Our Shared Vision for computing at NB: To create the new generation of digital leaders by developing the knowledge and skills for all pupils in computing by raising the profile of the subject among staff, ensuring a broad and balanced curriculum is in place.

Computing Skills Progression

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Basic Skills							
Computing Systems and Networks		**Recognising Technology Around Us** I can identify different technologies. I can locate examples of technology in the classroom. I can identify a computer and name its parts. I can log onto a computer. I can use a mouse to click and drag, create pictures and open programs. I can save my work to a file. I can use a keyboard to type my name, delete	**Information Technology Around us** I can describe some uses of computers I can identify examples of computers I can identify that a computer is a part of IT I can identify examples of IT I can identify that some IT can be used in more than one way - I can sort IT by what it's used for and where it's found I can demonstrate how IT devices	**Connecting Computers** I can explain that digital devices accept inputs and produce outputs I can classify input and output devices I can describe a simple process I can design a digital device I can explain how I use digital devices for different activities I can recognise similarities and differences between using digital devices and non-digital tools I can discuss why we need a network switch	**The Internet** I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web contains websites and web pages I can describe how to access websites on the WWW I can describe where websites are stored when uploaded to the WWW I can explain the types of media that	**Systems and Searching** I can explain that computer systems communicate with other devices I can explain that systems are built using a number of parts I can identify tasks that are managed by computer systems I can identify the human elements of a computer system I can compare results from different search engines I can make use of a web search to find specific information	**Communication and Collaboration** I can describe how computers use addresses to access websites I can explain that internet devices have addresses I can recognise that data is transferred using agreed methods I can explain that all data transferred over the internet is in packets I can identify and explain the main parts of a data packet I can recognise how to access shared files stored

		letters and use arrow keys. I know the benefits of technology. I know rules to keep me safe when using technology.	work together I can recognise common types of technology I can say why we use IT I can talk about different rules for using IT I can explain the need to use IT in different ways I can identify the choices that I make when using IT	I can explain how messages are passed through multiple connections I can recognise different connections 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 I can recognise that a computer network is made up of a number of devices I can identify how devices in a network are connected together I can identify the benefits of computer networks	can be shared on the WWW I can explain that internet services can be used to create content online I can explain what media can be found on websites I can recognise that I can add content to the WWW I can explain that there are rules to protect content 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 not everything on the World Wide Web is true I can explain why I need to think carefully before I share or reshare content I can explain why some information I find online may not be honest, accurate, or legal	I can refine my web search 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 explain that a search engine follows rules to rank results I can give examples of criteria used by search engines to rank results I can order a list by rank I can describe some of the ways that search results can be influenced I can explain how search engines make money I can recognise some of the limitations of search engines	online I can send information over the internet in different ways -I can explain how the internet enables effective collaboration I can recognise that working together on the internet can be public or private I can compare different methods of communicating on the internet I can decide when I should and should not share information online I can explain that communication on the internet may not be private

