	What we teach? (Minimum Requirement From NC)	Why we teach it now? (Rationale)	Key Vocabulary
EY	• In Nursery, we find that many children start with a thorough understanding of how to use technology, especially in regards to navigating touch screen devices to access favoured apps. Therefore, we feel it is imperative that children are exposed to experiences that take place off screen. In Reception we build on children's healthy relationship with technology from Nursery and support children in developing a strong foundation of knowledge in using technology in an educational setting to complete a specific learning task.		Ipad Touch screen Mobile phone Television Hoover Microwave Plug Whiteboard Computer Mouse Tablet Technology Computing Type Select Insert Plan
Year 1 Autumn	**Technology Around Us** **INFLUENCE, STRUCTURE** **Computer systems, Algorithms** • Recognise technology within school • Demonstrate simple skills – open, edit and save a document • Understand how to use technology responsibly	In reception, pupils learnt how a range of technology is used in places such as homes and schools. This prepares them for recognising technology within schools and demonstrating simple skills and using technology responsibly. This prepares children for Y2 where pupils will be identifying IT and exploring how IT helps us in school as well as considering how IT helps us in the wider world.	Technology Desktop Laptop Logging on Mouse Image Function Picture Program Keyboard Typing Save Icon File Edit
	Digital Painting **CAUSE & EFFECT, APPRECIATION** **Effective use of tools, Creating Media** • Choosing appropriate tools in a program to create art • Using the tools accurately to create art • Making comparisons to working non-digitally	• Builds upon learning how to use ICT equipment and IPads in the classroom appropriately. • Prepares pupils for Y2 where pupils will be capturing and changing digital image and editing for a purpose.	Freehand tools Digital painting Shape tool Line tool Artist Comparison
Year 1 Spring	**Moving a Robot** **POWER, CAUSE & EFFECT** **Algorithms, Programming** • Knowing what an algorithm is • Writing short algorithms for floor robots • Predicting program outcomes	In reception, pupils learnt about programmable toys – they planned a successful route for a programmable toy to follow. Prepares for Y2, pupils will learn about algorithms and programming to create and debug programmes.	Buttons Command Run Clear Program Predict Outcome Run Instruction Directions Forwards Backwards Sequence Turn Move Debug Solutions
	Grouping Data **STRUCTURES, SIGNIFICANCE** **Data & information, Algorithms** • Exploring how to use object labels • Sort and group objects by properties	Builds upon children in reception learning a strong foundation of knowledge in computing, developed listing skills and good problem-solving abilities. Prepares pupils for collecting data in tally charts and using attributes to organise date. Pupils will also present data on a computer in Y2.	Objects Labels Groups Input Classify Compare Question Record Share
Year 1 Summer	**Digital Writing** **POWER, SIGNIFICANCE** **Effective use of tools, Creating Media** • Create text • Format text • Compare to writing non-digitally	In Reception, pupils had an introduction to using ICT equipment in the classroom. Prepares pupils for learning how to edit for a purpose in Y2 as well as making an interactive quiz.	Word processor Application Keyboard Text Backspace Toolbar Change Undo Double-click Dragging

	Programming Animations **POWER, CAUSE & EFFECT** **Programming, Design & Development** • Designing the movement of a character on screen • Programming the movement of a character on screen • Telling stories using programming of a character	• Builds upon programmable toys in Reception where pupils learnt how to programme a successful route for a toy to follow. • Prepares for Y2, pupils will learn about algorithms and programming to create and debug programmes.	Command Purpose Sprite Blocks Backgrounds Value Project Delete Design Test
Year 2 **Autumn**	**Information Technology Around Us** **STRUCTURES, APPRECIATION** **Networks, Computer systems** • Identifying IT • Explore how IT helps us in school • Consider how IT helps us in the wider world	• Builds on learning from Year 1 where they recognise technology in school and then transfer this knowledge to beyond school. • Prepares them for Year 3 where they begin to explore networks and how these function.	IT Environments Common Devices Safety
