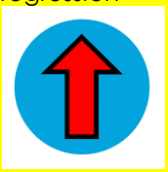
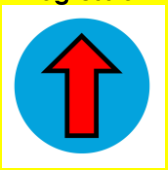
Computing Long Term Plan Hadrian Y1

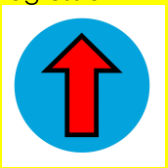
Y1 Computing	
National Curriculum Objectives KS1	Key Links
By the end of KS1 Pupils should be taught to: • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • create and debug simple programs • 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	**https://teachcomputing.org/curriculum** **Education for a Connected World links** https://www.knowsleyclcs.org.uk/2018-online-safety-sow/ PW: check emails

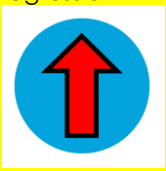
Topics		N.C Objectives	Key skills	Key Vocab
Autumn 1	Technology Around us	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	• To choose a piece of technology to do a job • To recognise that some technology can be used in different ways • To identify the main parts of a computer • To use a mouse in different ways • To use a keyboard to type • To use the keyboard to edit text • To show how to use technology safely	Purpose Online tools Communicate Computer

Progression 	As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. This unit directly precedes the Y2 Computer systems and networks unit, IT around us			
Teacher Subject Knowledge 	Teachers need to know that the definition of technology is something that has been made with a specific purpose to help other people. Teachers should familiarise themselves with objects which are and are not examples of technology. Teachers will need to be aware that typing is the process of using a keyboard to write words, letters or numbers on a screen.			
Cross Curricular Links 	**Education for a Connected World links** **Health, well-being and lifestyle** • I can identify rules that help keep us safe and healthy in and beyond the home when using technology • I can give some simple examples **Copyright and ownership** • I know that the work I create belongs to me • I can name my work so that others know it belongs to me			
Autumn 2	Programming A - Moving a Robot	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	• To choose a series of words that can be enacted as a program • To choose a series of commands that can be run as a program • To run a program on a device	Instructions Buttons Robots Patterns Program Bug Debug
Progression	As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses students' knowledge and understanding of giving and following instructions. It moves from giving instructions to each			

	other to giving instructions to a robot by programming it.			
Teacher Subject Knowledge 	This unit focuses on developing learners' understanding of computer programming. It highlights that algorithms are a set of clear, precise and ordered instructions and that a computer program is the implementation of an algorithm on a digital device. The unit also introduces reading 'code' to predict what a program will do. Learners will engage in aspects of program design, including outlining the project task and creating algorithms. When programming, there are four levels that can help describe a project, known as levels of abstraction. Research suggests that this structure can support learners in understanding how to create a program and how it works: Task – what is needed Design – what it should do Code – how it is done Running the code – what it does Spending time at the task and design levels before engaging in code writing aids learners in assessing the achievability of their programs and reduces a learner's cognitive load during programming. Learners will move between the different levels throughout the unit, and this is highlighted within each lesson plan.			
Cross Curricular Links 	Maths Science DT			
Spring 1	Creating Media - Digital Painting Creating Media - Digital Writing	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	• To digitally make marks on a computer screen • To use the brush tool(s) • To use tools to draw shapes • To use tools to draw lines • To use the undo button to correct a mistake • To change brush colour • To change brush size • To change fill colour in a shape • To change line size • To change line colour • To use the fill tool to change colours • To use letter, number, and Space	Videos Camera stills Sounds Image bank Word bank Space bar Data Photographs Video Sound Fill Tool Undo Text Backspace

			keys to enter text into a computer • To use punctuation and special characters • To select text • To use the Backspace key to remove text • To position the text cursor in a chosen location • To use Undo • To choose options to achieve a desired effect • To change the appearance of text on a computer	Shape
Progression 	Learners should be familiar with: • How to switch their device on • Usernames • Passwords This unit progresses the learners' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The learners will develop their ability to find and use the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Following this unit, learners will further develop their digital writing skills in the Year 3 – 'Desktop publishing' unit and the Year 6 – 'Web page development' unit.			
Teacher Subject Knowledge 	Before teaching this unit, you should ensure you are familiar with the following: • Lesson 1: The freehand painting tools in Microsoft Paint or the online app Paintz (paintz.app), or another appropriate digital painting program • Lesson 2: The style of Piet Mondrian (or another appropriate artist); primary colours; and the line, shape, fill, and undo tools in the digital painting program you've chosen • Lesson 3: The style of Henri Matisse (or another appropriate artist); the shape, fill, and undo tools in the digital painting program you've chosen • Lesson 4: The following painting tools in the digital painting program: paintbrush, pencil, fill, erase, undo, shape, and brush styles (e.g. spray can) if available • Lesson 5: The following painting tools in the digital painting program: paintbrush, undo, brush sizes, and brush styles if available • Lesson 6: The following painting tools in the digital painting program: paintbrush, pencil, fill tool, eraser, undo, shape tool, and brush styles if available			
Cross Curricular Links	**KS1 Art and Design**			

