ASHTON KEYNES
Church of England VC Primary School
SHINE BRIGHT ★ REACH FOR THE STARS

YEAR 1	
National Curriculum Requirements at KS1	
Pupils should be taught: • 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	• 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.

Programme of study, skills and vocabulary

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
'We are treasure hunters'	'We are TV chefs'	'We are digital artists'	'We are collectors'	'We are storytellers'	'We are detectives
Computer Science	Information Technology Digital Literacy	Information Technology	Computer Science	Computer Science Digital Literacy Information Technology	Digital Literacy Information Technology
• I can follow and give instructions to move around a large space • I can record a set of instructions for a toy • I can program a toy to move by giving one instruction at a time • I can program a toy to move by giving a set of instructions • I can create a program to move a toy to a particular location • I understand input, program and output in the context of a robotic toy • I can debug a program (recognising mistakes in the input)	• I can sequence and correctly order steps • I can use technology purposefully to create a digital video • I can save my video to the computer • I can predict and reason what will happen when following a simple program • I can correct a sequence by identifying missing steps	• I can use a paint program to create an illustration • I can edit an image • I can combine multiple illustrations in to single document • I can export a document in a portable format • I know what to do if I find inappropriate images • I can find relevant illustrations on the web • I can make improvements to an image making paint software • I can retrieve previously saved work • I can give constructive feedback to other pupils	• I can search for images using online galleries • I can copy an image from the web and paste it into a presentation • I can move images in a presentation • I know what to do if I discover bad images • I can organise images into groups • I can identify the difference between clip art and digital photographs • I can resize images • I know that I should not post personal information or photos to the web • Use binary (yes/no) questions to identify images from their collections • Add text labels	• I can plan and rehearse the sound effects needed in an audio book • I can plan and rehearse the dialogue needed in an audio book • I can record sound effects using a digital audio recorder/software • I can record dialogue directly to a computer • I will be able to retrieve previously saved work • I can review and improve sound effect recordings • I can review and improve dialogue recordings • I can give constructive feedback to other pupils	• I can record audio or written notes from an email or attachment. • I can explain why it is important to type email address correctly • I can read emails • I can compose and respond to emails. • I can understand headers of an email. • I can proofread emails before sending • I can identify the two parts of an email address

YEAR 2	
National Curriculum Requirements at KS1	
Pupils should be taught: • 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	• 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.

Programme of study, skills and vocabulary					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
We are astronauts	We are game testers	We are photographers	We are safe researchers	We are animators	We are zoologists
Programming	Computational	Thinking Creativity	Computer Networks	Communication and Collaboration	Productivity
• I can plan an algorithm (set of instructions) to move a spaceship from Earth to the Moon. (From one place to another) • I can extend my planning and add an additional algorithm to move to another destination. • I can implement algorithms on Bee Bots • I can implement algorithms as programs on a screen sprite using simple blocks without parameters. • I can debug programs. • I can use logical reasoning to predict what might happen.	• I can understand that computer games are made up of precise instructions for the computer to follow. • I can understand that computer programmers will have to implement many algorithms (instructions) to making a computer game. • I can use logical reasoning to make predictions about what happens next. • I can suggest ways in which simple computer games could be improved. • I can notice common features in several game algorithms.	• I can take photos using a digital camera, tablet or smart phone. • I can review and reject photos. (preview and delete) • I can add titles and stars to digital photos. • I can apply adjustments and effects to digital photos. • I can select a favourite photo and share this in a shared folder/portfolio. • I can comment on photos I am concerned about. • I can take focused, sharp photos. • I can crop and straighten digital photos.	• I can add questions to a mind map • I can add information from independent research to a mind map. • I can locate information from one or more relevant websites. • I can search for information on a small number of sites using a custom search engine. • I can create a short presentation summarizing my findings to an audience. • I can add appropriate images to my presentation.	•I can create an algorithm for an animated scene in the form of a storyboard. •I can break the scene down into small sections of action and dialogue. •I can write a program in Scratch to create the animation. •I can put the blocks of Scratch script into order. •I can correct mistakes in my animation programs •I can create my own sound and graphics for the sprites and the backdrop •I can explain the connection between my storyboard and the scene I am animating	• I can take digital photographs of bugs. • I can import photos to a computer or onto the shared network. • I can create a chart to show the data I collected. • I can explore Google maps, or Google Earth to find a familiar location. • I can create a presentation resource summarizing my data. • I can use classification keys to identify an animal or object from questions about their properties/looks. • I can edit and enhance photographs, including cropping. • I can add titles and relevant labels to photos and charts.