Year 2 **Spring**	**Robot Algorithms** **POWER, INFLUENCE** **Algorithms, Programming** • Create programs • Debug programs • Use reasoning too make predictions	• Builds upon learning from Year 1 where children wrote algorithms and predicted outcomes. • Prepares children for Year 3 where they will write sequences of code building on their knowledge of algorithms.	Instructions Sequence Algorithm Floor robot Routes Mat Design Test Debug
	Pictograms **STRUCTURES, CAUSE & EFFECT** **Data & information, Effective use of tools** • Collecting data in tally charts • Use attributes to organise date • Present data on a computer	• Builds upon learning from Year 1 where children explored how to use object labels to sort and group objects by properties. • Prepares children to build a branching database in Year 3 by generating questions.	Data Tally chart Totals Represented Pictograms Questions Organise Attribute Compare Conclusion Collection
Year 2 **Summer**	**Making Music** **APPRECIATION, SIGNIFICANCE** **Creating Media, Design & Development** • Using computers as a tool to explore rhythm and melody • Create a musical composition	• Builds upon learning from Year 1 where children created text and compared it to writing non-digitally. • Prepares children to create sequences using block based programmes.	Music Differences Adjectives Rhythm pattern Pitch Melody Sequence Composition
	Programming Quizzes **POWER, CAUSE & EFFECT** **Programming, Design & development** • Designing algorithms • Use events to trigger sequences of code • Make an interactive quiz	• Builds upon learning from Year 1 where children wrote algorithms and predicted outcomes. • Prepares children for Year 3 where they will write sequences of code building on their knowledge of algorithms.	Instructions Sequence Algorithm Floor robot Routes Mat Design Test Debug
	Digital Photography **SIGNIFICANCE, CAUSE & EFFECT** **Effective use of tools, Creating media** • Capturing digital images • Changing digital images • Considering how to edit for a purpose	• Builds upon learning from Year 1 where children learnt how use tool to create digital paint and now will use the same tools to edit digital photographs. • Prepares the children for Year 3 where children will explore stop frame animation by utilising the tools to edit and improve.	Digital device Photograph Capture Landscape Portrait Format Composition Light sources Tool Effect Editing software
Year 3 **Autumn**	**Connecting Computers** **STRUCTURE, SIGNIFICANCE** **Networks, Computer Safety** • Identifying that digital devices have inputs, processes and outputs • Understanding that devices can be connected • Knowing what a network is	• Builds upon learning from Year 2 where they have learned about IT in the wider world and identifying IT. • Prepares children for Year 4 when they will learning about identifying networks.	Digital Device Input Output Processes Networks Infrastructure Wireless access points Process Relationships Messages Connections Components
	Stop-frame Animation **INFLUENCE, CAUSE & EFFECT** **Effective use of tools, Creating media**	• Builds upon knowledge of Year 2 when the children learned about capturing images.	Animation Flip books Sequence Predict

	• Capture/edit digital still images • Produce stop-frame animation • Use stop-frame animation to tell a story	• Prepares children for Year 4 when the children are learning about manipulating digital images.	Explain Create Settings Characters Events Media effects
Year 3 Spring	**Sequencing Sounds** **POWER, SIGNIFICANCE** **Programming, Design & development** • Create sequences • Use block based program of language to make music • Become familiar with Scratch Jr	• Builds upon knowledge from Year 2 when the children learned about rhythms and melody. • Prepares children for Year 4 when the children are learning about capturing audio.	Scratch project Sprites Backdrop Commands Blocks Code Replicate
	Branching Databases **STRUCTURE, APPRECIATION** **Data & information, Effective use of tools** • Know what a branching database is and use one • Ask yes/no questions to separate groups • Build a branching database using these questions	• Builds upon knowledge from Year 2 when the children learned about collecting data. • Prepares children for Year 4 when they learn about how data is collected over time.	Questions Attributes Separate Groups Collect Data Tree structure Branching database Uniquely Identification tool
Year 3 Summer	**Desktop Publishing** **POWER, INFLUENCE** **Effective use of tools, Creating media** • Understand how to modify text and images • Explore how to modify page layouts • Create documents for a purpose using modified text, images and page layouts	• Builds upon learning from Year 2 when the children learned about capturing images. • Prepares children for Year 4 when they reflect on how an image has changed.	Text Images Advantages Disadvantages Information Publishing Layout Page orientation Placeholders
