

Subject: Computing KS1

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

The national curriculum for computing aims to ensure that all pupils:

- ♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- ♣ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- ♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ♣ are responsible, competent, confident and creative users of information and communication technology

Key stage 1 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

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Vocabulary to be used in learning:

Theme:	Year 1 and 2 – cumulative over time	
Technology around us	Mouse, key keyboard, monitor, laptop, log on, internet web, web browser search,	search engine, website, web link, image text question, copy, paste, information, gallery folder
Technology and images	mage digital image draw edit toolbar icon tools; eraser pen colour palette paint brush paint fill magnify Memory Box E-cards- Hallmark site Christmas card ppt.	reworking images, copy, save, PowerPoint Program Icon internet web, web browser search, search engine, website, web link, image text box stamp shapes Select JPEG save open gallery folder mouse copy paste
Robots and automation	Robot Machine keyboard input code program programming algorithm, command, command, control, debug, predict, series sequence QR Code (Quick response code) app (application) instrument names; drum, bass, piano, percussion, trumpet, saxophone, violin, glockenspiel, guitar sound clip virtual track compose multitrack volume E-safety; Safe search filters Safely Respectfully Personal information Private online key safe communicate meet email accept address	Create avatars 'Tellagarmi App' Coding morning control, debug, predict, series sequence QR Code (Quick response code) app (application) scratch; blocks project stage scripts sprite backdrop costumes cloning script Motion sound looks pen avatar
Applications	copy, save, PowerPoint Program Icon internet web, web browser search, search engine, website, web link, image text box stamp shapes Select app keyboard microphone input output code program programming algorithm	JPEG save open gallery folder mouse copy paste text word processing save open, gallery folder font font size text box slide transition ommand, control, debug, predict, series sequence QR Code (Quick response code) app (application) instrument names; drum, bass, piano, percussion, trumpet, saxophone, violin, glockenspiel, guitar sound clip virtual track compose multitrack volume
programming	iPad input program programming algorithm, command, control, debug, predict, series sequence app (application) animator animation frame background character model story board project effect picture viewe	input code program programming algorithm, command, control, debug, predict, series sequence QR Code (Quick response code) app (application) Scratch; Blocks Project Stage Scripts Sprite Backdrop Costumes cloning script Motion Sound Looks

E- Safety vocabulary. Safety on technology must be an ongoing theme in every lesson.

E-safety; Safe search filters Safely Respectfully Personal information Private online key safe communicate meet email accept address reliable, tell, age appropriate,

Key Stage: 1						
Year 1						
	Autumn Term		Spring Term		Summer Term	
Weeks	1 Technology around us	2 Digital Painting	1 Moving a Robot	2 Grouping Data	1 Digital writing	2 Programming animations
1	To identify technology I can explain how these technology examples help us - I can explain technology as something that helps us - I can locate examples of technology in the classroom	To describe what different free hand tools do I can draw lines on a screen and explain which tools I used - I can make marks on a screen and explain which tools I used - I can use the paint tools to draw a picture	To explain what a given command will do I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device	To label objects - I can describe objects using labels - I can identify the label for a group of objects - I can match objects to groups	To use a computer to write - I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard	To choose a command for a given purpose - I can compare different programming tools - I can find which commands move a sprite - I can use commands to move a sprite
2	To identify a computer and its main parts I can name the main parts of a computer - I can switch on and log into a computer - I can use a mouse to click and drag	To use the shape tool and the line tools I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist	To act out a given word can follow an instruction - I can give directions - I can recall words that can be acted out	To identify that objects can be counted - I can count a group of objects - I can count objects - I can group objects	To add and remove text on a computer - I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys	To show that a series of commands can be joined together - I can run my program - I can use a start block in a program - I can use more than one block by joining them together
3	To use a mouse in different ways I can click and drag to make objects on a screen - I can use a mouse to create a picture - I can use a mouse to open a program	To make careful choices when painting a digital picture I can choose appropriate shapes - I can create a picture in the style of an artist - I can make appropriate colour choices	To combine forwards and backwards commands to make a sequence I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place	To describe objects in different ways - I can describe a property of an object - I can describe an object - I can find objects with similar properties	To identify that the look of text can be changed on a computer - I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters	To identify the effect of changing a value - I can change the value - I can find blocks which have numbers - I can say what happens when I change a value
4	To use a keyboard to type I can save my work to a file - I can tell you that writing on a computer is called typing - I can type my name on a computer	To explain why I chose the tools I used I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I know that different paint tools do different jobs	To combine four direction commands to make sequences I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome	To count objects with the same properties - I can count how many objects share a property - I can group objects in more than one way - I can group similar objects	To make careful choices when changing text - I can change the font - I can select a word by double-clicking - I can select all of the text by clicking and dragging	To explain that each sprite has its own instructions - I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite

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			of a sequence involving up to four commands			
5	To use the keyboard to edit text - I can delete letters - I can open my work from a file - I can use the arrow keys to move the cursor	To use a computer on my own to paint a picture - I can change the colour and brush sizes - I can make dots of colour on the page - I can use dots of colour to create a picture in the style of an artist on my own	To plan a simple program - I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do	To compare groups of objects - I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group	To explain why I used the tools that I chose - I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes	To design the parts of a project - I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move
6	To create rules for using technology responsibly - I can discuss how we benefit from these rules - I can give examples of some of these rules - I can identify rules to keep us safe and healthy when we are using technology in and beyond the home	To compare painting a picture on a computer and on paper - I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper	To find more than one solution to a problem - I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place	To answer questions about groups of objects - I can compare groups of objects - I can decide how to group objects to answer a question - I can record and share what I have found	To compare writing on a computer with writing on paper - I can compare using a computer with using a pencil and paper - I can say which method I like best - I can write a message on a computer and on paper	To use my algorithm to create a program - I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites which match my design

