Computing Curriculum Map 2020-2021

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	Touch Type	Touch Type / We Are Treasure Hunters (1.1)	We are TV Chefs (1.2)	We are Painters (1.3) Illustration of 'Little Charlie' → T4W link	We are Story tellers (1.5) Wow week → Behind the door → Lit link	We are celebrating (1.6) Members of staff that are leaving
Outcome	Children will be confident using a keyboard and mouse.	Children will be able to program a toy robot using simple directional instructions.	Children will be able to make a short video showing how to make a simple meal or snack	Children will be able to create a piece of electronic artwork to illustrate a traditional tale, collated into an eBook	Children will be able to create a talking book.	Children will be able to create a greetings card digitally, which combines an image with text.
Key Vocabulary	Shift Key Caps Lock Key	Algorithm	Algorithm			
Knowledge Learnt	To know how to use the shift and Caps Lock Key.	To know that a programmable toy can be controlled by inputting a sequence of instructions To know how to develop and record sequences of instructions as an algorithm To know how to program a toy to follow an algorithm To know how to debug their programs To know how to predict how a program will work.	To know how to break down a process into simple, clear steps, as in an algorithm To know how to use different features of a video camera To know how to use a video camera to capture moving images develop collaboration skills To know how to discuss their work and think about how it could be improved.	To know how to use the web safely to find ideas for an illustration To know how to select and use appropriate painting tools to create and change images on the computer To know how to understand how this use of ICT differs from using paint and paper To know how to create an illustration for a particular purpose To know how to know how to save, retrieve and change their work To know how to reflect on their work and act on feedback received.	To know how to use sound recording equipment to record sounds To know how to save and store sounds on the computer To know how to work together in a group To know how a talking book differs from a paper-based book To know how to talk about and reflect on their use of ICT To know how to share recordings with an audience.	To know how to use a keyboard and mouse To know how to use the web to find and select images To know how to store and retrieve files To know how to combine text and images To know how to discuss their work and think about whether it could be improved.
Educational Visits				Children could visit their local library to look at the illustrations in a wider range of children's books. Invite a professional illustrator/graphic designer to school to talk to the children about the style of artwork he or she creates.	Invite someone from the RNIB, or a similar organisation, to talk about the production of talking books for the blind, and why they are useful.	

Key Texts		Punter, R. *Stories of Pirates*. (Usborne Publishing Ltd, 2007) £5.99	For children Carle, E. *The Very Hungry Caterpillar*. (Puffin, 2002) £6.99 French, V. *Oliver's Vegetables*. (Hodder Children's Books, 1995) £6.99 Murphy, J. *A Piece of Cake*. (Walker Books Ltd, 2006) £7.99	Dickens, R. *Usborne Illustrated Fairy Tales (Anthologies & Treasuries)*. (Usborne Publishing Ltd, 2007) £14.00 Petzold, C. *Code: The Hidden Language of Computer Hardware and Software*. (Microsoft Press, 2000) £21.99 Robinson, H. *Mixed Up Fairy Tales*. (Hodder Children's Books, 2005) £7.99 Sargent, M. *The Little Book of Traditional Tales: No. 71: Little Books with Big Ideas*. (Featherstone Education, 2010) £8.99		
Curriculum Links			Link to Design and Technology	Linked to Literacy?		