	Events and actions in programs **POWER, SIGNIFICANCE** **Programming, Design & development** • Writing algorithms/programs • Use events to trigger sequences of code	• Builds upon learning from Year 2 when the children designed algorithms. • Prepares children for Year 4 when the children learn about programming language.	Sprite Event Action Directions Movement Context Extension Fixtures Sequences Bugs fix
Year 4 Autumn	**The Internet** **POWER, STRUCTURE** **Networks, Safety & security** • Recognising the internet as a network • Understanding of WWW as a network • Knowing why we evaluate online content	• Builds upon learning from Year 3 where children learnt what a network is and how devices can be connected. • This prepares children for Year 5 where they will learn about IT systems around the world and how searching on the internet is enabled.	Network Devices Routers Websites Web pages WWW Access Media Content Protect Unreliable
	Audio Production **INFLUENCE, CAUSE & EFFECT** **Effective use of tools, Creating Media** • Capturing audio • Editing audio • Creating a podcast • Considering copyright	• Builds upon learning from Year 3 where children developed their editing skills and produced a stop-frame animation to tell a story. • This prepares children for Year 5 where they will produce a short film.	Sound Record Input Output Ownership Copyright Editing Soundwave Trim Import Align Layering Exporting
Year 4 Spring	**Repetition in Shapes** **STRUCTURE, CAUSE & EFFECT** **Algorithms, Programming** • Understanding text based programming language • Use count controlled loops • Draw shapes using program	• Builds upon learning from Year 3 where children became familiar with sequencing sounds. • Prepares children for Year 5 where they will design and create an interactive quiz.	Accuracy Programming Text based Code Algorithms Debug Patterns Repeat Loop Decomposition
	Data Logging **SIGNIFICANCE, CAUSE & EFFECT** **Computer Systems, Data & information** • Recognising how and why data is collected over time • Using data loggers • Carrying out an investigation	• Builds upon learning from Year 3 where the children learnt how to write an algorithm. • Prepares children for Year 5 where they will begin to programme interactive elements and explore selection in programming.	Data Collection Time Data set Digital device Sensors Recording Software Access Conclusions
Year 4 Summer	**Photo Editing** **APPRECIATION, POWER** **Effective use of tools, Creating media**	• Builds upon learning from Year 3 where children learnt how to modify text and images.	Editing Rotate Crop

	• Manipulating digital images • Reflecting on how image has changed • Manipulating to fulfil a purpose	• Prepares children for year 5 where they will create images using a drawing programme.	Filters Colour effects Cloning Composition Techniques Combine
	Repetition in Games **STRUCTURE, CAUSE & EFFECT** **Programming, Design & development** • Using block based programming • Use count controlled loops • Create a game	• Builds upon learning from Year 3 where children used block based programmes to make music. • Prepares children for Year 5 where they will be create their own short film.	Scratch Repetition Signify Block based programming Infinite Count-controlled Modify
Year 5 **Autumn**	**Sharing information** **POWER, APPRECIATION** **Networks, Effective use of tools** • Recognise IT systems within the world • Understand how searching on the internet is enabled	• Builds on learning from Year 4 recognising the internet as a network and furthering understanding of WWW as a network. • Build on Year 4 knowing why we evaluate online content and will prepare them for Year 6 when they need to have an understanding of how dangerous the internet can be unless used safely.	System Components Physical Electronic Input Process Output Task Search engine Results Web crawlers Index Criteria
	Video production **SIGNIFICANCE, CAUSE & EFFECT** **Creating media, Design & development** • Planning and capturing video • Editing video • Producing a short film	• This will build on learning from Years 3 and 4 where children used block based programmes to make music and where children developed their editing skills and produced a stop-frame animation to tell a story.	Video Media Production Editing Camera angles Storyboard Script Scenes Edits
Year 5 **Spring**	**Selection in physical computing** **STRUCTURE, POWER** **Programming, Computer systems** • Exploring conditions and selections • Using a programmable microcontroller	• This will build on learning from Year 4 where children develop their understanding of text based programming language. They also use count controlled loops and draw shapes using program.	Simple circuit Microcontroller Control Infinite Sequence Component Output Selection Flow Bugs
