Whitegate Primary and Nursery School
Progression Map
Computing

Developing Computing at Whitegate

At Whitegate we follow the 'Everyone Can Code' curriculum designed by Apple which we believe far exceeds of the breadth and depth of the guidance of the National Curriculum. This programme systematically builds children's understanding of the fundamental principles and concepts of computer science. Once completed in Year 6, children will have exceeded the expectations of the computing programme of study for primary schools and will be more than prepared for the challenges of the Key Stage 3 and 4 coding curriculum. We plan carefully for progression in both knowledge and skills from EYFS to Year 6.

We want our children to leave us being active participants and confident, self-assured learners in a digital world and have the knowledge and skills to adapt to new technological changes. Our education provision goes beyond one skill or one app and exposes the children to a depth and breadth of technology which they use, not only in computing lessons, but also in their everyday learning in the same way we use technology in our everyday lives.

Our children see the possibilities that technology can bring but yet are computer literate enough to be able to distinguish what is real. They understand how technology can be used to manipulate and are aware of both the positives and dangers that new technology can bring, understanding how they can use technology safely and efficiently to achieve great things.

Through the use of modern technology, we empower our children to access the world. They use computational thinking to solve real world problems and see this as a field of work. With 90% of jobs today requiring IT skills and a predicted skills shortfall of 800,000 skilled IT jobs across the EU by 2020, we feel creating career possibilities is vital for our children. Their skills go beyond end user and they are able to understand the workings behind the technology they are using.

Colour coding of the progression map

The year group to which the objectives relate	An area which is repeated across multiple year groups	An area which is repeated in one other year group	An area the children will be coming across for the first time.

	Early Learning Goal
Nursery	Children show an interest in technological toys with knobs or pulleys or real objects such as cameras or iPads. They show skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. They know that information can be retrieved from computers.
Foundation	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. They complete a simple program on a computer and use ICT to interact with an age appropriate computer.

Year 1				
Algorithms	**Create Programs**	**Using Technology**	**Use of IT beyond school**	**Safe Use**
Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	*Pupils should be taught to create and debug simple programs.*	*Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve data.*	*Pupils should be taught to recognise common uses of information technology beyond school.*	*Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*
Content at Whitegate delivered through 'BeeBot' app.				
Create a series of instructions and plan a journey for a programmable toy.	Create a program for BeeBot to follow and be able to debug and solve problems where the algorithm goes wrong.	Use a website and a camera. Record sound and play back.	Talk about some of the IT uses in their own home.	Use technology safely. Keep personal information private.

Year 2

Coding			Using Technology	Use of IT beyond school	Safe Use
Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	*Pupils should be taught to create and debug simple programs.*	*Pupils should be taught to use logical reasoning to predict the behaviour of simple programs.*	*Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve data.*	*Pupils should be taught to recognise common uses of information technology beyond school.*	*Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*
Content at Whitegate delivered through CodeSpark Academy					
• Create a simple algorithm • Sequence commands to move a character • Debug by finding and fixing errors in a program. • Predict whether a program will or won't work and explain why. • Use trial and error to solve a problem. • Use a loop when a sequence of commands repeats. • Recognise loops in the world around them. • Decompose a problem by breaking it down into smaller problems. • Use decomposition to solve a problem. • Sequence commands to solve a problem. • Understand the concept of efficiency and that efficient programs use the fewest commands. • Understand events cause things to happen. • Use events to give options in an algorithm. • Understand a programmer can use IF statements to make certain actions happen under certain conditions. • Use IF statements to make programs more dynamic and efficient.			• Understand that data is stored and organised. • Understand that stacks have elements that can be added and removed from the top. • Understand that a queue can have a front and back.	• Know how technology is used in school and outside of school.	• Know where to go for help if concerned.

