THE MINSTER
NURSERY AND INFANT SCHOOL
School of Inspiration
DETERMINATION HONOUR BELIEVE
PREPARING FOR A BRIGHT FUTURE WITH INNOVATIVE AND EXCITING LEARNING

Computing Curriculum Map

Our curriculum aims to enable our children to become confident in 'computational thinking' as a skill so they can participate effectively and safely in this digital world. Our children will develop a wide range of skills, from critical thinking to collaborative skills, communication and creativity. They will talk about a range of current technology, identifying their usage in our rapidly developing and changing technological world and make links to their own experiences. Through following the National Centre for Computing Education's 'Teach Computing' scheme, the children will build upon prior learning, consolidating skills and developing new skills in moving robots, grouping data, digital writing and painting, knowledge of information technology around us and programming animations.

	Autumn	**Spring**	**Summer**
Nursery	Computing systems and networks The children explore various technology e.g. remote control cars during continuous provision to begin to understand forwards and backwards. Use technology in roleplay eg answering the phone. Know the names of some household appliances.	Computing systems and networks: The children explore different types of technology e.g. computer, camera, remote controlled games, microwave, programmable toys, torches both in context and in role-play situations. The children are also introduced to small remote control vehicles or programmable toys and use buttons to give them commands.	E-safety: Name a real life danger e.g.traffic and road safety, dangerous litter, stranger danger, sun safety. Discuss the importance of keeping safe around the school e.g. different coloured lanyards, playground safety.
Key Vocabulary	push, on, off, battery, computer, mouse, keyboard, forwards, backwards, phone, microwave, fridge, console, app,	Camera, game, torch, beebot, push, pull, button, control, forwards, backwards, turn, go, clear, remote control, batteries, plug.	E-safety, danger, safe, unsafe.
Reception	Computing systems and networks: The children explore how technology helps us at home, in school and everyday uses. They explain how technology can be used in different jobs. Digital Painting: The children use a painting program to explore changing font size and colour, They explore other simple programs and complete one, e.g. busy things.	Moving a robot: The children explore using a Beebot floor robot and how to code commands using the buttons, forward, backwards, clear, turn and go. They explain why a simple BusyThings program (Beebot) has not worked e.g. moved too far, not far enough, wrong turn and correct the commands they have given the program (debugging).	Digital photography: The children use an ipad to take a photo. They learn how to show photos on an ipad and how to switch them on and off. The children learn about different types of technology e.g. ipads, laptops, computers, programmable toys, torches, using them for a purpose.
Key Vocabulary	Computer, technology, iPad, app, internet, screen, on/off, click, button, swipe, e-safety, safe, unsafe, gesture,	Beebot, controllable, command, button, press, go, clear, code, debug, move, forward, backwards, turn, shut down, program.	Photo, photography, switch, font, colour, thick, thin, rubber out, clear, quit.
Year 1	Computing systems and networks: The children learn about how technology is something that helps us. They look at the main parts of a computer and how to log in using their password. They use a touchpad/mouse to make a picture using the shape tool. The children learn how to save work to a file and open it. Using the undo/redo and backspace/delete button, they explore using a keyboard to move the cursor and delete letters. They also identify rules for keeping us safe when we use technology. Digital painting: The children explore the J2e paint program, learning how to use the shape and line tools effectively. They choose appropriate shapes and colours to recreate the work of an artist and talk about which paint tools were helpful and why. They experiment with dots of colour to create a picture and identify differences between painting on a computer and on paper.	Moving a Robot: The children learn what an algorithm is and look at predicting the outcome of a command on a Beebot programmable robot. They give and follow clear instructions, comparing forwards and backwards movements to achieve a task. They experiment with turn and move commands to move a robot and choose the order of commands in a sequence to solve a problem. The children are introduced to several possible solutions to a problem. Describe objects using labels: The children learn how to group and count objects. They describe a property of an object and explore grouping objects in different ways according to their properties. They record how many objects are in a group and decide how to group objects to answer a question. They talk about when something online might not be safe and explain that some personal information can affect their personal safety if given out e.g.personal address.	Digital writing: The children recognise keys on a keyboard, the shirt and CAPSLOCK. They use the keyboard to add and remove text. They Identify the toolbar and use bold, italic and underline. They also talk about the difference between writing and typing. Programming Animations The children learn how to use commands to move a sprite in the J2e program.They are introduced to block coding and look at how to join blocks of code together and run a program. They explain what happens when they change a value in the block code and experiment with adding more sprites by creating an algorithm for each one. Finally they test the code they have created and debug if needed.
Key Vocabulary	Technology, computer, log in, safe, open, shape, tool, delete, cursor, delete, file folder load image video audio text toolbar	algorithm, code, username, password, debug, retrieve, sequence, programme, program, direction, forwards, backwards,	Animation, command, sprite, block, program, run, value, test, keyboard, text, toolbar, bold, italic, underline, shift,