YEAR 3	
National Curriculum Requirements at KS2	
•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	• 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

Programme of study, skills and vocabulary					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
'We are programmers'	'We are bug fixers'	'We are presenters'	'We are who we are'	'We are co-authors''	'We are opinion pollsters'
Information Technology	Information Technology	Information Technology	Computer Science	Computer Science Digital Literacy Information Technology	Digital Literacy Information Technology
• I can create an algorithm for an animated scene in the form of a storyboard. • I can break the scene down into small sections of action and dialogue. • I can write a program in scratch to create the animation. • I can put the blocks of my scratch script into order. • I can correct mistakes in my animation program (debug) • I can create my own sound and graphics for the sprites and backdrops. • I can explain the connection between my storyboard and the scene I have animated. • I can use the repeat block to switch between costumes to create the illusion of movement.	• I can correct errors in loops. • I can improve the performance of the circle-drawing program • I can input dialogue in a sequence • I can experiment with the speed variable. • I can begin to explain how a program works using my knowledge of programming. • I can make improvements to programs.	• I can operate a simple video camera correctly • I can record useable footage • I can import and edit video footage to a computer • I can record an audio commentary for my footage. • I can anaylse existing sports coverage to learn how this is shot. • I can export the movie in a standard format. • I can critically review my footage.	• I can create a presentation • I can create a narration in a presentation • I understand what is meant by personal information. • I can plan the structure of a presentation • I can create a presentation with a planned structure • I can add narration to a presentation • I can distinguish between degrees of trust in sharing content with others	• I can find and read an article on Wikipedia • I can create content for a wiki • I can edit my own content • I can edit a HTML for a web page • I can identify the sources used in my independent research • I can work with others to plan a project • I can evaluate an article for its trustworthiness • I can edit others' content • I can edit content on Wikipedia	• I can collect data via the internet • I can use Google Forms (Or another like Excel) to collect data. • I can use Google slides (Powerpoint) to present my results. • I can explain how the web has allowed me to work collaboratively on a number of different documents. • I can critique survey forms and presentations. • I can move information between different applications. • I can analyse data collected.

YEAR 4	
National Curriculum Requirements at KS2	
•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	• 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

Programme of study, skills and vocabulary					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
'We are software developers'	'We are makers'	'We are musicians'	'We are bloggers'	'We are artists''	'We are meteorologists'
Information Technology	Information Technology	Information Technology	Computer Science	Computer Science Digital Literacy Information Technology	Digital Literacy Information Technology
• I can design an interactive educational game • I can develop an interactive educational game • I can put scratch blocks into the right order for my game • I can use the if/then/else block correctly • I can use the keyboard for input and the screen for output • I can use the repeat block accurately • I can create a game using scores. • I can integrate sound into my game. • I can identify and correct mistakes in others and mine games. (Debug)	•I can identify all of the inputs and outputs for the micro:bit •I can explain what a MakeCode program does • I can debug a MakeCode program • I can design my own algorithm for the micro:bit •I can implement my own algorithm as a program in MakeCode.	• I can explain how digital technology contributes to making music. • I can create a simple composition using sequencing software • I can record samples for the use of sequencing software • I can combine samples to produce a piece of music. • I can export my composition in a standard compressed format. • I can explain how digital technology contributes to distributing music • I can edit and refine samples of my composition.	• I can understand how to use blogs safely and responsibly • I can understand how the internet makes blogging possible • I can write a blog post • I can comment on a clog post • I can assess an image, audio or video to a blog post • I can identify the criteria for an effective blog post • I can understand that blog posts are stored as HTML • I understand the importance of commenting respectfully and reporting concerns immediately	• I can create a tessellating pattern with one or more complex shapes • I can write a program to draw a simple shape • I can create a pattern using overlapping shapes • I can create a pattern using repeating, varied shapes • I can create a computer generated landscape • I can use repetition in a program to draw a more complex geometric figure • I can create a pattern using repeating, varied shapes using the tile clone tool or similar.	• I can use weather measurement equipment safely and accurately • I can enter data • I can take digital photographs to help me describe the weather • I can add measurement and descriptions to the photographs • I can create simple charts using my data • I can make sensible predictions • I can create an effective presentation for my weather forecast • I can identify unusual data • I can consider some of the difficulties when predicting the weather

YEAR 5

National Curriculum Requirements at KS2	
•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	• 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

