Northway Community Primary School – Key Learning Overview – COMPUTING – CYCLE 1

	TOPICS	ONLINE SAFETY	PROGRAMMING	MULTIMEDIA	COMPUTER SYSTEMS	DATA
EYFS	**Coding Critters** **eSafety (SID) and throughout the curriculum**	Online Safety is taught through PSED: Self-regulation Managing Self Building Relationships	Entirely child led unit of work where children program simple robots using forwards, backwards, left and right as part of small world play. Although not structured it allows children to understand that algorithms are a set of instructions and getting them to predict what will happen when they press different buttons	Children learn the following skills throughout Expressive Arts and Design (EAD) through Creating with Materials and Being Imaginative and Expressive which enable them to explore materials and create their own ideas to express themselves as well as creating their own songs. Children also have access to iPads and computers during continuous provision to be able to create multimedia on digital devices.	Children have access to iPads and interactive whiteboard during structured lessons and continuous provision. In continuous provision they also have access to desktop computers & headphones.	
Y1 & Y2	**Beebots** **eSafety** **Computers – Basic skills** **JIT Coding** **Email** **Photos & Editing**	* Learn the importance of gaining permission for being/sharing online * How to seek help for themselves or others when online * Compare how behaviour can be similar or different online * Begin to understand how to keep private information safe online.	*Programme a floor robot to achieve a desired outcome * Know how to combine instructions to create a sequence * Understand that the order of a sequence is important * Write simple algorithms to achieve an outcome * Test out simple algorithms and debug these * Programme a sprite to move in a series of directions * Combine commands to create a sequence * Predict outcomes of a programme	*Understand that email is a form of communication and can be used inside and outside of our school setting. * Compose a new email and send it to a given recipient. Respond to an email that has been sent to me. * Know how to stay safe when sending and receiving emails. * Know the importance of keeping my passwords safe * Know how to stay safe if they receive an email from someone they don't know ---------- * Use a digital device to take a photograph * Explain how light affects a photo and experiment with different light sources * Alter an image by changing colours and adding filters. * Recognise that photos can be changed and that photos we see online might not be real.	*Technology is an important part of daily life and helps us in many ways * Different inputs can be plugged into a computer to make things happen * The keys on a keyboard represent different letters and look different to lower case letters used to write. * Text can be changed * Know that work can be saved and accessed again * A mouse and keyboard can be used to find and navigate a website * Use a mouse to click and drag * Use a mouse to open a program * Use a keyboard to type Save and reopen work from a file *Login using a generic username and password	

