follows my design • I can evaluate the steps I followed when building my project	**To evaluate my program** • I can identify ways the program could be improved • I can identify what setup code my project needs • I can extend my program further	**To develop a program to use inputs and outputs on a controllable device** • I can create a program based on my design • I can test my program against my design • I can use a range of approaches to find and fix bugs

DL & IT Steps (lots of crossover - especially in year 4 - sometimes into CS too)

Key Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	From NCCE Learning Graphs					
	To describe what different freehand tools do ● I can make marks on a screen and explain which tools I used ● I can draw lines on a screen and explain which tools I used ● I can use the paint tools to draw a picture	**To say how music can make us feel** ● I can identify simple differences in pieces of music ● I can listen with concentration to a range of music (links to the Music curriculum) ● I can describe how music makes me feel, e.g. happy or sad	**To recognise how text and images convey information** ● I can explain the difference between text and images ● I can recognise that text and images can communicate messages clearly ● I can identify the advantages and disadvantages of using text and images	**To describe how networks physically connect to other networks** ● I can describe the internet as a network of networks ● I can demonstrate how information is shared across the internet ● I can discuss why a network needs protecting	**To identify that drawing tools can be used to produce different outcomes** ● I can recognise that vector drawings are made using shapes ● I can identify the main drawing tools ● I can discuss how a vector drawing is different from paper-based drawings	**To identify questions which can be answered using data** ● I can explain the relevance of data headings ● I can answer questions from an existing data set ● I can ask simple relevant questions which can be answered using data
	To use the shape tool and the line tools ● I can make marks with the square and line tools ● I can use the shape and line tools effectively ● I can use the shape and line tools to recreate the work of an artist	**To identify that there are patterns in music** ● I can create a rhythm pattern ● I can play an instrument following a rhythm pattern ● I can explain that music is created and played by humans	**To recognise that text and layout can be edited** ● I can change font style, size, and colours for a given purpose ● I can edit text ● I can explain that text can be changed to communicate more clearly	**To recognise how networked devices make up the internet** ● I can describe the different networked devices and how they connect ● I can explain how the internet allows us to view the World Wide Web ● I can recognise that the World Wide Web is the part of the internet that contains websites and web pages	**To create a vector drawing by combining shapes** ● I can identify the shapes used to make a vector drawing ● I can explain that each element added to a vector drawing is an object ● I can move, resize, and rotate objects I have duplicated	**To explain that objects can be described using data** ● I can explain what an item of data is ● I can apply an appropriate number format to a cell ● I can build a data set in a spreadsheet application
	To make careful choices when painting a digital picture ● I can choose appropriate shapes ● I can make appropriate colour choices ● I can create a picture in the style of an artist	**To describe how music can be used in different ways** ● I can connect images with sounds ● I can use a computer to experiment with pitch and duration ● I can relate an idea to a piece of music	**To choose appropriate page settings** ● I can define the term 'page orientation' ● I can recognise placeholders and say why they are important ● I can create a template for a particular purpose	**To outline how websites can be shared via the World Wide Web** ● I can explain the types of media that can be shared on the World Wide Web (WWW) ● I can describe where websites are stored when uploaded to the WWW ● I can describe how to access websites on the WWW	**To use tools to achieve a desired effect** ● I can use the zoom tool to help me add detail to my drawings ● I can explain how alignment grids and resize handles can be used to improve consistency ● I can modify objects to create different effects	**To explain that formula can be used to produce calculated data** ● I can explain the relevance of a cell's data type ● I can construct a formula in a spreadsheet ● I can identify that changing inputs changes outputs