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	We are Astronauts (2.1)	We are Game Testers (2.2)	Photographers (2.3)	Researchers (2.4)	Zoologists (2.6) Science Link	Detectives (2.5)
Outcome	Children will be able to create a program in which a sprite moves around the screen	Children will be able to explain how games work, as text, audio or screencast video	Children will create a class portfolio of original photographs	Children will create a multimedia presentation.	Children will be able to record objects and organise the data they have collected and record it using a graphing package, and interpret the graph to answer questions.	Children will solve a mystery by reading, sending and replying to emails.
Key Vocabulary	Sprite				Tick charts Tally Charts	
Knowledge Learnt	To be able to understand algorithms as a sequences of instructions To know how to convert simple algorithms to programs To know how to predict what a simple program will do To know how to spot and fix (debug) errors in their programs.	To know how to describe carefully what happens in computer games To know how to use logical reasoning to make predictions of what a program will do To know how to test these predictions To know how to think critically about computer games and their use To be able to be aware of how to use games safely and in balance with other activities.	To be able to consider the technical and artistic merits of Photographs. To know how to use a digital camera or camera app. To know how to take digital photographs. To know how to review and reject or pick the images they take. To know how to edit and enhance their photographs. To be able to select their best images to include in a shared portfolio.	To be able to work as part of a group. To know how to research by searching for information on the internet. To know how to take notes through the use of mind mapping. To know how to create a multimedia presentation.	To know how to sort and classify a group of items by answering questions. To know how to collect data using tick charts or tally charts. To know how to use simple charting software to produce pictograms and other basic charts. To know how to take, edit and enhance photographs To know how to record information on a digital map.	To know that email can be used to communicate. To know how to open, compose and send emails. To know how to open and listen to audio files on the computer. To know how to use appropriate language in emails. To know how to edit and format text in emails. To be aware of online safety issues when using email.
Educational Visits			Alexandra Palace Park	Alexandra Palace Park		Enterprise Challenge Day
Key Texts	Bartram, S. *Man on the Moon*. (Templar Publishing, 2004) £6.99 Dowswell, P. *First Encyclopedia of Space*. (Usborne Publishing Ltd, 2010) £9.99 Miles, L., Smith, A. *The Usborne Book of Astronomy and Space*. (Usborne Publishing Ltd, 2010) £9.99	Chatfield, T. *Fun Inc.* (Virgin Books, 2011) £12.99 *Everything Bad is Good for You*. (Penguin, 2006) £11.99 McGonigal, J. *Reality is Broken*. (Vintage, 2012) £10.99		Buzan, T. *Mind Maps for Kids: An Introduction*. (Thorsons, 2003) £14.99 Buzan, T. *Mind Maps for Kids: Study Skills.* (Harper Thorsons, 2008) £14.99 Duarte, N. *Slide:ology*. (O'Reilly Media, 2008) £31.99 Reynolds, G. *Presentation Zen*. (New Riders, 2011) £25.99	Ladybird. *Mad About Bugs*. (Ladybird, 2008) £2.99 McCandless, D. *Information is Beautiful*. (Collins, 2012) £25.00 Unwin, M. *RSPB: My First Book of Garden Bugs*. (A&C Black Publishers Ltd, 2009) £6.99 Wootton, A. *Bugs and Insects (Usborne Spotter's Guide)*. (Usborne Publishing Ltd, 2006) £5.99	French, V. *Year 3: Detective Dan (White Wolves: Familiar Settings)*. (A&C Black Publishers Ltd, 2004) ££5.99
Curriculum Links					Science	

Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	Programming (3.1)	Ohbots	We are Presenters (3.3)	Opinion Pollsters (3.6)	Communicators (3.5)	Vloggers (3.4)
Outcome	Children will create a short, scripted animated cartoon.	Children will program a robot to carry out a sequence of movements.	Children will create **one minute of edited video of children performing an activity, with narrated commentary.**	Children will create an o**nline opinion poll survey, and create charts showing analysis of data.**	Children will be able to create, edit and send emails.	Children will be able to create a **screencast video of a short narrated presentation on an agreed topic, combining images and audio.**
Key Vocabulary	animation	program scripts debug				
Knowledge Learnt	To know how to create an algorithm for an animated scene in the form of a storyboard To know how to write a program in Scratch to create the animation To know how to correct mistakes in their animation programs.	To know how to program a robot to carry out a sequence of movements. To know how to program a robot to carry out a sequence of movements when keys are pressed. To know how to use the 'repeat' function to write code. To know how to write two scripts that run simultaneously. To know how to program a robot to speak. To know how to test and debug a program.	To know how to shoot live video, such as framing shots, holding the camera steady, and reviewing To know how to edit video, including adding narration and editing clips by setting in/out points To know what the qualities of effective video are, such as the importance of narrative, consistency, perspective and scene length.	To know how to design a survey To know what some of the ethical and legal aspects of online data collection are To know how to use the web to facilitate data collection To know how to use a chart to analyse data To know how to interpret results.	To know how email works To know how to create, edit and send emails. To understand 'netiquette' and online safety issues To be able to work collaboratively with a remote partner. To experience video conferencing.	To know how to use a search engine to learn about a new topic To know how to plan, design and deliver an interesting and engaging presentation To know how to search for, and evaluate, online images To know how to create their own original images To know how to create a screencast video of a narrated presentation develop To know how the internet, the web and search engines work.
Educational Visits						
Key Texts	**LEAD Project, The. *Super Scratch Programming Adventure!* (No Starch Press, 2012) £16.99** **Sito, T. *Moving Innovation: A History of Computer Animation*. (MIT Press, 2013) £22.00**			**Best, J. *Damned Lies and Statistics: Untangling Numbers from the Media, Politicians and Activists*. (University of California Press, 2001) £25.00** **Huff, D. *How to Lie with Statistics*. (Penguin, 1991) £9.99** **McCandless, D. *Information is Beautiful*. (Collins, 2012) £25.00**		**Blum, A. Tubes: *Behind the Scenes at the Internet*. (Penguin, 2013) £9.99** **Duarte, N. *slide:ology: The Art and Science of Creating Great Presentations*. (O'Reilly Media, 2008) £31.99**
Curriculum Links	Fiction Unit – 'Nail Soup' → T4W link				Forest School → Janine	Forest School → Janine