	copyright save folder font style undo/redo straight line primary colours portrait		clockwise, anti-clockwise, turn, data, group, property, data, personal data, safe, online.		capslock.	
Year 2	<u>Computer systems and networks:</u> Children look at how a computer is part of IT and Identify examples of computers and IT technology and explain how some IT can be used in more than one way. They describe some uses of computers andIT and explain why we use it. They list the different rules for using IT and identify the choices that we make when using IT. The children use J2E mix to create a powerpoint, applying the skills of keyboard, colour and tools. They examine what a digital footprint means and how it contains information about a person. They Identify which keywords will give me good results and use a website to search for information. They decide what unkind online behaviour is and what to do if someone is being unkind online. They are introduced to using both hands on the keyboard and use a word bank to create a piece of writing using different font colours and formatting. <u>Digital photography:</u> The children explore what devices can be used to take photograph and explain how to capture a digital photo and what makes a good photograph. They take photos in both landscape and portrait format and explain which is better and identify what is wrong with a photograph. They learn how to improve a photograph by retaking it. Within this they explore the effect that light has on a photo, experimenting with different light sources and explain why a picture might be unclear. They use tools to achieve a desired effect and apply a range of photography skills to capture a photo. They also look at how to Identify which photos are real and which have been changed.		<u>Robot Algorithms:</u> The children name an example of an algorithm and explain what happens when the order of instructions is changed. They use the same instructions to create different algorithms and plan an algorithm to program a sequence on J2e Turtle Floor Robot. The children revisit debugging by examining two sequences that consist of the same commands but are ordered differently. The children follow a given sequence, predict the outcome of a sequence and compare their predictions to the program outcome. They then make their own floor robot mat designs and explain the choices they made for their designs and identify different routes around their mat. They then create an algorithm to meet their own goal and explain what their algorithm should achieve and use their algorithm to create a program, debugging it as they test it. <u>Data information - Pictograms:</u> The children record and organise data in a tally chart. They then use a tally chart to create a pictogram. They compare the totals and use the data to answer simple questions. They select different objects by attributes and make comparisons. The children continue to tally, this time by a common attribute and then creating another pictogram arranging the objects by attribute. They use the J2e program to present their information in different ways. They share back to the class what they have found out and give simple examples of why information should not always be shared. Using J2e they use a word bank to create a piece of writing, selecting different coloured font and changing the formatting.		<u>Digital Music:</u> The children describe music, identifying simple differences in pieces of music and talking about how music can make us feel. They say what they do and don't like about a piece of music. Then they recreate a rhythm pattern using a computer program with percussion instruments. They experiment with sounds and pitch and connect images with sounds. Using a computer, they identify music as a sequence of notes and explain how music can be played in different ways. They create a rhythm based on a chosen animal and add a sequence of notes, reviewing the work as they go and explaining how they have changed it. <u>Programming quizzes:</u> The children learn that a sequence of commands needs to have start and an outcome. They look at predicting the outcome of a sequence of commands and how to change the outcome of a give sequence. They create a program using a given design and are introduced to sprites. They decide which blocks to use to complete the design and how to change it as they develop the program. They choose backgrounds and characters for the design, choosing their own images and look at how they can improve the design. Along the way they continue to debug their design.	
Key Vocabulary	Powerpoint, digital footprint, keywords, colour, size, font, formatting.	Photograph, digital, landscape, portrait, frame duplicate, light, unclear, source, real, identify	Algorithm, sequence, sequence, common, order, predict, debug, route.	Data, tally chart, pictogram, comparison, object, attribute, font, formatting	Rhythm pattern, pitch, sequence, rhythm.	Quiz, predict, sprite, block programming, design, improve.