	To explain why I chose the tools I used ● I know that different paint tools do different jobs ● I can choose appropriate paint tools and colours to recreate the work of an artist ● I can say which tools were helpful and why	**To show how music is made from a series of notes** ● I can identify that music is a sequence of notes ● I can use a computer to create a musical pattern using three notes ● I can refine my musical pattern on a computer	**To add content to a desktop publishing publication** ● I can choose the best locations for my content ● I can paste text and images to create a magazine cover ● I can make changes to content after I've added it	**To describe how content can be added and accessed on the World Wide Web** ● I can create media which can be found on websites ● I can recognise that I can add content to the WWW ● I can explain that new content can be created online	**To recognise that vector drawings consist of layers** ● I can identify that each added object creates a new layer in the drawing ● I can identify which objects are in the front layer or in the back layer of a drawing ● I can change the order of layers in a vector drawing	**To apply formulas to data, including duplicating** ● I can recognise that data can be calculated using different operations ● I can create a formula which includes a range of cells ● I can apply a formula to multiple cells by duplicating it
	To use a computer on my own to paint a picture ● I can make dots of colour on the page ● I can change the colour and brush sizes ● I can use dots of colour to create a picture in the style of an artist on my own	**To create music for a purpose** ● I can describe an animal using sounds ● I can explain my choices ● I can save my work	**To consider how different layouts can suit different purposes** ● I can identify different layouts ● I can match a layout to a purpose ● I can choose a suitable layout for a given purpose	**To recognise how the content of the WWW is created by people** ● I can explain that websites and their content are created by people ● I can suggest who owns the content on websites ● I can explain that there are rules to protect content	**To group objects to make them easier to work with** ● I can copy part of a drawing by duplicating several objects ● I can group to create a single object ● I can reuse a group of objects to further develop my vector drawing	**To create a spreadsheet to plan an event** ● I can use a spreadsheet to answer questions ● I can explain why data should be organised ● I can apply a formula to calculate the data I need to answer questions
	To compare painting a picture on a computer and on paper ● I can explain that pictures can be made in lots of different ways ● I can spot the differences between painting on a computer and on paper ● I can say whether I prefer painting using a computer or using paper	**To review and refine our computer work** ● I can reopen my work ● I can explain how I made my work better ● I can listen to music and describe how it makes me feel	**To consider the benefits of desktop publishing** ● I can identify the uses of desktop publishing in the real world ● I can say why desktop publishing might be helpful ● I can compare work made on desktop publishing to work created by hand	**To evaluate the consequences of unreliable content** ● I can explain that not everything on the World Wide Web is true. ● I can explain why some information I find online may not be honest, accurate, or legal. ● I can explain why I need to think carefully before I share or reshare content	**To evaluate my vector drawing** ● I create alternatives to vector drawings ● I can suggest improvements to a vector drawing ● I can apply what I have learned about vector drawings	**To choose suitable ways to present data** ● I can produce a graph ● I can use a graph to show the answer to questions ● I can suggest when to use a table or graph
	To use a computer to write ● I can open a word processor ● I can recognise keys on a keyboard ● I can identify and find keys on a keyboard	**To know what devices can be used to take photographs** ● I can sort devices into old and new ● I can talk about how to take a photograph ● I can capture digital photos and talk about my experience	**To explain that animation is a sequence of drawings or photographs** ● I can draw a sequence of pictures ● I can create an effective flip book—style animation ● I can explain how an animation/flip book works	**To explain that data gathered over time can be used to answer questions** ● I can choose a data set to answer a given question ● I can suggest questions that can be answered using a given data set ● I can identify data that can be gathered over time	**To use a form to record information** ● I can create multiple questions about the same field ● I can explain how information can be recorded ● I can order, sort, and group my data cards	**To review an existing website and consider its structure** ● I can explore a website ● I can discuss the different types of media used on websites ● I know that websites are written in HTML
	To add and remove text on a computer ● I can enter text into a computer ● I can use letter, number, and space keys ● I can use backspace to remove text	**To use a digital device to take a photograph** ● I can explain the process of taking a good photograph ● I can take photos in both landscape and portrait format ● I can explain why a photo looks better in portrait or landscape format	**To relate animated movement with a sequence of images** ● I can predict what an animation will look like ● I can explain why little changes are needed for each frame ● I can create an effective stop frame animation	**To use a digital device to collect data automatically** ● I can explain that sensors are input devices ● I can use data from a sensor to answer a given question ● I can identify that data from sensors can be recorded	**To compare paper and computer-based databases** ● I can navigate a flat-file database to compare different views of information ● I can explain what a 'field' and a 'record' is in a database ● I can choose which field to sort data by to answer a given question	**To plan the features of a web page** ● I can recognise the common features of a web page ● I can suggest media to include on my page ● I can draw a web page layout that suits my purpose