Creating Media	I can draw lines on a screen and explain which tools I used. I can make marks on a screen and explain which tools I used. I can make dots on the page using a brush tool.	**Digital Painting** I can use paint tools to draw a picture. I can use shape and line tools to make marks. I can use the shape and line tools effectively. I can use colour and brush tools. I can explain why I have chosen certain tools. I can use a computer to paint a picture. I can compare painting a picture on a computer and on paper. **Digital Writing** I can identify and find keys on a keyboard I can open a word processor I can enter text into a computer I can use backspace to remove text I can use letter, number, and space keys I can identify the toolbar and use	**Digital Photography** I can explain what I did to capture a digital photo I can recognise what devices can be used to take photographs I can explain the process of taking a good photograph I can take photos in both landscape and portrait format I can identify what is wrong with a photograph I can improve a photograph by retaking it I can experiment with different light sources I can explain why a picture may be unclear I can explore the effect that light has on a photo I can recognise that images can be changed I can use a tool to achieve a desired effect I can apply a range of photography skills to capture a	**Stop-frame Animation** I can explain how an animation/flip book works I can create an effective stop-frame animation I can explain why little changes are needed for each frame I can evaluate the quality of my animation I can review a sequence of frames to check my work I can use onion skinning to help me make small changes between frames I can improve my animation based on feedback I can add other media to my animation **Desktop Publishing** I can recognise that text and images can communicate messages clearly I can change font style, size, and colours for a given purpose	**Audio Production** I can explain that the person who records the sound can say who is allowed to use it I can identify the input and output devices used to record and play sound I can use a computer to record audio I can discuss what sounds can be added to a podcast I can inspect the soundwave view to know where to trim my recording I can re-record my voice to improve my recording I can explain how sounds can be combined to make a podcast more engaging I can save my project so the different parts remain editable I can improve my voice recordings I can record content following my plan I can review the	**Video Production** I can compare features in different videos I can explain that video is a visual media format I can identify features of videos I can experiment with different camera angles I can identify and find features on a digital video recording device I can make use of a microphone I can capture video using a range of filming techniques I can create and save video content I can decide which filming techniques I will use I can explain how to improve a video by reshooting and editing I can select the correct tools to make edits to my video I can store, retrieve, and export my recording to a computer I can make edits to	**Web page Creation** I can discuss the different types of media used on websites I know that websites are written in HTML I can draw a web page layout that suits my purpose I can recognise the common features of a web page I can describe what is meant by the term 'fair use' I can find copyright-free images I can say why I should use copyright-free images I can add content to my own web page I can evaluate what my web page looks like on different devices and suggest/make edits I can preview what my web page looks like I can describe why navigation paths are useful I can make multiple web pages and link

		bold, italic, and underline I can type capital letters" I can change the font I can select all of the text by clicking and dragging I can select a word by double-clicking I can decide if my changes have improved my writing I can use 'undo' to remove changes I can explain the differences between typing and writing I can make changes to text on a computer	photo I can identify which photos are real and which have been changed **Digital Music** I can create a rhythm pattern I can explain that music is created and played by humans I can use a computer to experiment with pitch I can explain how my music can be played in different ways I can refine my musical pattern on a computer I can add a sequence of notes to my rhythm I can explain how I changed my work	I can edit text I can create a template for a particular purpose I can define the term 'page orientation I can recognise placeholders and say why they are important I can choose the best locations for my content I can make changes to content after I've added it I can paste text and images to create a magazine cover I can choose a suitable layout for a given purpose I can match a layout to a purpose I can compare work made on desktop publishing to work created by hand I can identify the uses of desktop publishing in the real world I can say why desktop publishing might be helpful	quality of my recordings I can arrange multiple sounds to create the effect I want I can explain the difference between saving a project and exporting an audio file I can open my project to continue working on it I can listen to an audio recording to identify its strengths and areas of improvement **Photo Editing** I can explain why I might crop an image I can improve an image by rotating it I can use photo editing software to crop an image I can experiment with different colour effects I can explain why I chose certain colour effects I can add to the composition of an image by cloning	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 **Vector Graphics** I can discuss how vector drawings are different from paper-based drawings I can recognise that vector drawings are made using shapes I can explain that each element added to a vector drawing is an object I can move, resize, and rotate objects I have duplicated I can explain how alignment grids and resize handles can be used to improve consistency I can modify objects to create a new image I can use the zoom tool to help me add detail to my drawings	them using hyperlinks I can create hyperlinks to link to other people's work I can evaluate the user experience of a website I can explain the implication of linking to content owned by others" **3D Modelling** I can add 3D shapes to a project I can move 3D shapes relative to one another I can view 3D shapes from different perspectives I can lift/lower 3D objects I can recolour a 3D object I can resize an object in three dimensions I can duplicate 3D objects I can group 3D objects I can rotate objects in three dimensions I can combine a number of 3D objects

