Computer science

	Foundation (EYFS expectation)	Year 1	Year 2
What our children will learn:	• Recognise that a range of technology is used in places such as homes and schools • Select and use technology for particular purposes	• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Recognise common uses of information technology beyond school	
How teachers will provide this:	• Provide floor robots, remote control toys and exploratory software for children to use • Talk about where technology is used in the school and the world around	• Provide opportunities for children to give and follow instructions to move about the playground or hall • Provide opportunities for children to explore what happens when different buttons are pushed on a floor robot and to predict what will happen when a sequence of buttons are pressed • Encourage children to talk about the algorithm that will move a floor robot to a specified position • Talk about the buttons that will need to be pressed on a floor robot to execute the algorithm • Provide a range of technologies for children to discover outcomes for different inputs • Provide opportunities for repeated experiences of programming robots, models and on-screen turtles to achieve particular outcomes • Talk about precise instructions and debugging a program • Talk about sequencing activities across the curriculum as examples of algorithms • Talk about where programming is used in the school and the world around	

Computer science

Computing learning plan

	Year 3	Year 4
What our children will learn:	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems: solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables an various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Recognise common uses of information technology beyond school	
How teachers will provide this:	• Set problem solving tasks for children to develop thinking using both paper and pencil and appropriate software • Talk about algorithms to solve difficult problems • Talk about the format of instructions and encourage prediction of outcomes • Ask questions about what will happen if… • Introduce sensors which can be used to 'trigger' actions such as a floor robot reversing to avoid an obstacle • Talk about variables as the numbers which go with log o commands and procedure as a way to each the turtle or computer to do something new • Model the testing of programs and talk about the need to debug programs • Talk about examples of programming in the world around	

Computer science	
Year 5	Year 6

Computing learning plan

What our children will learn:	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems: solve problems by decomposing them into smaller parts • Use sequence, selection and repetition in programs' work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Understand computer networks including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration
How teachers will provide this:	• Set problem solving tasks for children where they are expected to write procedures to achieve outcomes • Model the writing of an algorithm to achieve a specific outcome • Model the detecting and correcting errors in a program and link this to the original algorithm • Set tasks for children to use sensing equipment to control actions of a device • Provide opportunities for children to simulate controlling effects of a physical system • Talk about a variable as a container or box to store a number that needs to be used in a program • Talk about the uses of programming in the world around and its impact on society, including that of gaming

Computing learning plan

Digital literacy (including e-safety)

	Foundation (EYFS expectation)	Year 1	Year 2
What our children will learn:	• Select and use technology (safely) for particular purposes	• Use technology safely and respectfully, keeping personal information private • Know where to go for help and support when they have concerns about content or contact on the internet or other online technologies	
How teachers will provide this:	• Provide opportunities to talk about passwords and when to keep them to themselves • Talk about good and bad choices in real life and when using technology, including taking turns and being kind • Talk about the need to make sure an adult is with them when they go on the Internet • Talk about how and when task for help when using the Internet • Provide opportunities for children to share work they have made, in real life or online e.g. school website	• Discuss and define classroom rules / expectations about safe use of the Internet • Provide opportunities to discuss what personal information is and who you can tell it to • Provide opportunities to log onto networks or school website and discuss keeping passwords private • Reinforce the rule about keeping adults informed about Internet activity and telling if you see something you don't like • Model making good choices about the websites you use, and how long to spend online • Talk about the need for kind and polite communication in real life and online	

Computing learning plan

Digital literacy (including e-safety)

	Year 3	Year 4	Year 5	Year 6
What our children will learn:	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour, identify a range of way to report concerns and inappropriate behaviour • Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content			
How teachers will provide this:	• Discuss and agree classroom rules/expectations about safe use of the Internet • Model how to protect personal information and how to choose a secure password • Reinforce the rule about keeping adults informed about Internet activity and telling if you see something you don't like or if you're being bullied • Model how to choose age-appropriate websites and minimise risk of viruses • Provide opportunities to communicate and collaborate safely and respectfully with others online e.g. class blogging • Model how to provide appropriate responses to others' work		• Provide opportunities to discuss and agree classroom rules / expectations about safe use of the Internet • Model how to protect personal information through secure passwords and making good choices about sharing information • Provide opportunities to discuss what is an appropriate amount of time to spend online • Talk about how to protect themselves and devices from inappropriate content/conduct and virus threats • Model how to report concerns e.g. telling an adult, using the Dolphin • Model the use of appropriate tools to communicate with others in a safe, responsible and respectful way	

Computing learning plan

	ICT		
	Foundation (EYFS expectation)	Year 1	Year 2
What our children will learn:	• Recognise that a range of technology is used in places such as homes and schools • Select and use technology for particular purposes	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	
How teachers will provide this:	• Provide opportunities for children to explore programs independently and build early skills in operating technology • Model and encourage children to access real and imaginary ICT including the use of the Internet and online tools • Provide opportunities for children to use cameras and sounds recorders to collect photos or sound	• Create words banks and templates to allow children to develop and present work to each other • *Provide opportunities to save, open and retrieve work* • Model the use of digital (still and video) cameras to support work across the curriculum and teach children to use them where appropriate • *Provide opportunities for children to access appropriate educational images to include in their work* • Provide opportunities for children to create images using paint programs and digital cameras • Provide opportunities for children to record their own voices using sounds recorders • Provide opportunities for children to develop keyboard skills	

Computing learning plan

ICT		
	Year 3	Year 4
What our children will learn:	• Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, system and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	
How teachers will provide this:	• Model the editing of texts and provide opportunities across the curriculum for children to build text editing skills • Encourage children to become independent in accessing and modifying photographs, *considering the issue of copyright* • Provide continuing opportunities for children to create their own pictures and edit photographs and digital video using paint programs, video editing programs and online tools • Provide opportunities for children to create, edit and share sound files • Provide opportunities for children to share their learning with others online • Provide opportunities for children to extend their keyboard skills • Model how to evaluate and modify their multimedia work to make it fit for purpose	

ICT		
	Year 5	Year 6
What our children will learn:	• Select, use and combine a variety of software (including Internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting date and information	
How teachers will provide this:	• Model then set problems for children to carry out complex searches of databases (e.g. using and/or) e.g. exploring census data • Identify or prepare data with anomalies and direct children to find mistakes, ensuring they realise the need to check plausibility • Expect children to be confident user of data tools, collecting and using live data in a science or geography activity including through the use of data loggers • Provide purposes for children to use a spreadsheet or data base to collect data • Encourage children to set their own challenges which require using the whole data process	