	To identify that the look of text can be changed on a computer ● I can type capital letters ● I can explain what the keys that I have learnt about already do ● I can identify the toolbar and use bold, italic, and underline	**To describe what makes a good photograph** ● I can identify what is wrong with a photograph ● I can discuss how to take a good photograph ● I can improve a photograph by retaking it	**To plan an animation** ● I can break down a story into settings, characters and events ● I can describe an animation that is achievable on screen ● I can create a storyboard	**To explain that a data logger collects 'data points' from sensors over time** ● I can identify a suitable place to collect data ● I can identify the intervals used to collect data ● I can talk about the data that I have captured	**To apply my knowledge of a database to ask and answer real-world questions** ● I can explain how information can be grouped ● I can group information to answer questions ● I can combine grouping and sorting to answer more specific questions	**To consider the ownership and use of images (copyright)** ● I can say why I should use copyright-free images ● I can find copyright-free images ● I can describe what is meant by the term 'fair use'
	To make careful choices when changing text ● I can select a word by double-clicking ● I can select all of the text by clicking and dragging ● I can change the font	**To decide how photographs can be improved** ● I can explore the effect that light has on a photo ● I can experiment with different light sources ● I can focus on an object	**To identify the need to work consistently and carefully** ● I can use onion skinning to help me make small changes between frames ● I can review a sequence of frames to check my work ● I can evaluate the quality of my animation	**To use data collected over a long duration to find information** ● I can import a data set ● I can use a computer to view data in different ways ● I can use a computer program to sort data	**To explain that tools can be used to select data to answer questions** ● I can choose which field and value are required to answer a given question ● I can outline how 'AND' and 'OR' can be used to refine data selection ● I can choose multiple criteria to answer a given question	**To recognise the need to preview pages** ● I can add content to my own web page ● I can preview what my web page looks like ● I can evaluate what my web page looks like on different devices and suggest/make edits.
	To explain why I used the tools that I chose ● I can say what tool I used to change the text ● I can decide if my changes have improved my writing ● I can use 'undo' to remove changes	**To use tools to change an image** ● I can recognise that images can be changed ● I can use a tool to achieve a desired effect ● I can explain my choices	**To review and improve an animation** ● I can explain ways to make my animation better ● I can evaluate another learner's animation ● I can improve my animation based on feedback	**To identify the data needed to answer questions** ● I can propose a question that can be answered using logged data ● I can plan how to collect data using a data logger ● I can use a data logger to collect data	**To apply my knowledge of a database to ask and answer real-world questions** ● I can select an appropriate chart to visually compare data ● I can refine a chart by selecting a particular filter ● I can explain the benefits of using a computer to create graphs	**To outline the need for a navigation path** ● I can explain what a navigation path is ● I can describe why navigation paths are useful ● I can make multiple web pages and link them using hyperlinks
	To compare writing on a computer with writing on paper ● I can write a message on a computer and on paper ● I can compare using a computer with using a pencil and paper ● I can say which method I like best	**To recognise that images can be changed** ● I can apply a range of photography skills to capture a photo ● I can recognise which images have been changed ● I can identify which images are real and which have been changed	**To evaluate the impact of adding other media to an animation** ● I can add other media to my animation ● I can explain why I added other media to my animation ● I can evaluate my final film	**To use collected data to answer questions** ● I can interpret data that has been collected using a data logger ● I can draw conclusions from the data that I have collected ● I can explain the benefits of using a data logger	**To apply my knowledge of a database to ask and answer real-world questions** ● I can ask questions that will need more than one field to answer ● I can refine a search in a real-world context ● I can present my findings to a group	**To recognise the implications of linking to content owned by other people** ● I can explain the implication of linking to content owned by others ● I can create hyperlinks to link to other people's work ● I can evaluate the user experience of a website
