Kingswood Computing Long Term Plan

All teaching resources for Computing can be found here - https://my.risingstars-uk.com/

Year 1	Unit 1.1 We are treasure hunters Spring	Unit 1.3 We are digital artists Summer		Unit 1.4 We are publishers *Optional unit as objects covered in unit 1.1 and 1.3*		
	National Curriculum Links: ➢ *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*	**National Curriculum Links:** ➢ *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 on the internet or other online technologies.*		**National Curriculum Links:** ➢ *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 on the internet or other online technologies.*		

	Knowledge, Skills and Concepts In this unit, pupils will learn: ●that a programmable robot can be controlled by inputting a sequence of instructions ●to develop and record sequences of instructions as an algorithm ●to program a robot to follow their algorithm ●to predict how their programs will work ●to debug programs.	Knowledge, Skills and Concepts In this unit, pupils will learn: ● how to select and set brushes and colours ● to create artwork in a range of styles on iPads ● to use the undo function if they make mistakes and to encourage experimentation ● to use multiple layers in their art ● to transform layers ● to paint on top of photographs.		Knowledge, Skills and Concepts In this unit, the pupils will learn to: ●plan a small multimedia eBook ●choose and import images ●record audio commentary ●add and format titles and other text ●think carefully about protecting their privacy ●respect other people's copyright ●revise and improve their work.		

Lesson Objectives	WALT: Practise giving and following instructions. WALT: Plan precise instructions. WALT: Understand input and output. WALT: Program the Bee-Bot WALT: Read a Bee-Bot program. WALT: Correct sequences of instructions.	WALT: Create colour blocks in the style of Rothko. WALT: Create patterns and shapes in the style of Kandinsky. WALT: Create a drawing in the style of Picasso's Dove of peace. WALT: Create multiple layers in the style of Matisse's The Snail. WALT: Create a painting as a layer above a photo. WALT: Draw grid paintings in the style of Mondrian.		WALT: Plan a multimedia eBook. WALT: Select and import images. WALT: Record high-quality audio. WALT: Add text to eBook pages and format it. WALT: Search a picture library on the internet. WALT: Review and revise eBook contents.		
Resources	**Hardware:** Bee-Bot **Software:** Bee-Bot app (only available on I-pads)	**Hardware:** Desktop computers **Software:** Microsoft Paint, Paint 3D on desktop computers		**Hardware:** Desktop computers **Software:** Microsoft PowerPoint		
Year 2	Unit 2.1 We are astronauts Spring	Unit 2.4 We are safe researchers Summer		Unit 2.6 We are zoologists *Optional unit as objects covered in unit 2.1 and 2.4*		
	National Curriculum Links:	**National Curriculum Links:**		**National Curriculum Links:**		

	➢ *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* ➢ *identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*	➢ *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 on the internet or other online technologies.*		➢ *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*		
	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●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 ScratchJr ●use repetition in their programs ●design costumes for sprites.	**Knowledge, Skills and Concepts** In this unit, pupils will learn to: ●develop collaboration skills through working as part of a group ●develop research skills through searching for information on the Internet ●think through privacy implications of their use of search engines ●be more discerning in evaluating online information ●improve note-taking skills through the use of mind mapping ●develop presentation skills through creating and delivering a multimedirnotea presentation.		**Knowledge, Skills and Concepts** In this unit, pupils will learn to: ●sort and classify a group of items by answering questions ●collect data using tick or tally charts ●take, edit and enhance photographs ●use Google Sheets or Microsoft Excel to produce basic charts ●record information on a digital map ●summarise what they have learned in a presentation.		
Lesson Objectives	WALT: Plan a sequence of movements. WALA: The ScratchJr interface. WALT: Understand output in ScratchJr. WALT: Understand input in ScratchJr. WALT: Understand repetition in ScratchJr. WALT: Create drawings in ScratchJr.	WALT: Structure research questions in a mind map tool. WALT: search for information using a search engine. WALT: Search the web safely. WALT: Create a short presentation. WALT: Develop presentation skills. WALT:		WALT: Use a classification key. WALT: Collect data. WALT: Edit and enhance photographs. WALT: Produce charts using Google Sheets. WALT: Record information on a digital map. WALT: Create a presentation.		
Resources	**Hardware:** Bee-Bots, desktop computers, I-pads **Software:** Scratch Jr (On I-pads) https://scratch.mit.edu/projects/editor/?tutorial=getStarted	**Hardware:** Desktop computers **Software:** Microsoft PowerPoint		**Hardware:** iPads (alternatives: laptop/desktop/Chromebook computers and digital cameras) **Software:** Google Sheets, Google Docs, Google My Maps, Google Slides, Camera and Photos apps (alternatives: Microsoft		