				Learn to recognise photos that have been changed		
Y3 & Y4	**Networks** **eSafety** **Podcasts** **Programming music sequences** **Branching Databases**	*Learn who can be trusted online * How people can be hurt by online behaviour * How to seek help for themselves or others when online * Importance of limiting time spent online * Why online activities have age restrictions	* Use block programming to control a sprite * Understand the commands (inputs) have an outcome (output) * Know a sequence of commands has a specific order * Understand what happens if commands are not in the correct order * Predict what will happen from programme code * Create a sequence of commands	* Recognise inputs and outputs needed to play audio or record sounds. * Record sound on a digital device and play it back. * Know that a digital record is stored as a file. Save a digital recording and know why it is useful to be able to save digital recordings * Explain that audio can be changed through editing. Open a digital recording, edit it and resave it. * Recognise how different types of audio can be combined. * Use an editing tool to arrange audio clips. * Plan and create a podcast. * Evaluate editing choices and export an audio file to share it.	* Explain how digital devices have an input, a process, and an output. * Understand what a network is. * Recognise that a computer network is made up of a number of devices and information is passed between devices. * Know that the internet is a network of networks *Explain how the internet allows us to view the World Wide Web and that the World Wide Web is the part of the internet that contains websites and web pages * Recognise how the content of the WWW is created by people. Understand who owns the content on different websites and explain that there are rules to protect content.	*Recognise different types of questions and identify closed questions with a yes/no answer. * Arrange objects into a tree structure * Create a branching database by select objects and using my own yes/no questions *Understand the best structure of a database. *Compare and evaluate databases and say which work best. *Use a branching database to identify objects. Know how branching databases are used in real life.
Y5 & Y6	**Crumbles** **Flat File Databases** **Spheros** **Communication & Collaboaration** **eSafety** **Video editing**	*Identify how to act respectfully online to avoid cyberbullying * Learn the importance of consent when sharing online content * Learn the impact of online behaviour on a person's reputation * Learn how 'banter' can be perceived as bullying * How to seek help for themselves or others when online * Understand how apps & services collect, store and share private information about us when online.	*Understand how a Crumble works and identify its parts and components. * Use written language to write out the code in child friendly language. * Use sequence and repetition to program a set of traffic lights. * Debug a program to find and fix errors. * Use selection to add a buzzer to their traffic light system. --- * Investigate how a Sphero is controlled and connected to an iPad using Bluetooth.	*Identify and name digital devices that can record video and sound. * Capture video using a digital device. *Demonstrate suitable methods of using a digital device to capture my video * Recognise the features of an effective video. Explain why lighting and angle are important in creating an effective video * Select the correct tools to make edits to a video Reshoot and edit a video. * Plan and create a video for a specific purpose.	*Explain that computer systems are built using a number of parts. * Know how information is transferred over the internet. * Recognise that connected digital devices can allow us to access shared files stored online. * Understand the advantages of shared working online. * Explain how the internet enables effective collaboration. * To evaluate different ways of working together online recognise that working together on the internet can be public or private	*Know what a database is. * Compare paper and computer-based databases. * Explain how information can be grouped. Choose how to group information and combine grouping and sorting to answer specific questions. * Understand how 'AND' and 'OR' can be used to refine data selections. * Explain the benefits of using a computer to create graphs to compare data visually. * Use filters to refine the data in a chart. * Recognise real life use of databases

			* Understand the need to calibrate and 'aim' a Sphero when driving it. * Understand the conditional 'if/then' * Know what variables are and use these in algorithms * Write pseudocode (code written in non-coding language before it's turned into code) and then create algorithms using variables. * Combine variables, loops and if/then statements to create algorithms	* Recognise that my choices when making a video will impact on the quality of the final outcome * Evaluate a video considering the impact of the choices made when making and sharing a video to improve the final outcome.		* Ask questions that will need more than one field to answer and refine a search in a real-world context

Northway Community Primary School – Key Learning Overview – COMPUTING – CYCLE 2

	TOPICS	ONLINE SAFETY	PROGRAMMING	MULTIMEDIA	COMPUTER SYSTEMS	DATA
EYFS	**Coding Critters** **eSafety (SID) and throughout the curriculum**	Online Safety is taught through PSED: Self-regulation Managing Self Building Relationships	Entirely child led unit of work where children program simple robots using forwards, backwards, left and right as part of small world play. Although not structured it allows children to understand that algorithms are a set of instructions and getting them to predict what will happen when they press different buttons	Children learn the following skills throughout Expressive Arts and Design (EAD) through Creating with Materials and Being Imaginative and Expressive which enable them to explore materials and create their own ideas to express themselves as well as creating their own songs. Children also have access to iPads and computers during continuous provision to be able to create multimedia on digital devices.	Children have access to iPads and interactive whiteboard during structured lessons and continuous provision. In continuous provision they also have access to desktop computers & headphones.	
Y1 & Y2	**Music making** **Esafety** **Scratch Jr Animation** **Scratch Jr 2 Quizzes** **Computers– basic skills**	*Understand the different type of information on the internet and who it can be accessed by *Describe the ways people can be unkind online *Explain what cyber bullying is, how it can make people feel and how to get help and support	*Find the commands to move a sprite. Choose commands to achieve a given purpose. *Understand that a series of commands can be joined together. *Use a Start block in a program. *Identify the effect of changing a value.	*Recognise how music, including digital music, can make us feel. *Change the pitch and duration of digital musical notes. *Create digital music to represent an image. *Recognise how music is made from a series of notes.	*Recognise how technology is used in the real world beyond school *Use a mouse and keyboard to search for a website and navigate between page *Identify the main parts of a computer. Turn a computer on and login. Use the computer mouse to click and drag.	