	To identify technology ● I can explain technology as something that helps us ● I can locate examples of technology in the classroom ● I can explain how these technology examples help us	**To recognise the uses and features of information technology** ● I can identify examples of computers ● I can describe some uses of computers ● I can identify that a computer is a part of information technology	**To create questions with yes/no answers** ● I can investigate questions with yes/no answers ● I can make up a yes/no question about a collection of objects ● I can create two groups of objects separated by one attribute	**To explain that digital images can be changed** ● I can identify changes that we can make to an image ● I can explore how images can be changed in real life ● I can explain the effect that editing can have on an image	**To explain that computers can be connected together to form systems** ● I can explain that systems are built using a number of parts ● I can describe that a computer system features inputs, processes, and outputs ● I can explain that computer systems communicate with other devices	**To identify how to use a search engine** ● I can complete a web search to find specific information ● I can refine my search ● I can compare results from different search engines

	To identify a computer and its main parts ● I can name the main parts of a computer ● I can switch on and log into a computer ● I can use a mouse to click and drag	**To identify information technology in the home** ● I can explain the purpose of information technology in the home ● I can open a file ● I can move and resize images		**To create a branching database** ● I can select objects to arrange in a branching database ● I can group objects using my own yes/no questions ● I can prove my branching database works	**To change the composition of an image** ● I can explain what has changed in an edited image ● I can change the composition of an image by selecting parts of it ● I can consider why someone might want to change the composition of an image	**To recognise the role of computer systems in our lives** ● I can identify tasks that are managed by computer systems ● I can identify the human elements of a computer system ● I can explain the benefits of a given computer system	**To describe how search engines select results** ● I can explain why we need tools to find things online ● I can recognise the role of web crawlers in creating an index ● I can relate a search term to the search engine's index
	To use a mouse in different ways ● I can use a mouse to open a program ● I can click and drag to make objects on a screen ● I can use a mouse to create a picture	**To identify information technology beyond school** ● I can find examples of information technology ● I can talk about uses of information technology ● I can compare types of information technology		**To explain why it is helpful for a database to be well structured** ● I can create yes/no questions using given attributes ● I can explain that questions need to be ordered carefully to split objects into similarly sized groups ● I can compare two branching database structures	**To describe how images can be changed for different uses** ● I can talk about changes made to images ● I can choose effects to make my image fit a scenario ● I can explain why my choices fit a scenario	**To recognise how information is transferred over the internet** ● I can recognise that data is transferred using agreed methods ● I can explain that networked digital devices have unique addresses ● I can explain that data is transferred over networks in packets	**To explain how search results are ranked** ● I can explain that search results are ordered ● I can explain that a search engine follows rules to rank relevant pages ● I can suggest some of the criteria that a search engine checks to decide on the order of results
	To use a keyboard to type ● I can tell you that writing on a computer is called typing ● I can type my name on a computer ● I can use the shift key to type a capital letter ● I can save my work to a file	**To explain how information technology benefits us** ● I can demonstrate how information technology is used in a shop ● I can recognise that information technology can be connected ● I can explain how information technology helps people		**To identify objects using a branching database** ● I can select a theme and choose a variety of objects ● I can create questions and apply them to a tree structure ● I can use my branching database to answer questions	**To make good choices when selecting different tools** ● I can identify how an image has been retouched ● I can give examples of positive and negative effects that retouching can have on an image ● I can choose appropriate tools to retouch an image	**To explain how sharing information online lets people in different places work together** ● I can recognise that connected digital devices can allow us to access shared files stored online ● I can send information over the internet in different ways ● I can explain that the internet allows different media to be shared	**To recognise why the order of results is important, and to whom** ● I can describe some of the ways that search results can be influenced ● I can recognise some of the limitations of search engines ● I can explain how search engines make money