				Excel/Word/PowerPoint, Windows Maps, Microsoft Photos)		
Year 3	Unit 3.1 We are programmers (1) Spring 1	Unit 3.5 We are co-authors (1) Summer 1		Unit 3.6 We are opinion pollsters (1) Summer 2		
	National Curriculum Links: ➢ *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*	**National Curriculum Links:** ➢ *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/unacceptable behaviour*		**National Curriculum Links:** ➢ *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* ➢ *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;*		
	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●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.	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●understand the conventions for collaborative online work, particularly in wikis ● be aware of their responsibilities when editing other people's work ●become familiar with Wikipedia, including potential problems associated with its use ●practise their research skills ●write for a target audience using a wiki tool ●develop collaboration skills ● develop proofreading skills		Knowledge, Skills and Concepts In this unit, pupils will learn to: ● understand some elements of survey design ● understand some ethical and legal aspects of online data collection ● use the Internet to facilitate data collection ● gain skills in using charts to analyse data ●gain skills in interpreting results		
Lesson Objectives	WALT: Explore Scratch and Scratch Editor tools. WALT: Determine the key features of a good animation and create a storyboard. WALT: Create characters and dialogue for the animation.	WALT: Plan the content for a wiki. WALT: Use Wikipedia to find information. WALT: Create a class wiki. WALT: edit the class wiki pages. WALT: edit content on Wikipedia.		WALT: Plan a survey about a topic. WALT: Develop questions for a survey. WALT: Create an online survey. WALT: Collect data from an online survey.		

	WALT: Begin animating characters by planning and programming movement. WALT: Add costumes and backdrops to the animation. WALT: Add sound before reviewing, debugging and improving the animations.	WALT: Review the class wiki.		WALT: analyse and evaluate data from an online survey. WALT: Present data from a survey to others.		
Resources	**Hardware:** Desktop computers/ Ipads **Software:** Scratch: https://scratch.mit.edu/projects/editor/?tutorial=getStarted Or alternatively, ScratchJr which is on I-pads	**Hardware:** Desktop Computers **Software:** Anwar looking into software		**Hardware:** Desktop computers **Software:** Children need their Microsoft Teams login to use Microsoft forms and equivalent Microsoft software		
Year 4	Unit 4.2 We are makers Spring 1	Unit 4.4 We are bloggers Summer 1		Unit 4.6 We are meteorologists Summer 2		
	National Curriculum Links: ➢ *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*	**National Curriculum Links:** ➢ *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* ➢ *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*		**National Curriculum Links:** ➢ *solve problems by decomposing them into smaller parts* ➢ *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* ➢ *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*		
	Knowledge, Skills and Concepts In this unit, pupils will learn: ●about the input – process – output model of computation ●about the inputs and outputs available on a BBC micro: bit ●to program using the Make Code block-based environment ●to test and debug programs they write, using an on-screen simulator and the micro: bit ● how to convert and transfer a program written on screen to the micro: bit.	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●become familiar with blogs as a medium and a genre of writing ●create a sequence of blog posts on a theme ●incorporate additional media ●comment on the posts of others ●develop a critical, reflective view of a range of media, including text.		Knowledge, Skills and Concepts In this unit, pupils will learn to: ●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.		
Lesson Objectives	WALA: the micro:bit and how to create a program using MakeCode. WALT: Read a micro:bit program and predict what it will do. WALT: Modify a micro:bit program. WALT: Create a micro:bit program to simulate rolling two dice. WALT: Plan a micro:bit program. WALT: Code and test our own micro:bit project.	WALT: Identify features of a good blog. WALT: Write a blog post. WALT: Comment on blog posts. WALT: Add images to blog posts. WALT: Insert audio or video from another website into a blog. WALT: Create a live blog.		WALT: Describe and measure the weather. WALT: Record the weather. WALT: Analyse data collected. WALT: Use a photo collection to make predictions about the weather. WALT: Identify features of a good weather forecast and plan a weather forecast. WALT: Deliver a weather forecast and reflect on learning.		
Resources	**Hardware:** BBC micro:bits (with USB cables and battery packs) **Software:** Microsoft MakeCode for the micro:bit (online)	**Hardware:** Desktop computers **Software:** Need to find a suitable blogging software iMovie – on iPad for videos		**Hardware:** desktop computers, thermometers for measuring temperature (check science resources) **Software:** Microsoft PowerPoint		
Year 5	Unit 5.1 We are game developers Spring 1	Unit 5.3 We are architects Summer 1		Unit 5.4 We are web developers Summer 2		
	National Curriculum Links: ➢ *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*	**National Curriculum Links:** ➢ *solve problems by decomposing them into smaller parts* ➢ *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*		**National Curriculum Links:** ➢ *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* ➢ *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*		
	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●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 their games	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●understand the work of architects, designers and engineers working in 3-D ●develop familiarity with a simple CAD tool		Knowledge, Skills and Concepts In this unit, pupils will learn: ●the name and function of components making up the school's network ●how information is passed between the components that make up the Internet		