	Word processing	*Know how to get help from a trusted adult when anything upsets them online *Identify rules that keep us safe online and create healthy habits	*Know that sprites can be controlled separately. Add more than one sprite to a project, delete sprites and add blocks to each sprite. *Use my algorithm to create a program. *Test a program to check it works. --- *Recognise that a sequence of commands has an outcome. Predict the outcome of a sequence of commands. *Understand that there is more than one way to achieve the same outcome. *Create an animation using sprites, the change background and text blocks. *Edit an existing idea by choosing and changing backgrounds, choosing characters and programming the sprite to speak. *Plan and create a quiz in Scratch using taught content *Debug the algorithm. *Evaluate their quiz and decide how it can be improved.	*Use a computer to create a musical pattern using three notes *Save work in a known place. *Reopen work and review it *Listen to own and other's work and describe how it makes them feel --- *Open a word processor. Recognise keys on a keyboard. Identify and find keys on a keyboard. Know what the space bar, back space and enter keys do. *Use the space bar to make a space in between words. Move the cursor around the screen using the mouse and arrow keys. *Add text and remove it using back space. Save a document. *Use caps lock to add capital letters. Recognise the bold, italic and underline buttons on the toolbar. *Use the toolbar to change the font of the writing. Understand what the redo and undo buttons do.	*Use a mouse to: open a program, click and drag to make objects on a screen & use a mouse to create a picture. *Use a keyboard to type. Save my work to a file. *Use a keyboard to change/edit text. Open my own work from a file on J2E. *Use the arrow keys to move the cursor. Delete letters using the backspace.	
Y3 & Y4	**ESafety** **Data loggers** **Desktop publishing** **Animation** **Logo** **Scratch**	*Understnd the ways in which someone may change their identity online and how this may be different to their 'real life' identity. *Explain how and why others may pretend to be someone else online *Know how to make sensible choice about their online identity, *Explain that not all opinions shared online may be true or fair and that many people sharing the same opinion doesn't make it a fact.	*Understand the difference between text based programming and black based programming. *Create an algorithm to draw a letter of the alphabet. Plan, test and debug an algorithm. *Know what 'repeat' means. Understand the importance of the repeat command in text based programming. Use a count-controlled loop to produce a given outcome *Predict the outcome of an algorithm that includes a count-controlled loop. Identify	*Recognise how text and images convey information. *Edit text for a given purpose by changing the font style, size, and colours. *Recognise that text can be changed to communicate more clearly. *Choose appropriate page settings by choosing the orientation, understanding place holders and creating a template for a given purpose. *Add content to a desktop publication document by choosing the best location for		*Know that data gathered over time can be used to answer questions. Choose a data set to answer a given question. Suggest questions that can be answered using a given data set. *Use a digital device to collect data automatically. Know that sensors are input device. Use data from a sensor to answer a given question. *Know that a data logger collects 'data points' from sensors over time. Identify a suitable place to collect data