	Flat-file databases **STRUCTURE, INFLUENCE** **Data & information, Effective use of tools** • Using a database accurately • Ordering data and creating charts • Answering questions using a database	• In Year 3, children learn what a branching database is and use one. They use ask yes/no questions to separate groups and build a branching database using these questions. • This is built upon in Year 4 when they learn how and why data is collected over time; they use data loggers to carry out an investigation. • This will prepare them for Year 6 when they use spreadsheets to organise data.	Database Data set Order Sort Group Fields Record Navigate Flat-file Tools Criteria Filter
Year 5 **Summer**	**Vector drawing** **SIGNIFICANCE, CAUSE & EFFECT** **Effective use of tools, Creating media** • Creating images using a drawing program • Add layers to images • Use groups of objects in the program	• In Year 4 children manipulate digital images to fulfil a purpose and also reflect on how image has changed. • In Year 6 they need to design and create a 3D model and use software to modify shapes so vector drawing will prepare them for that.	Vector Shapes Lines Drawing Element Moving Resizing Rotating Duplicate Alignment grids Layers
	Selection in quizzes **STRUCTURE, POWER** **Algorithms, Programming** • Exploring selection in programming • Program interactive elements • Design and create an interactive quiz	• In Year 4 children will understand text based programming language, use count controlled loops and draw shapes using program • This unit will prepare children for Year 6 when they design and code their own project using their knowledge.	Selection Conditions If...then.... structure Binary question *See previous unit Selection in Physical Computing*
Year 6 **Autumn**	**Internet Communication** **POWER, SIGNIFICANCE** **Networks, Effective use of tools** • Explore how data is transferred • Working collaboratively online	• In Year 5 children learnt about IT systems around the world and how searching on the internet is enabled. By Year 6 they have also learnt the dangers the internet can pose as well as how to use it safely.	Communication IP address Protocols Domain Name Server Networks Packets Header Data payload
	Webpage Creation **APPRECIATION, INFLUENCE** **Creating media, design & development** • Design and create webpages • Understand copyright, aesthetics and navigation	• In Year 5 children learnt about IT systems around the world and how searching on the internet is enabled. By Year 6 they have also learnt the dangers the internet can pose as well as how to use it safely.	HTML code Media Web page layout Copyright free Preview Navigation path Hyperlinks

	• Consider copyright, aesthetics and navigation in own website design		
Year 6 **Spring**	**Variables in games** **STRUCTURE, CAUSE & EFFECT** **Programming, Design & development** • Exploring variables • Design and code a game	• In Year 5, children learnt to explore selection in programming and how to program interactive elements for an interactive quiz. They can build on this in Year 6 to design and code a game.	Variables Placeholder Name Value Algorithms
	Introduction to spreadsheets **STRUCTURE, SIGNIFICANCE** **Effective use of tools, Data & information** • Know how spreadsheets organise and calculate data • Answer questions using spreadsheets	• In Year 5 children learnt how to order data, create charts using a database. They also answered questions using this database. In Year 6 they will be doing the same but using spreadsheets.	Data set Spreadsheet Cell references Formatting cells Formulas Outputs Duplicating Chart Table Software
Year 6 **Summer**	**3D Modelling** **POWER, CAUSE & EFFECT** **Effective use of tools, Creating media** • Recognise that a computer can create 3D images • Use software to modify shapes • Design and create a 3D model	• In Year 5 children create images using a drawing program and then add layers to these images. This prepares them for this unit when they will focus on 3D models.	Three dimensions Views Shapes Perspective Manipulate Workplane Placeholders Construct 3D model
	Sensing **STRUCTURE, CAUSE & EFFECT** **Programming, Computer systems** • Capture inputs from a physical device • Design and code a project using this knowledge	• In Year 5 children design and create an interactive quiz exploring selection in programming to make it interactive. This will prepare them for this unit in Year 6 when they design and code their own project.	Micro:bit Programming Controllable device Input Process Output Flow Variables Operands