	Pupils should be taught: • To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space • About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work			
Spring 2	Data and information - Grouping Data	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school	• To identify some attributes of an object • To collect simple data • To show that collected data can be counted • To describe the properties of an object • To choose an attribute to group objects by • To group objects to answer questions • To describe a group of objects (based on commonality)	Pictogram Digitally Collect Object Group
Progression 	This unit will introduce learners to data and information. It will introduce learners to the concept of labelling and grouping objects based on their properties. Learners will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.			
Teacher Subject Knowledge 	You will need to be aware that the term 'object' is used to describe anything that can be labelled with properties, eg animals, pencils, or trees. When talking about objects, they are named to make it easier for humans to know what other humans are talking about, eg 'tree'. The name may change depending on context (sometimes 'tree' is enough, but sometimes 'oak tree' may be required), but it is always a property that an object can be labelled with. A label is a property used to describe an object, eg 'green'. This is the data that is collected about the object. You will need an understanding that computers are not intelligent. Although they may seem like they are able to complete tasks autonomously, they are using input from humans, for example, searching for images that have been labelled by a person, or 'counting' data that has been grouped by people. Through the unit, teachers will need to be aware that: • Computers can be used to group data for analysis. The analysis in this unit is limited to a simple count of the objects in a group. Grouping is revisited throughout the data and information units. • The term 'property' to describe objects. A label is a property used to describe an object, eg 'green'. This is the data that is collected about the object.			

	• 'Data set' is a term used to describe a collection of related data. • The link between grouping objects in the real world and grouping objects on a computer. To strengthen this link, the language of 'is…' and 'is not…' should be used wherever possible. • Objects can be grouped by different properties, so there are multiple ways of grouping the same objects.			
Cross Curricular Links 	**Education for a Connected World links** **Copyright and ownership** • I know that work I create belongs to me (Y1) • I can name my work so that others know it belongs to me (Y1)			
Summer 1	Programming B - Introduction to animation	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	• To choose a series of words that can be enacted as a program • To choose a series of commands that can be run as a program • To run a program on a device	Instructions Buttons Robots Patterns Program Bug Debug
Progression 	This unit progresses learners' knowledge and understanding of programming and follows on from 'Programming A – Moving a robot', where children will have learned to program a floor robot using instructions.			
Teacher Subject Knowledge 	The unit focuses on developing learners' understanding of computer programming. It highlights that algorithms are a set of clear, precise, and ordered instructions, and that a computer program is the implementation of an algorithm on a digital device. The unit also introduces reading 'code' to predict what a program will do. Learners will engage in aspects of program design, including outlining the project task and creating algorithms. When programming, there are four levels that can help describe a project, known as levels of abstraction. Research suggests that this structure can support learners in understanding how to create a program and how it works: • Task – what is needed • Design – what it should do • Code – how it is done			

	• Running the code – what it does Spending time at the 'task' and 'design' levels before engaging in code writing aids learners in assessing the achievability of their programs, and reduces a learner's cognitive load during programming. Learners will move between the different levels throughout the unit.			
Cross Curricular Links 	Maths DT Science			
Education for a Connected World (Throughout the year)	My Online Life Y1 Self Image and Identity - Who can help us online? Online Relationships - How can we use technology to communicate? Online Reputation - What should we share online? Online Bullying - What is online bullying and how should we deal with it? Managing Online information - Can you find information online? Health, Wellbeing and Lifestyle - How should I behave online? Privacy and Security - What information should not be shared online?	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	• To show how to use technology safely	Rules Online Private information Reputation Online Bullying Copyright Emoji Self Image Identity Trust Online Risks Profile Password Trusted adult Private Empathy Game Download Login Send Digital Communicate Icon Personal Information Website Search

	Copyright and Ownership - Who owns the information online?			Private Information Link Menu Bluetooth Online rules Wifi / Wireless Follow
Key texts 	Digi Duck Dot. Chicken Clickin			