		*Describe strategies for keeping personal information private online *Explain the importance of seeking support from a trusted adult when anything worries them or makes them feel uncomfortable online.	the effect of changing the number of times a task is repeated. Know which values to change in a loop. *Create a program that uses count-controlled loops to produce a given outcome. --- *Compare count-controlled loops in different programmes. *Modify loops to produce a given outcome. Choose when to use a count-controlled and an infinite loop and recognise that some programming languages enable more than one process to be run at once *Develop a design that includes two or more loops which run at the same time. *Modify an infinite loop in a given program. Identify which parts of a loop can be changed and explain the effect. *Design a project that includes repetition. *Create a project that includes repetition. *Refine the algorithm and evaluate the steps followed when building a project.	the content, pasting text and images to create a magazine cover and editing content to improve it. *Consider how different layouts can suit different purposes and choose a suitable layout for a given purpose. *Plan and create a leaflet using the skills learnt in this topic. --- *Understand that animation is a sequence of drawings or photographs. *Know that the pictures in an animation are called frames. Recognise that the changes between frames are small. *Understand the camera needs to stay still and not move. Record a short stop frame animation using a physical object and evaluate the effectiveness of the frames. Reshoot animations to improve them. *Record and evaluate animations. Use onion skinning to make small changes between frames. Evaluate the quality of the animation.		and the intervals used to collect data *Use data collected over a long duration to find information. Use a computer to view data in different ways and sort it. *Propose a question that can be answered using logged data. Plan how to collect data using a data logger. Set up use a data logger to collect data. *Use collected data to answer questions. interpret data that has been collected using a data logger and draw conclusions. Explain the benefits of using a data logger.
Y5 & Y6	**Vector drawings** **Code bugs** **Spreadsheets** **Computers systems and searching** **ESafety** **Websites**	*Understand how others can influence or manipulate others online and the importance of being sceptical. *Know how to make judgements about the validity, accuracy and intent of online content. *Critically evaluate online content and understand the importance of challenging inappropriate representations relating to gender, race,	*Understand how a code bug works and connects to a computer. *Use knowledge of sequence and repetition to program a code bug to achieve a specific goal *Understand Code Bugs use inputs and outputs. *Introduce variable blocks. Make their own Code Bug board game *Use selection with if/then blocks.	*Understand what vectors are and use the main drawing tools within the Google Drawings application. *Begin to identify the shapes that are used to make vector drawings. *Create own vector drawing by moving, resizing, rotating, and changing the colours of a selection of objects. *Increase the complexity of vector drawings and use the	*Use a web search to find specific information. Refine a search to improve results and compare results from different search engines. *Understand how search engines select results. Relate a search term to the search engine's index and recognise the role of web crawlers in creating an index. *Explain how search results are ranked and suggest some of the criteria that a search	*Know that a spreadsheet is a computer application that allows users to organise, analyse, and store data in a table. *Understand data sets, data items and cells. Identify the different formats in which data can be presented within a spreadsheet. Collect and enter data into a spreadsheet. *Know that formulas can be used to produce calculated

		religion, disability, culture and other groups. *Recognise different types of cyberbullying, explain how to block abusive users, gather evidence of cyber-bullying and how to access support or signpost others. *Recognise ways that technology can positively and negatively impact on well-being and know strategies to limit the negative impact technology can have. *Recognise how technology can be designed to impersonate living things and describe the risks and benefits.		zoom tool to add detail to work *Understand layers and how they are used in vector drawings. Discover that each object is built on a new layer and that these layers can be moved forwards and backwards *Select and duplicate multiple objects and how to group multiple objects to make them easier to work with. *Create a vector drawing for a specific purpose. Reflect on the skills used to create the vector drawing and begin to compare vector drawings to freehand paint program drawings --- *Know the difference between a website, web page and a browser. Recognise the common features of a web page and evaluate what makes them effective. *Recognise the purpose and audience of a website. Plan to create a website and what content to include. *Understand copyright and fair use and how to responsibly use images. Find fair use content for their own website. *Add content and preview how the site looks on different devices. *Recognise the need for a navigation path within a website. Make multiple web pages and link them using hyperlinks *Consider the implications of linking to content owned by	engine checks to decide on the order of results *Recognise why the order of search results is important. *Describe some of the ways that search results can be influenced and recognise some of the limitations of search engines.	data. Construct simple formula in a spreadsheet. *Apply formula in a spreadsheet across a range of cells. Duplicate formulas across different cells. *Create a spreadsheet to plan an event using a budget. Explain why data should be organised in a certain way and apply a formula to calculate the data needed to answer questions *Present data from spreadsheets in graphs.

				other people. Create hyperlinks to link to other people's work and embed content within a web page.		