Programme of study, skills and vocabulary					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
'We are game developers'	'We are cryptographers'	'We are architects''	'We are web developers'	'We are adventure gamers'	'We are VR desingers''
Information Technology	Information Technology	Information Technology	Computer Science	Computer Science Digital Literacy Information Technology	Digital Literacy Information Technology
• I can create an algorithm for a game. • I can create images and sounds for use in my game • I can use a sequence of clear instructions • I can detect any errors or 'bugs' in my game • I can create music for my game • I can use the selection and repetition control in my game • I can correct errors confidently in my game • I can improve on my game based on feedback • I can add instructions to my game. • I can begin to use variables in my game • I can confidently explain how the game works	• I can send and receive messages using Morse and semaphore • I can encrypt and decrypt messages using the Caesar and substitution ciphers • I can recognize the importance of keeping passwords entirely secret. • I can recognize the need for encryption when using the web • I can begin to explain the algorithm for the Caesar cipher.	• I can use the web to explore virtual art galleries • I can create simple objects using SketchUp (Or a similar program) • I can create a simple gallery space in SketchUp (Or a similar program) • I can add furniture to my gallery • I can add my own artwork to my gallery • I can create an animated walkthrough of my gallery • I can identify the common characteristics of galleries using the web • I can create complex, compound objects • I can apply appropriate finishes to surfaces in SketchUp (Or a similar program)	• I can review the content of others web pages • I can understand and appreciate how Google selects web pages in search results • I can show awareness of other search engines • I can create or curate content to demonstrate knowledge of safe, respectable and responsible use of technology • I can correctly attribute third-party content on a shared site • I can evaluate web sources for quality and bias • I can use tools to make web searches more efficient or effective	• I can create an algorithm for a game. • I can create images and sounds for use in my game • I can use a sequence of clear instructions • I can detect any errors or 'bugs' in my game • I can create music for my game • I can use the selection and repetition control in my game • I can correct errors confidently in my game • I can improve on my game based on feedback • I can add instructions to my game. • I can begin to use variables in my game • I can confidently explain how the game works	• I can explore an unfamiliar location in Street View • I can create a 360° photosphere on location • I can upload an audio file to a webserver or cloud storage • I can interact with objects in CoSpaces • I can create a CoSpaces scene using an environment and several objects • I can program CoSpaces objects to respond when clicked.

YEAR 6	
National Curriculum Requirements at KS2	
•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	• 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

Programme of study, skills and vocabulary					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
'We are toy makers''	'We are computational thinkers'	'We are publishers'	'We are connected	'We are advertisers'	'We are AI developers'
Information Technology	Information Technology	Information Technology	Computer Science	Computer Science Digital Literacy Information Technology	Digital Literacy Information Technology
I can design a toy with computer-controlled input and output. (keys) • I can write an algorithm to show how their toys would produce output in response to the input received. (Show how different keys on a keyboard give different instructions) • I can test input and output on a simulation of their toy using simple scripts. • I can identify where and explain why my simulated toy does not function as expected. • I can debug these errors and break them down into smaller steps to avoid mistakes.	• I can identify the principal aspects of the project • I can identify the tasks that need to be completed for the various aspects of the project • I can identify the tools and resources needed to complete the project • I can create original content for use in my app • I can evaluate the quality of work already undertaken • I can identify the key principal components of my app • I can order the tasks into a sensible sequence to help create my app • I can source external content to use in my app	• I can create an online survey • I can use simple charts and tables to analyse the results of my survey • I can conduct an interview or focus group • I can analyse the information obtained • I can present my findings from my market research • I can evaluate the quality of the data and information obtained through surveys and interviews • I can use recorded media to analyse information collected during an interview or focus group	• I can sketch ideas for the design of my app • I can use a prototyping tool to develop a set of screen layouts for my app • I can think through elements of interaction design for my app • I am aware of accessibility issues in apps and other software • I can source media assets for my app • I can explain how the different elements of my app will function • I can use principles of good design for inclusion when designing my app	• I can develop clear written algorithms for my app • I can implement my algorithm as a code • I can use trial and improvement approaches to debug my code. • I can use logical reasoning to detect errors • I can use sequence, selection, repetition and variables in my code • I can make the correct changes to my code using feedback given	• I can create a marketing flyer that incorporates images and text • I can develop a website containing text and other media for my app • I can shoot and source video and other media for a promotional video • I am aware of the responsibilities as creators of online content • I can edit original and third-party content to create a promotional video • I can choose the appropriate software for creating my flyer