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	Software Developers (4.1) Skills Based	Co-authors (4.5)	Musicians (4.3)	We are HTML Editors (4.4)	Ohbots	Meteorologists (4.6)
Outcome	Children plan and design a game, with a clear target audience in mind and create a working prototype.	Children work together to create a mini Wikipedia	Children produce a piece of electronic music.	Children create a web page using HTML.	Children will program a robot using repeat movements and variables.	Children create a weather presentation using data measurement and analysis tools.
Key Vocabulary	Prototype	Wikipedia Wiki		Hypertext mark-up language (HTML)	random variable conditional value	
Knowledge Learnt	To know how to develop an educational computer game using selection and repetition To know how to use variables To know how to debug computer programs To understand the importance of user interface design, including consideration of input and output.	To understand the conventions for collaborative online work, particularly in wikis To be aware of their responsibilities when editing other people's work To know Wikipedia, including potential problems associated with its use To know how to research To know how to write for a target audience using a wiki tool To develop collaboration skills To develop proofreading skills.	To know how to edit music To know how to create and develop a musical composition, refining their ideas through reflection and discussion To develop collaboration skills To develop an awareness of how their composition can enhance work in other media.	To know how some technical aspects of the internet makes the web possible To know how to use HTML tags for elementary mark up To know how to use hyperlinks to connect ideas and sources To know how to code up a simple web page with useful content To understand some of the risks in using the web.	To know how to program a robot to repeat movements with a random wait in between. To know how to program a robot to repeatedly move to random positions. To know how to use a variable to make Ohbot count. To know how to use a conditional to make a robot count to a certain value. To know how to use two variables. To know how to test and debug a program.	To understand different measurement techniques for weather, both analogue and digital To know how to use computer-based data logging to automate the recording of some weather data To know how to use spreadsheets to create charts To know how to analyse data, explore inconsistencies in data and make predictions To know how to use presentation software and video.
Educational Visits			Your local authority development centre, or a nearby secondary school or FE college, might have a music technology suite that you can visit with your class.			
Key Texts	**The LEAD Project. *Super Scratch Programming Adventure*. (No Starch Press, 2012) £16.99**					**Cosgrove, B. *Weather*. (DK Eyewitness Books, 2007) £6.99** **Ganeri, A. *Stormy Weather* (Horrible Geography Series) (Scholastic, 2008) ££5.99** **Mabey, R. *Turned Out Nice Again: Living with the Weather*. (Profile Books, 2013) £7.99**
Curriculum Links		Phillip Pullman focus → DR link	Music link → Jeannie			Geography link to autumn term unit

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	Game Developers (5.1)	Ohbots	Bloggers (5.5)	Web Developers (5.4)	We are Artists (5.3)	Architects (5.6)
Outcome	The children plan their own simple computer game.	Children will program a robot to speak using the if-then function.	Children create a media-rich blog.	Children create a website.	Children create a piece of geometric art.	Children use Trimble SketchUp to create their own virtual gallery.
Key Vocabulary						
Knowledge Learnt	To know how to create original artwork and sound for a game To know how to design and create a computer program for a computer game, which uses sequence, selection, repetition and variables To know how to detect and correct errors in their computer game To know how to use iterative development techniques (making and testing a series of small changes) to improve their game.	To know how to use a variable to make Ohbot say the date and time. I know how to use the if-then instruction. I know how to use the if-then-else instruction. I know how to broadcast. I know how to use broadcast to make my Ohbot do several thing simultaneously. To know how to test and debug a program.	To become familiar with blogs as a medium and a genre of writing To know how to create a sequence of blog posts on a theme To know how to incorporate additional media To develop a critical, reflective view of a range of media, including text.	To know how to research and decide what information is appropriate To know how some elements of how search engines select and rank results To be able to question the plausibility and quality of information To know how to develop and refine their ideas and text collaboratively To develop their understanding of online safety and responsible use of technology.	To develop an appreciation of the links between geometry and art To know how to use the tools and techniques of a vector graphics package To know how to use turtle graphics To know how to experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers To develop some awareness of computer-generated art, in particular fractal-based landscapes.	To understand the work of architects, designers and engineers working in 3D To know how to use a simple CAD (computeraided design) tool To develop spatial awareness by exploring and experimenting with a 3D virtual environment To develop greater aesthetic awareness.
Educational Visits						
Key Texts	**The LEAD Project. *Super Scratch Programming Adventure*. (No Starch Press, 2012)** £16.99			**Teeter, R. and Barksdale, K. Google™ Sites and Chrome for Dummies®. (John Wiley and Sons, 2009) £16.99**	**Hofstadter, D.R. *Gödel, Escher, Bach: An Eternal Golden Braid*. (Penguin Books, 2000) £19.99** **On Islamic art:** **Broug, E. *Islamic Geometric Patterns.* (Thames and Hudson Ltd, 2008) £14.95** **Riley, B. and Kudielka, R. *The Eye's Mind: Bridget Riley: Collected Writings 1965–2009*. (Thames and Hudson Ltd, 2009) £24.95** **On the fractal nature of landscapes:**	**Roeder, A. *13 Buildings Children Should Know*. (Prestel, 2009) £10.99**
Curriculum Links	Art link → New artists			Year 4 Romans		School Development Plan → eco-room/playground improvement

Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	Ohbots	Travel Writers (6.5)	Advertisers (6.3)	We are network technicians (6.4)	Adventure gamers (6.1) Skills Based	Publishers – creating a yearbook (6.6)
Outcome	Children will program a robot to sense the position of a mouse using the list function.	Children create a digital content map using audio, pictures and video	Children create a television advert.		Children create a simple text based adventure game.	Children produce a class year book.
Key Vocabulary			Storyboard			
Knowledge Learnt	I know how to program a robot to sense the position of a mouse. I know how to use a list in a program. I know how to use variables, conditionals and use the if-then-else instruction simultaneously. To know how to test and debug a program.	To know how to research a location online using a range of Resources appropriately. To know how to use mobile technology, including GPS safely. To know how to capture images, audio and video while on location To know how to showcase shared media content through a mapping layer.	To know how to think critically about how video is used to promote a cause To know how to storyboard an effective advert for a cause To know how to work collaboratively to shoot suitable original footage and source additional content, acknowledging intellectual property rights To know how to work collaboratively to edit the assembled content to make an effective advert.	To know that computer networks transmit and receive information digitally To know what the basic hardware is needed for computer networks to work To know what the key features of internet communication Protocols are To know how domain names are converted to numerical IP addresses.	To know some of the syntax of a text-based programming language To know how to use commands to display text on screen, accept typed user input, store and retrieve data using variables and select from a list To know how to plan a text-based adventure with multiple 'rooms' and user interaction To know how to thoroughly debug the program.	To know how to use online tools to manage or contribute to large collaborative projects, To know how to write and review content To know how to source digital media while demonstrating safe, respectful and responsible use To know how to design and produce a high-quality print document.
Educational Visits				National Museum of Computing?		
Key Texts		**Lanier, J. *You Are Not A Gadget: A Manifesto*. (Penguin, 2011) £9.99** **Thomas, C. *GPS for Walkers*. (Pathfinder Guides, 2013) £11.99**	**Fletcher, W. *Advertising: A Very Short Introduction*. (OUP, 2010) £8.99** **Willoughby, N. *Digital Filmmaking For Kids*. (John Wiley and Sons, 2015) £21.99** **Willoughby, N. *Making YouTube Videos*. (John Wiley and Sons, 2015) £8.99**	**Keen, A. *The Internet is Not the Answer*. (Atlantic Books, 2015) £9.99** **Morozov, E. *The Net Delusion*. (Penguin, 2012) £10.99** **Standage, T. *The Victorian Internet*. (W&N, 1999) £8.99** **Starosielski, N. *The Undersea Network*. (Duke University Press, 2015) £24.99** **Wu, T. *The Master Switch*. (Atlantic Books, 2012) £10.99**	**Briggs, J. *Python for Kids: A Playful Introduction to Programming*. (No Starch Press, 2012) £29.99** **Jackson, A. and Livingstone, I. *The Warlock of Firetop Mountain* (Puffin Adventure Gamebooks, 1982); plus other texts in the Fighting Fantasy series OTHERS AVAILABLE ALL £6.99** **Roffey, C. *Python Basics, Level 1 (Coding Club)*. (Cambridge University Press, 2012) £8.95** **Sande, W. and Sande, C. *Hello World! Computer Programming for Kids and Other Beginners*. (Manning Publications, 2014) £24.99** **Scott, B. *Python for Kids for Dummies*. (John Wiley and Sons, 2015) £21.99**	**Caldwell, C. and Zappatera, Y. *Editorial Design: Digital and Print*. (Laurence King, 2014) £29.99** **Leslie, J. *The Modern Magazine: Visual Journalism in the Digital Age*. (Laurence King, 2013) £28.00** **Navasky, V. and Cornog, E. *The Art of Making Magazines*. (Columbia University Press, 2012) £22.00**
Curriculum Links		Pendarren trip/summer holiday	Link to geography Climate Change - humanities		(Ally Pally workshop)	PSHE - Reflection on their time at Campsbourne