	To use the keyboard to edit text ● I can open my work from a file ● I can use the arrow keys to move the cursor ● I can delete letters	**To show how to use information technology safely** ● I can list different uses of information technology ● I can recognise how to use information technology responsibly ● I can say how those rules/guides can help me		**To identify the object attributes needed to collect relevant data** ● I can select an attribute to separate objects into groups ● I can create a group of objects within an existing group ● I can arrange objects into a tree structure	**To recognise that not all images are real** ● I can sort images into 'fake' or 'real' and explain my choices ● I can combine parts of images to create new images ● I can talk about fake images around me	**To contribute to a shared project online** ● I can suggest strategies to ensure successful group work ● I can make thoughtful suggestions on my group's work ● I can compare working online with working offline	**To recognise how we communicate using technology** ● I can explain the different ways in which people communicate ● I can identify that there are a variety of ways of communicating over the internet ● I can choose methods of communication to suit particular purposes
	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 ● I can give examples of some of these rules ● I can discuss how we benefit from these rules	**To recognise that choices are made when using information technology** ● I can identify the choices that I make when using information technology ● I can explain simple guidance for using information technology in different environments and settings ● I can enjoy a variety of activities		**To compare the information shown in a pictogram with a branching database** ● I can explain what a pictogram tells me ● I can explain what a branching database tells me ● I can compare two ways of presenting information	**To evaluate how changes can improve an image** ● I can consider the effect of adding other elements to my work ● I can compare the original image with my completed publication ● I can evaluate the impact of my publication on others through feedback	**To evaluate different ways of working together online** ● I can identify different ways of working together online ● I can recognise that working together on the internet can be public or private ● I can explain how the internet enables effective collaboration	**To evaluate different methods of online communication** ● I can compare different methods of communicating on the internet ● I can decide when I should and should not share ● I can explain that communication on the internet may not be private
	To label objects ● I can describe objects using labels ● I can match objects to groups ● I can identify the label for a group of objects	**To recognise that we can count and compare objects using tally charts** ● I can record data in a tally chart ● I can represent a tally count as a total ● I can compare totals in a tally chart		**To explain how digital devices function** ● I can explain that digital devices accept inputs ● I can explain that digital devices produce outputs ● I can follow a process	**To identify that sound can be digitally recorded:** ● I can identify digital devices that can record sound and play it back ● I can identify the inputs and outputs required to play audio or record sound ● I can recognise the range of sounds that can be recorded	**To recognise video as moving pictures, which can include audio** ● I can explain that a video can include both visual and audio media ● I can explain the benefits of adding audio to a video ● I can plan a video project using a storyboard	**To identify how to use a search engine** ● I can complete a web search to find specific information ● I can refine my search ● I can compare results from different search engines
	To identify that objects can be counted ● I can count objects ● I can group objects ● I can count a group of objects	**To recognise that objects can be represented as pictures** ● I can enter data onto a computer ● I can use a computer to view data in a different format ● I can use pictograms to answer simple questions about objects		**To identify input and output devices** ● I can classify input and output devices ● I can model a simple process ● I can design a digital device	**To use a digital device to record sound:** ● I can use a device to record audio and play back sound ● I can suggest how to improve my recording ● I can discuss what other people include when recording sound for a podcast	**To identify digital devices that can record video** ● I can identify and name digital devices that can record video and sound ● I can choose the most suitable digital device for recording my project ● I can locate and identify the working features of a digital device that can record video	**To describe how search engines select results** ● I can explain why we need tools to find things online ● I can recognise the role of web crawlers in creating an index ● I can relate a search term to the search engine's index