Year 2						
	Autumn Term		Spring Term		Summer Term	
Weeks	1 Information Technology around us	2 Digital Photography	1 Robot Algorithms	2 Pictograms	1 Making Music	2 An Introduction to Quizzes
1	To recognise the uses and features of information technology - I can describe some uses of computers - I can identify examples of computers - I can identify that a computer is a part of information technology	To know what devices can be used to take photographs - I can capture digital photos and talk about my experience - I can sort devices into old and new - I can talk about how to take a photograph	To describe a series of instructions as a sequence - I can choose a series of words that can be enacted as a sequence - I can follow instructions given by someone else - I can give clear and unambiguous instructions	To recognise that we can count and compare objects using tally charts - I can compare totals in a tally chart - I can record data in a tally chart - I can represent a tally count as a total	To say how music can make us feel - I can describe how music makes me feel, e.g. happy or sad - I can identify simple differences in pieces of music - I can listen with concentration to a range of music (links to the Music curriculum)	To explain that a sequence of commands has a start - I can identify that a program needs to be started - I can identify the start of a sequence - I can show how to run my program
2	To identify information technology in the home - I can explain the purpose of information technology in the home - I can move and resize images - I can open a file	To use a digital device to take a photograph - I can explain the process of taking a good photograph - I can explain why a photo looks better in portrait or landscape format - I can take photos in both landscape and portrait format	To explain what happens when we change the order of instructions - I can create different algorithms for a range of sequences (using the same commands) - I can show the difference in outcomes between two sequences that consist of the same commands - I can use an algorithm to program a sequence on a floor robot	To recognise that objects can be represented as pictures - I can enter data onto a computer - I can use a computer to view data in a different format - I can use pictograms to answer simple questions about objects	To identify that there are patterns in music - I can create a rhythm pattern - I can explain that music is created and played by humans - I can play an instrument following a rhythm pattern	To explain that a sequence of commands has an outcome - I can change the outcome of a sequence of commands - I can match two sequences with the same outcome - I can predict the outcome of a sequence of commands
3	To identify information technology beyond school - I can compare types of information technology - I can find examples of	To describe what makes a good photograph - I can discuss how to take a good photograph - I can identify what is	To use logical reasoning to predict the outcome of a program (series of commands)	To create a pictogram - I can explain what the pictogram shows - I can organise data in a tally chart	To describe how music can be used in different ways - I can connect images with sounds - I can relate an idea to a	To create a program using a given design - I can build the sequences of blocks I need - I can decide which

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	information technology - I can talk about uses of information technology	wrong with a photograph - I can improve a photograph by retaking it	- I can compare my prediction to the program outcome - I can follow a sequence - I can predict the outcome of a sequence	- I can use a tally chart to create a pictogram	piece of music - I can use a computer to experiment with pitch and duration	blocks to use to meet the design - I can tell the actions of a sprite in an algorithm
4	To explain how information technology benefits us - I can demonstrate how information technology is used in a shop - I can explain how information technology helps people - I can recognise that information technology can be connected	To decide how photographs can be improved - I can experiment with different light sources - I can explore the effect that light has on a photo - I can focus on an object	To explain that programming projects can have code and artwork - I can explain the choices I made for my mat design - I can identify different routes around my mat - I can test my mat to make sure that it is usable	To select objects by attribute and make comparisons - I can answer 'more than'/'less than' and 'most/least' questions about an attribute - I can create a pictogram to arrange objects by an attribute - I can tally objects using a common attribute	To show how music is made from a series of notes - I can identify that music is a sequence of notes - I can refine my musical pattern on a computer - I can use a computer to create a musical pattern using three notes	To change a given design - I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design
5	To show how to use information technology safely - I can list different uses of information technology - I can recognise how to use information technology responsibly - I can say how those rules/guides can help me	To use tools to change an image - I can explain my choices - I can recognise that images can be changed - I can use a tool to achieve a desired effect	To design an algorithm - I can create an algorithm to meet my goal - I can explain what my algorithm should achieve - I can use my algorithm to create a program	To recognise that people can be described by attributes - I can choose a suitable attribute to compare people - I can collect the data I need - I can create a pictogram and draw conclusions from it	To create music for a purpose - I can describe an animal using sounds - I can explain my choices - I can save my work	To create a program using my own design - I can build sequences of blocks to match my design - I can choose the images for my own design - I can create an algorithm
6	To recognise that choices are made when using information technology - I can enjoy a variety of activities - I can explain simple guidance for using information technology in different environments and settings - I can identify the choices that I make when using information technology	To recognise that images can be changed - I can apply a range of photography skills to capture a photo - I can identify which images are real and which have been changed - I can recognise which images have been changed	To create and debug a program that I have written - I can plan algorithms for different parts of a task - I can put together the different parts of my program - I can test and debug each part of the program	To explain that we can present information using a computer - I can give simple examples of why information should not be shared - I can share what I have found out using a computer - I can use a computer program to present information in different ways	To review and refine our computer work - I can explain how I made my work better - I can listen to music and describe how it makes me feel - I can reopen my work	To decide how my project can be improved - I can compare my project to my design - I can debug - I can improve my project by adding features