Year 3

Coding			Networks	Search Engines	Using Programs	Safe Use
Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	*Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output.*	*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.*	*Pupils should be taught to 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.*	*Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Pupils should be taught to 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.*	*Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*
Content at Whitegate delivered through 'Tynker: Space Cadet' and 'Get Started with Code 1'						
• Construct a sequence based on a familiar story. • Code using sequences. • Understand the importance of order when sequencing instructions. • Understand that some steps within a sequence can be reordered and still achieve the same outcome. • Construct a flexible sequence and compare it with a partner's work. • Identify which parts of the sequence are step-by-step and which parts are flexible. • Code using different sequences to achieve the same outcome. • Understand what a loop is and identify where a loop can make an instruction more efficient. • Understand why a loop is powerful and code with loops. • Demonstrate the use of debugging in an everyday situation and debug code. • Recognise that events give us options in coding, express an event in words and symbols. • Code using events and actions. • Code using IF statements. • Write an algorithm to solve a problem. • Design a simple program.			• Navigate the web to complete simple searches.	• Use a range of software for similar purposes. • Collect and present information.	• Understand what computer networks do and how they provide multiple services.	• Use technology respectfully and responsibly. • Know different ways they can get help if concerned.

Year 4

Coding			Networks	Search Engines	Using Programs	Safe Use
Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	*Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output.*	*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.*	*Pupils should be taught to 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.*	*Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Pupils should be taught to 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.*	*Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*
Content at Whitegate delivered through 'Tynker: Dragon Spells' and 'Get Started with Code 2'						
Solve coding puzzles using algorithms. Understand how to approach debugging a program or algorithm. Understand how loops help us think more efficiently. Solve coding puzzles using loops. Understand decomposition as a way of solving problems by breaking them down into parts. Solve coding puzzles using decomposition. Understand abstraction as a way of making it easier to think about problems. Identify situations where we use abstraction in everyday life. Solve coding puzzles using abstraction. Understand how functions help us to think more efficiently. Identify functions in everyday life. Solve coding puzzles using functions. Understand conditional statements as a way of handling different situations. Identify situations where use conditional statements in everyday life. Solve coding puzzles using conditional statements. Understand while loops as a way of handling conditions that stay the same. Understand nested loops as an efficient way of handling actions that contain other repeating actions. Solve coding puzzles using while loops and nested loops.			Know how to search for specific information and know which information is useful and which is not.	Select and use software to accomplish given goals.	Produce and upload a podcast.	Recognise acceptable and unacceptable behaviour using technology.

Year 5

Coding and Computer Science			Search Engines	Using Programs	Safe Use
Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	*Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output.*	*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.*	*Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Pupils should be taught to 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.*	*Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*
Content at Whitegate delivered through 'Swift Playground' and 'Learn to Code 1'					
Get an introduction to computer science. Describe what commands and sequences are. Demonstrate the use of commands and sequences in an everyday situation. Code using commands and sequences. Debug with code. Describe what functions and for loops are for. Demonstrate the use of functions and for loops in an everyday situation. Code using functions and for loops. Describe what conditional code, Booleans and logical operators are. Demonstrate the use of conditional code, Booleans and logical operators in an everyday situation. Code using conditional code, Booleans and logical operators. Describe what while loops are. Demonstrate the use of while loops in an everyday situation. Code using while loops.			Understand how search results are selected and ranked.	Produce an upload a video tutorial on how to accomplish a given goal including animations, voice overs and other digital content.	Understand that they have to make choices when using technology and that not everything is true and/or safe.

Year 6

Coding and Computer Science			Search Engines	Using Programs	Safe Use
Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	*Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output.*	*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.*	*Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Pupils should be taught to 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.*	*Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*
Content at Whitegate delivered through 'Swift Playground' and 'Learn to Code 1 and 2'					
Describe what algorithms are. Code using algorithms. Describe what variables are. Demonstrate the use of variables in an everyday situation. Code using variables. Demonstrate what types and initialization are. Demonstrate the use of types and initialization in an everyday situation. Code using types and initialization. Describe what parameters are. Demonstrate the use of parameters in an everyday situation. Code using parameters. Describe what arrays are. Demonstrate the use of arrays in an everyday situation. Code using arrays.			Be aware that some search engines may provide misleading information.	Present data collected in a way that makes it easy for others to understand.	Be increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable.