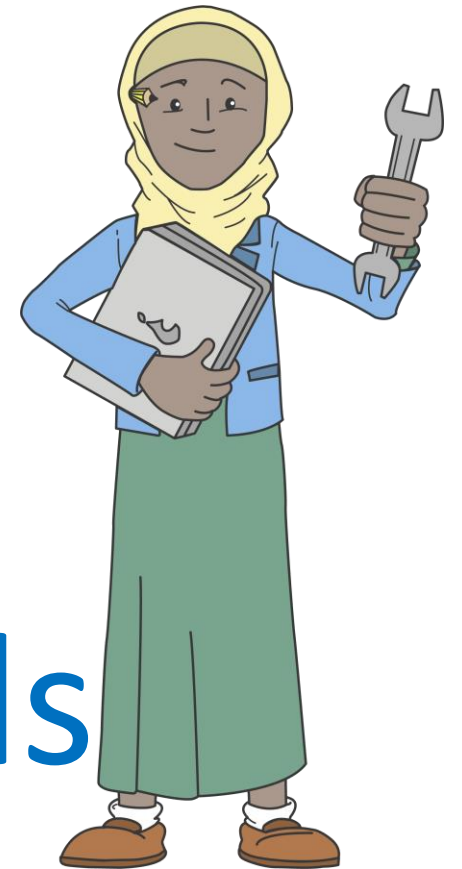# Computing Progression of Knowledge and Skills

Coding Progression of Knowledge

Year 1	Year 2	Year 3 (Cycle A)	Year 4 (Cycle B)	Year 5	Year 6
Know that a programmable robot can be controlled by inputting a sequence of instructions Develop and record sequences of instructions as an algorithm Debug programs Predict how my program will work	Plan a sequence of instructions to move sprites in ScratchJr Create, test and debug programs for sprites in ScratchJr Work with input and output in Scratch Use repetition in my programs Design costumes for sprites	Plan and create an algorithm for an animated scene in the form of a storyboard Write a program in Scratch to create the animation, including characters, dialogue, costumes, backdrops and sound Review their animation programs and correct mistakes.	Develop an educational game using selection and repetition Understand and can use variables Start to debug computer programs Recognise the importance of user interface design, including consideration of input and output	Create original artwork and sound for a game Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables Detect and correct errors in my computer game Use iterative development techniques (making and testing a series of small changes) to improve my game	Know how computers use stored programs to connect input to output Know how to generate and evaluate designs in response to a brief Plan a complex project by decomposing it into smaller parts Work with physical components of a system Design and write a program for an embedded system Use criteria to provide others with feedback on their work.
Beebots Bluebots Blue Bot App	Ipads Scratch Jr	Laptops Scratch	Laptops Scratch	Laptops Scratch	BBC Micro:Bits Laptops Make Code

Year 1

	Coding	Uses of Technology	E-Safety
NC KS1	• 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 • Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• 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.
Components	• Know that a programmable robot can be controlled by inputting a sequence of instructions • Develop and record sequences of instructions as an algorithm • Debug programs • Predict how my program will work	• Know how to select and set brushes and colours • Create artwork in a range of styles on iPads • Use the undo function if I make mistakes and experiment • Use multiple layers in my art • Transform layers • Paint on top of photographs • Plan a small multimedia ebook • Choose and import images • Record audio commentary • Add and format titles and other text • Think carefully about protecting my privacy • Respect other people's copyright • Revise and improve my work	Term 1: Self image and identity Term 2: Online Bullying Term 3: Online Reputation Term 4: Health Well-being and Lifestyle Term 5: Online Relationships Term 6: Privacy and Security Safer internet day. Jigsaw PSHE

Fairlawn

Year 1

Term 2 – Uses of technology

Unit	National Curriculum Requirement	Components	Software	Hardware
1.3 We are digital Artists Creating work inspired by great artists	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of digital technology beyond school	• I know how to select and set brushes and colours • I can create artwork in a range of styles on iPads • I can use the undo function if I make mistakes and experiment • I can use multiple layers in my art • I can transform layers • I can paint on top of photographs	Brushes redux	iPads

Year 1

Term 4 – Uses of Technology

Unit	National Curriculum Requirement	Components	Software	Hardware
1.4 We are publishers Creating a multimedia ebook about our achievements	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Use technology safely and respectfully, keeping personal information private; identify where we go for help and support when they have concerns about content or contact on the Internet or other online technologies • Recognise common uses of information technology beyond school	• I can plan a small multimedia ebook • I can choose and import images • I can record audio commentary • I can add and format titles and other text • I can think carefully about protecting my privacy • I can respect other people's copyright • I can revise and improve my work	Book Creator	iPads

Year 1

Term 6 - Coding

Unit	National Curriculum Requirement	Components	Software	Hardware
1.1 We are treasure hunters Solving Problems using programmable toys.	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute them by following precise, unambiguous instructions. • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs.	• I know that a programmable robot can be controlled by inputting a sequence of instructions • I can develop and record sequences of instructions as an algorithm • I can debug programs • I can predict how my program will work	Bee-Bot App Blue-Bot app	Bee-Bot Blue-Bot

Year 2

	Coding	Uses of Technology	E-Safety
NC KS1	• 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 • Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• 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.
Components	• Plan a sequence of instructions to move sprites in ScratchJr • Create, test and debug programs for sprites in ScratchJr • Work with input and output in Scratch • Use repetition in my programs • Design costumes for sprites	• Understand how animation works • Use storyboards to plan an animation • Create my own orginal charactersm, props and backgounds for an animation • Film, review and edit a stop-motion animation • Record audio to accompany my animation • Provide constructively critical feedback to my peers • Develop collaboration skills through working as part of a group • Develop research skills through searching for information on the internet • Think about the privacy implications of my use of search engines • Be more discerning in evaluating online information • Improve note taking skills using mind mapping • Develop presentation skills through creating and delivering a short multimedia presentation	• Term 1: Self image and identity • Term 2: Online Bullying • Term 3: Online Reputation • Term 4: Health Well-being and Lifestyle • Term 5: Online Relationships • Term 6: Privacy and Security • Safer internet day. • Jigsaw PSHE

The Kingfisher School

Year 2

Term 2 - Coding

Unit	National Curriculum Requirement	Components	Software	Hardware
2.1 We are astronauts Programming in screen on ScratchJr	• Understand what algorithms are; how they are implemented as programs on digital devices; and thar programs execute them by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs.	• I can plan a sequence of instructions to move sprites in ScratchJr • I can create, test and debug programs for sprites in ScratchJr • I can work with input and output in Scratch • I can use repetition in my programs • I can design costumes for sprites	ScratchJr	iPads

Year 2

Term 4 – Uses of technology

Unit	National Curriculum Requirement	Components	Software	Hardware
2.5 We are animators Creating a stop-motion animation	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school • 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 online	• I understand how animation works • I can use storyboards to plan an animation • I can create my own orginal charactersm, props and backgounds for an animation • I can film, review and edit a stop-motion animation • I can record audio to accompany my animation • I can provide constructively critical feedback to my peers	Stop Motion Studio	iPads

Year 2

Term 6 - Uses of technology

Unit	National Curriculum Requirement	Components	Software	Hardware
2.4 We are safe researchers Researching a topic	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school • 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 online	• I can develop collaboration skills through working as part of a group • I can develop research skills through searching for information on the internet • I can think about the privacy implications of my use of search engines • I can be more discerning in evaluating online information • I can improve note taking skills using mind mapping • I can develop presentation skills through creating and delivering a short multimedia presentation	Popplet Microsoft PPT Google Slides	iPads

Year 3

	Coding	Uses of Technology	E-Safety
NC KS2	• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Components	• Plan and create an algorithm for an animated scene in the form of a storyboard • Write a program in Scratch to create the animation, including characters, dialogue, costumes, backdrops and sound • Review their animation programs and correct mistakes.	• Create structured presentations • Narrate presentations • Understand the conventions for online collaborative work, particularly wikis • Aware of responsibilities when editing other people's work • Practise reseach skills • Write for a target audience using a Wiki tool • Develop collaboration skills • Develop proofreading skills	• Term 1: Self image and identity • Term 2: Online Bullying • Term 3: Online Reputation • Term 4: Health Well-being and Lifestyle • Term 5: Online Relationships • Term 6: Privacy and Security • Safer internet day. • Jigsaw PSHE • Consider issues of trust and privacy when sharing information • Familiar with Wikipedia including potential problems associated with its use

Fairlawn

Computer Engineer – Year 3

Term 2

Unit	National Curriculum Requirement	Components	Software	Hardware
3.4 We are who we are Creating presentations about ourselves	• Select, use and combine a variety of software to design and create content that accomplishes given goals, including presenting information • Use technology safely, respectfully and responsibly	• I can create structured presentations • I can narrate presentations • I can consider issues of trust and privacy when sharing information	Microsoft Powerpoint	Laptops

Computer Engineer – Year 3

Term 4

Unit	National Curriculum Requirement	Components	Software	Hardware
3.1 We programmers Creating an animation in Scratch	• Debug programs that accomplish specific goals • Use sequence, selection, and repetition in programs 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	• Plan and create an algorithm for an animated scene in the form of a storyboard • Write a program in Scratch to create the animation, including characters, dialogue, costumes, backdrops and sound • Review their animation programs and correct mistakes.	Scratch	Laptops

Year 3

Term 6

Unit	National Curriculum Requirement	Components	Software	Hardware
3.5 We are co-authors Producing a wiki	• 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 • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unnaceptable behaviour; identify a range of ways to report concerns about content.	• I understand the conventions for online collaborative work, particularly wikis • I am aware of my responsibilities when editing other people's work • I am familiar with Wikipedia including potential problems associated with its use • I can practise research skills • I can write for a target audience using a Wiki tool • I can develop collaboration skills • I can develop proofreading skills	Google Popplet	Laptop

Year 4

	Coding	Uses of Technology	E-Safety
NC KS2	• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Components	• Develop an educational game using selection and repetition • Understand and can use variables • Start to debug computer programs • Recognise th importance of user interface design, including consideration of input and output	• Create a repeating percussive rhythm • Play music using virtual instruments • Compose or edit tunes using the piano roll (pitch and duration) tool • Perform electronic music using pre-recorded loops and create my own loops • Create a multi-track composition or performance using multiple instruments • Give feedback to others on their compositions and performances. • Understand different measurement techniques for weather both analogue and digital • Use computer-based data logging to automate the recording of some weather data • Use spreadsheets to create charts, analyse data, explore inconsistencies in data and make predictions • Practise using presentation and video software	Term 1: Self image and identity Term 2: Online Bullying Term 3: Online Reputation Term 4: Health Well-being and Lifestyle Term 5: Online Relationships Term 6: Privacy and Security Safer internet day. Jigsaw PSHE

Fairlawn

Year 4

Term 2

Unit	National Curriculum Requirement	Components	Software	Hardware
4.1 We are software developers Developing a simple educational game	• Design write and debug programs that accomplish specific goals • 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	• I can develop an educational game using selection and repetition • I understand and can use variables • I can start to debug computer programs • I recognise the importance of user interface design, including consideration of input and output	Scratch	Laptop

Year 4

Term 4

Unit	National Curriculum Requirement	Components	Software	Hardware
4.3 We are musicians Creating a piece of music in garage band	• Use sequence and repetition; work with various forms of input and output • Be discerning in evaluating digital content • Select, use and combine a variety of software on a range of digital devices to design and create a range of content that accomplishes given goals. • Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour.	• I can create a repeating percussive rhythm • I can play music using virtual instruments • I can compose or edit tunes using the piano roll (pitch and duration) tool • I can perform electronic music using pre-recorded loops and create my own loops • I can create a multi-track composition or performance using multiple instruments • I can give feedback to others on their compositions and performances.	Garageband	IPads Headphones Midi keyboard (optional)

Year 4

Term 6

Unit	National Curriculum Requirement	Components	Software	Hardware
4.6 we are meteorologists Presenting the weather	• Work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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	• I understand different measurement techniques for weather both analogue and digital • I can use computer-based data logging to automate the recording of some weather data • I can use spreadsheets to create charts, analyse data, explore inconsistencies in data and make predictions • I can practise using presentation and video software	Microsoft Excel	IPads or Laptops Smart Weather station

Year 5

	Coding	Uses of Technology	E-Safety
NC KS2	• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Components	• Create original artwork and sound for a game • Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables • Detect and correct errors in my computer game • Use iterative development techniques (making and testing a series of small changes) to improve my game	• Plan a non-linear presentation • Create text as part of a presentation • Add and edit images in a presentation • Use hyperlinks for navigation between the slides of a presentation • Record and add audio narration to a presentation • Know the name and function of the components making up the school's network • Know how information is passed between the components that make up the internet • Know what the source code for a website looks like and how it can be edited and structured • Know how to add content to a web page	Use commenting tools to give feedback on a presentation. Term 1: Self image and identity Term 2: Online Bullying Term 3: Online Reputation Term 4: Health Well-being and Lifestyle Term 5: Online Relationships Term 6: Privacy and Security Safer internet day. Jigsaw PSHE

Year 5

Term 2

Unit	National Curriculum Requirement	Components	Software	Hardware
5.5 We are adventure gamers Creating an interactive adventure using presentation software	• Use search technologies effectively • Use a variety of software (including internet services) on a range of digital devices to design and create content that accomplish given goals including presenting information • Use technology safely, respectfully and responsibly	• I can plan a non-linear presentation • I can create text as part of a presentation • I can add and edit images in a presentation • I can use hyperlinks for navigation between the slides of a presentation • I can record and add audio narration to a presentation • I can use commenting tools to give feedback on a presentation.	Powerpoint	Laptop

Year 5

Term 4

Unit	National Curriculum Requirement	Components	Software	Hardware
5.1 We are game developers Developing an interactive game	• Design write and debug programs that accomplish specific goals, including controlling or simulating physical systems and solving 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.	• I can create original artwork and sound for a game • I can design and create a computer program for a computer game, which uses sequence, selection, repetition and variables • I can detect and correct errors in my computer game • I can use iterative development techniques (making and testing a series of small changes) to improve my game	Scratch	Laptop Built in mic

Year 5

Term 6

Unit	National Curriculum Requirement	Components	Software	Hardware
5.4 We are web developers Making sense of the internet and building a website	• Understand computer networks including the internet; how they can provide multiple services, such as the WWW; and the opportunities for collaboration and communication. • Select, use and combine a variety of software (including internet services) on a range of 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact • Be discerning in evaluating digital content	• I know the name and function of the components making up the school's network • I know how information is passed between the components that make up the internet • I know what the source code for a website looks like and how it can be edited and structured • I know how to add content to a web page	Google Google sites	Laptop or tablet

Year 6

	Coding	Uses of Technology	E-Safety
NC KS2	• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Components	• Know how computers use stored programs to connect input to output • Know how to generate and evaluate designs in response to a brief • Plan a complex project by decomposing it into smaller parts • Work with physical components of a system • Design and write a program for an embedded system • Use criteria to provide others with feedback on their work.	• Know how search results are selected and ranked • Know how to argue my point effectively supporting my views with sources • Manage or contribute to large collaborative projects, facilitated using online tools • Write and review content • Source digital media while demonstrating safe, respectful and responsible use. • Design and produce a high-quality print document.	• Term 1: Self image and identity • Term 2: Online Bullying • Term 3: Online Reputation • Term 4: Health Well-being and Lifestyle • Term 5: Online Relationships • Term 6: Privacy and Security • Safer internet day. • Jigsaw PSHE • Know about appropriate rules or guidance for a civil discussion online • Know how to counter someone else's argument while showing respect and tolerance • Know how to judge the reliability of an online source • Know some strategies for dealing with online bullying

Year 6

Term 2

Unit	National Curriculum Requirement	Components	Software	Hardware
6.5 We are Toy Makers Pupils design and develop a BBC micro:bit powered modification to a soft toy to make the toy interactive	• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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	Know how computers use stored programs to connect input to output Know how to generate and evaluate designs in response to a brief Plan a complex project by decomposing it into smaller parts Work with physical components of a system Design and write a program for an embedded system Use criteria to provide others with feedback on their work.	Make Code	Laptops (STEAM room) Micro:bits

Year 6

Term 4

Unit	National Curriculum Requirement	Components	Software	Hardware
6.4 We are connected Developing skills for social media	• Understand the opportunities computer networks offer for communication and collaboration • Use search techologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digitasl content. • Use technology safely, respectfully and responsibly: recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content	• I know about appropriate rules or guidance for a civil discussion online • I know how search results are selected and ranked • I know how to argue my point effectively supporting my views with sources • I know how to counter someone else's argument while showing respect and tolerance • I know how to judge the reliability of an online source • I know some strategies for dealing with online bullying	School blogging platform (wordpress) Padlet	Laptops / iPads

Year 6

Term 6

Unit	National Curriculum Requirement	Components	Software	Hardware
6.3 We are publishers Creating a yearbook or magazine	• Understand computer networks including the Internet and the opportunities they offer for communication and collaboration. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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. • Use technology safely, respectfully and responsibly	• I can manage or contribute to large collaborative projects, facilitated using online tools • I can write and review content • I can source digital media while demonstrating safe, respectful and responsible use. • I can design and produce a high-quality print document.	Book Creator or Google docs Or Microsoft Publisher	iPads