	●use iterative development techniques.	●develop spatial awareness by exploring and experimenting with a 3-D virtual environment ●develop greater aesthetic awareness		●what the source code for a web page looks like and how it can be edited ●how a website can be structured ●how to add content to a web page.		
Lesson Objectives	WALT: Analyse games and plan our own. WALT: Create a background, sprites, and sound effects for a game. WALT: Create a prototype of a game in Scratch. WALT: Debug programs and improve a game. WALT: Test and improve a game. WALT: Write a set of instructions for a game and publish it online.	WALT: Explore existing art galleries and identify their features and characteristics. WALT: Create a virtual structure using Minecraft WALT: Build a virtual gallery using Minecraft WALT: Add furniture to a virtual gallery. WALT: Hang art in a virtual gallery. WALT: Create a virtual tour of the gallery.		WALT: Understand the components of the school's network. WALT: Understand how messages are routed across a network. WALT: Understand how web pages are written in HTML. WALT: Plan a website about online safety. WALT: Create content collaboratively for a website. WALT: Add relevant links and media to our pages.		
Resources	**Hardware:** Desktop computers **Software:** Scratch https://scratch.mit.edu/projects/editor/?tutorial=getStarted	**Hardware:** Desktop computers **Software:** Minecraft Education Edition		**Hardware:** Laptop/desktop/Chromebook computers or tablets **Software:** Google Chrome, Google Sites		
Year 6	Unit 6.1 We are toy makers Spring 1	Unit 6.3 We are publishers Summer 1		Unit 6.4 We are connected Summer 2		
	National Curriculum Links: ➢ *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*	**National Curriculum Links:** ➢ *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*		**National Curriculum Links:** ➢ *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/unacceptable behaviour*		

	Knowledge, Skills and Concepts In this unit, pupils will learn: ●how computers use stored programs to connect input to output ●how to generate and evaluate designs in response to a brief ●to plan a complex project by decomposing it into smaller parts ●to work with physical components of a system ●how to design and write a program for an embedded system ● to use criteria to provide others with feedback on their work	Knowledge, Skills and Concepts In this unit, pupils will learn to: ●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.		Knowledge, Skills and Concepts In this unit, pupils will learn: ●about appropriate rules or guidelines for a civil online discussion ●how search results are selected and ranked ●how to argue their point effectively, supporting their views with sources ●how to counter someone else's argument while showing respect and tolerance ●how to judge the reliability of an online source ●some strategies for dealing with online bullying.		
Lesson Objectives	WALT: Recap (or learn about) micro:bit and MakeCode. WALT: Understand input and output for the micro:bit and some electronic toys. WALT: Design an interactive toy. WALT: Program the micro:bit to act as a controller for our toy. WALT: Prepare our soft toy. WALT: Connect the micro:bit inputs and outputs to the toy.	WALT: Plan a yearbook as a class. WALT: Plan a section of the yearbook and gather content. WALT: Use software to create a section of the yearbook. WALT: Assemble the pages of the yearbook. WALT: Assess and review the yearbook. WALT: Review, edit and print a yearbook.		WALT: Think about online safety and how to communicate respectfully on the internet. WALT: Research a topic for discussion. WALT: Write a reasoned argument for a view of the topic. WALT: Comment on others' posts responsibly and respectfully. WALT: Check online information for reliability. WALT: Discuss and write a blog post on online bullying.		
Resources	**Hardware:** BBC micro:bits, **Software:** MakeCode or Scratch	**Hardware:** Laptop/desktop computers, digital cameras, iPads **Software:** Microsoft Word), Microsoft Publisher		**Hardware:** Laptop/desktop/Chromebook computers or iPads **Software:** School blogging platform (such as WordPress), Padlet		