					I can identify how a photo edit can be improved I can remove parts of an image using cloning I can experiment with tools to select and copy part of an image I can explain why photos might be edited I can use a range of tools to copy between images I can choose suitable images for my project I can create a project that is a combination of other images I can combine text and my image to complete the project I can review images against a given criteria I can use feedback to guide making changes	I can change the order of layers in a vector drawing I can identify that each added object creates a new layer in the drawing I can use layering to create an image I can copy part of a drawing by duplicating several objects I can recognise when I need to group and ungroup objects I can reuse a group of objects to further develop my vector drawing I can create a vector drawing for a specific purpose	I can show that placeholders can create holes in 3D objects I can analyse a 3D model I can choose objects to use in a 3D model I can combine objects in a design -I can construct a 3D model based on a design I can explain how my 3D model could be improved I can modify my 3D model to improve it

Coding		**Coding A** I can match a command to an outcome I can run a command on a device I can give directions I can start a sequence from the same place 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 I can choose the order of commands in a sequence I can debug my program and identify several possible solutions I can plan two programs I can use two different programs to get to the same place **Coding B** I can compare different programming tools I can use commands to move	**Coding A** I can show the difference in outcomes between two sequences that consist of the same commands I can use an algorithm to program a sequence on a floor robot I can use the same instructions to create different algorithms I can compare my prediction to the program outcome I can follow a sequence I can predict the outcome of a sequence 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 I can create an algorithm to meet my goal I can explain what my algorithm should achieve	**Coding A** I can explain that objects in Scratch have attributes I can identify the objects in a Scratch project (sprites, backdrops) I can recognise that commands in Scratch are represented as blocks I can create a program following a design I can identify that each sprite is controlled by the commands I choose I can create a sequence of connected commands I can explain that the objects in my project will respond exactly to the code I can start a program in different ways" I can build a sequence of commands I can decide the actions for each sprite in a program I can identify and name the objects I	**Coding A** I can create a code snippet for a given purpose I can explain the effect of changing a value of a command I can program a computer by typing commands I can test my algorithm in a text-based language I can write an algorithm to produce a given outcome I can use a count-controlled loop to produce a given outcome I can choose which values to change in a loop 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 explain that a computer can repeatedly call a procedure	**Coding A** I can create a simple circuit and connect it to a microcontroller I can program a microcontroller to make an LED switch on I can connect more than one output component to a microcontroller I can design sequences that use count-controlled loops I can use a count-controlled loop to control outputs I can design a conditional loop I can explain that a condition is either true or false I can program a microcontroller to respond to an input 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 I can create a detailed drawing of my project	**Coding A** I can explain that the way a variable changes can be defined I can identify that variables can hold numbers or letters I can explain that a variable has a name and a value I can identify a program variable as a placeholder in memory for a single value I can recognise that the value of a variable can be change 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 choose a name that identifies the role of a variable I can test the code that I have written I can identify ways that my game could be improved I can share my game with others I can use variables

		a sprite I can use a Start block in a program I can use more than one block by joining them together I can change the value and say what happens when I change a value I can add blocks to each of my sprites I can delete a sprite I can create an algorithm for each sprite I can decide how each sprite will move I can add programming blocks based on my algorithm I can test the programs I have created and debug them	I can use my algorithm to create a program I can plan algorithms for different parts of a task I can put together the different parts of my program I can test and debug each part of the program **Coding B** I can identify that a program needs to be started I can change the outcome of a sequence of commands I can match two sequences with the same outcome I can decide which blocks to use to meet the design I can work out the actions of a sprite in an algorithm I can choose backgrounds and characters for the design I can create a program based on the new design I can build	will need for a project I can implement my algorithm as code **Coding B** I can choose which keys to use for actions and explain my choices I can explain the relationship between an event and an action I can identify a way to improve a program I can choose a suitable size for a character in a maze I can program movement I can consider the real world when making design choices I can use a programming extension I can build more sequences of commands to make my design work I can choose suitable keys to turn on additional features I can match a piece of code to an	I can identify 'chunks' of actions in the real world I can use a procedure in a program I can design a program that includes count-controlled loops I can develop my program by debugging it I can make use of my design to write a program **Coding B** I can modify a snippet of code to create a given outcome I can predict the outcome of a snippet of code I can choose when to use a count-controlled and an infinite loop I can modify loops to produce a given outcome I can recognise that some programming languages enable more than one process to be run at once	I can describe what my project will do I can test and debug my project I can use selection to produce an intended outcome I can write an algorithm that describes what my model will do **Coding B** I can identify conditions in a program I can modify a condition in a program I can create a program with different outcomes using selection I can identify the condition and outcomes in an 'if... then… else...' statement I can use selection in an infinite loop to check a condition I can design the flow of a program which contains 'if… then… else…' I can explain that program flow can branch according to a condition	to extend my game **Coding B** -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 I can determine the flow of a program using selection I can use a variable in an if, then, else statement to select the flow of a program I can experiment with different physical inputs I can explain that checking a variable doesn't change its value I can use a condition to change a variable I can explain the importance of the order of conditions in else, if statements I can modify a program to achieve