	To describe objects in different ways ● I can describe an object ● I can describe a property of an object ● I can find objects with similar properties	**To create a pictogram** ● I can organise data in a tally chart ● I can use a tally chart to create a pictogram ● I can explain what the pictogram shows		**To recognise how digital devices can change the way we work** ● I can explain how I use digital devices for different activities ● I can recognise similarities between using digital devices and non-digital tools ● I can suggest differences between using digital devices and non-digital tools	**To explain that a digital recording is stored as a file:** ● I can plan and write the content for a podcast ● I can discuss why it is useful to be able to save digital recordings ● I can save a digital recording as a file	**To capture video using a digital device** ● I can select a suitable device and software to capture my video ● I can demonstrate suitable methods of using a digital device to capture my video ● I can demonstrate the safe use and handling of devices	**To explain how search results are ranked** ● I can explain that search results are ordered ● I can explain that a search engine follows rules to rank relevant pages ● I can suggest some of the criteria that a search engine checks to decide on the order of results
	To count objects with the same properties ● I can group similar objects ● I can group objects in more than one way ● I can count how many objects share a property	**To select objects by attribute and make comparisons** ● I can tally objects using a common attribute ● I can create a pictogram to arrange objects by an attribute ● I can answer 'more than'/'less than' and 'most/least' questions about an attribute		**To explain how a computer network can be used to share information** ● I can recognise different connections ● I can explain how messages are passed through multiple connections ● I can discuss why we need a network switch	**To explain that audio can be changed through editing:** ● I can open a digital recording from a file ● I can discuss ways in which audio recordings can be altered ● I can edit sections of of an audio recording	**To recognise the features of an effective video** ● I can list some of the features of an effective video ● I can record a video that demonstrates some of the features of an effective video ● I can explain why lighting and angle are important in creating an effective video	**To recognise why the order of results is important, and to whom** ● I can describe some of the ways that search results can be influenced ● I can recognise some of the limitations of search engines ● I can explain how search engines make money
	To compare groups of objects ● I can choose how to group objects ● I can describe groups of objects ● I can record how many objects are in a group	**To recognise that people can be described by attributes** ● I can choose a suitable attribute to compare people ● I can collect the data I need ● I can create a pictogram and draw conclusions from it		**To explore how digital devices can be connected** ● I can recognise that a computer network is made up of a number of devices ● I can demonstrate how information can be passed between devices ● I can explain the role of a switch, server, and wireless access point in a network	**To show that different types of audio can be combined and played together:** ● I can discuss sounds that other people combine ● I can choose suitable sounds to include in a podcast ● I can use editing tools to arrange sections of audio	**To identify that video can be improved through reshooting and editing** ● I can store, retrieve, and export my recording to a computer ● I can explain how to improve a video by reshooting and editing ● I can select the correct tools to make edits to my video	**To recognise how we communicate using technology** ● I can explain the different ways in which people communicate ● I can identify that there are a variety of ways of communicating over the internet ● I can choose methods of communication to suit particular purposes
	To answer questions about groups of objects ● I can decide how to group objects to answer a question ● I can compare groups of objects ● I can record and share what I have found	**To explain that we can present information using a computer** ● I can use a computer program to present information in different ways ● I can share what I have found out using a computer ● I can give simple examples of why information should not be shared		**To recognise the physical components of a network** ● I can identify how devices in a network are connected with one another ● I can identify networked devices around me ● I can identify the benefits of computer networks	**To evaluate editing choices made:** ● I can explain that digital recordings need to be exported to share them ● I can discuss the features of a digital recording I like ● I can suggest improvements to a digital recording	**To consider the impact of the choices made when making and sharing a video** ● I can make edits to my video and improve the final outcome ● I can recognise that my choices when making a video will impact on the quality of the final outcome ● I can evaluate my video and share my opinions	**To evaluate different methods of online communication** ● I can compare different methods of communicating on the internet ● I can decide when I should and should not share ● I can explain that communication on the internet may not be private