			sequences of blocks to match my design I can create an algorithm I can compare my project to my design I can debug my program I can improve my project by adding features	outcome I can modify a program using a design I can test a program against a given design I can implement my design I can make design choices and justify them	I can choose which action will be repeated for each object I can evaluate the effectiveness of the repeated sequences used in my program I can explain what the outcome of the repeated action should be I can explain the effect of my changes I can re-use existing code snippets on new sprite I can select key parts of a given project to use in my own design I can refine the algorithm in my design	I can show that a condition can direct program flow in one of two ways I can implement my algorithm to create the first section of my program I can test my program I can identify the setup code I need in my program	a different outcome I can use an operand (e.g. <>=) in an if, then statement 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 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

Data and Information		**Grouping Data** I can identify the label for a group of objects I can group objects in more than one way I can choose how to group objects I can record how many objects are in a group I can compare groups of objects I can decide how to group objects to answer a question I can record and share what I have found	**Pictograms** I can enter data onto a computer I can use a computer to view data in a different format I can explain what the pictogram shows I can use a tally chart to create a pictogram I can answer questions about an attribute I can create a pictogram to arrange objects by an attribute -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 I can give simple examples of why information should not be shared I can share what I have found out using a computer I can use a computer program to present information in	**Branching Databases** I can arrange objects into a tree structure using yes/no questions I can select an attribute to separate objects into groups I can select objects to arrange in a branching database I can test my branching database to see if it works I can compare two branching database structures I can explain that questions need to be ordered carefully to split objects into similarly sized groups I can create a physical version of a branching database I can independently create questions to use in a branching database I can create a branching database that reflects my plan I can suggest real-world uses for branching databases I can test my	**Data Loggers** I can explain what data can be collected using sensors I can use data from sensors to answer a given question I can recognise that a data logger collects data at given points I can talk about the data that I have captured I can sort data to find information I can propose a question that can be answered using logged data I can use a data logger to collect data I can draw conclusions from the data that I have collected I can explain the benefits of using a data logger I can interpret data that has been collected using a data logger	**Flat-file Databases** I can choose which field to sort data by to answer a given question I can explain what a field and a record is in a database I can navigate a flat-file database to compare different views of information I can group information using a database 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 explain the benefits of using a computer to create charts I can refine a chart by selecting a particular filter I can select an appropriate chart to visually compare data I can ask questions that will need more than one field to answer I can present my	**Spreadsheets** I can enter data into a spreadsheet I can suggest how to structure my data I can apply an appropriate format to a cell I can choose an appropriate format for a cell I can explain what an item of data is I can construct a formula in a spreadsheet I can explain which data types can be used in calculations I can identify that changing inputs changes outputs I can apply a formula to multiple cells by duplicating it I can calculate data using different operations I can create a formula which includes a range of cells I can apply a formula to calculate the data I need to answer questions I can explain why data should be

			different ways	identification tool		findings to a group I can refine a search in a real-world context	organised I can use a spreadsheet to answer questions I can produce a chart I can suggest when to use a table or chart I can use a chart to show the answer to questions