Year 5 Computing Curriculum Overview

Strand	Program of Study	LI and SC	Activity Suggestions	Learning Outcome – By the end of this unit children should be able to…
ICT	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	• See separate sheet	To be taught cross-curricularly e.g. making an animation in Literacy or making a table with animal information in Science	• See separate sheet
What are Computers?	recognise common uses of information technology beyond school	LI: to recognise computers and understand what they do I must remember: o A computer is a device that performs a range of functions according to how it is programmed.	What does a computer do? Think about a general level? What 'things' are, or use, computers. Can we come up with one definition? How do we know it has done what we wanted? Children brainstorm different ways which they can get information 'into' the computer. This could be with sorting input/output picture cards. Children connect up an basic computer. They may also 'design' their own (fictional) computer explaining its inputs/outputs.	• I can explain that a computer receives an input, processes it and then gives a visible output • I can explain the various inputs and output connections in a simple computer • I can connect the peripherals of a computer
Programming	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	LI: To program a computer I must remember: o A computer will only do what it has been programmed to do o To break instructions down into small steps o Programs run in order from start to finish	Children look at a program (could be Scratch, Python or Ruby) and discuss what they think it does. Can they see any similarities between the 3? Programming concepts are the same - it's the syntax that changes! Think about the song twinkle twinkle, what would be the steps to getting someone to play the song? Create a flow chart. Plan a song including: loops, conditionals, variables When the song doesn't sound right the children need to debug it.	• I can break down a problem into its smaller steps • I can plan what needs to be written for each stage • I can write a computer program with several steps in order to achieve a goal • I can debug a simple program after testing it • I can use a variable and relational operators within a loop to govern termination.

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Networks and The Internet	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	See separate sheet (by strand for individual LIs and SCs)	Unplugged: link IP addresses to posting, or emailing a friend. Everyone needs to have an address and it tells the postman, or computer, if the thing being sent has reached the right point. Every computer connected to the Internet has an IP address – it's what allows people to track what your computer has been doing and allows two computers to connect (across the network) to swap information or files. Create a 'map' to show the journey of a request for a website in the WWW. Where do they think the request goes first? To the 'wifi router' via radio waves, out into the street via wires, passed to routers owned by companies like TalkTalk or BT passed on and on. The journey could take you all over the world. When it finds the computer which the website is saved on, it tells it to send the webpage (images and text) back to our computer. This all happens in a few seconds! Use http://www.yougetsignal.com/tools/visual-tracert/ to show children where the request for a website goes and how many times it gets passed on before it finds the right computer. Introduce children to 'View Source' on websites and look at a simple website. Use Mozilla Thimble to see what each tag does, can the children manipulate the code e.g. changing the colour from red to green Chn create ways to communicate using taps (rather than electrocuting each other), sounds and lights to mimic different ways. Discuss the pros and cons of each...think about speed, interference, direction etc.	• I can explain the role of an IP address • I can explain how a website request is sent from router to router before being found • I can explain that a webpage is written in HTML • I can explain the difference between the Internet and a web browser • I can explain that computers send information in a range of different ways e.g. electrical pulses, sounds, light
Searching	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	LI: To know how a search engine works I must remember: o A search engine identifies the words typed into the search box and matches them to a database. o A search engine has an index list of websites, which contain these keywords.	Talk to chn about finding information – what skills do we use? Think about books – how do we know where to look? Do we look at every page? Google has an index like this – where does it come from? Google has programs called 'web crawlers' which search the Internet from unknown websites and add them to a giant index. When you search, how does Google decide which order to show the websites in? It uses an algorithm. Design your own algorithm for this. Choose a search term and list 4 results. Which order would they go in? How would you know? Does Google know everything? Is there any information Google doesn't have? Why? How? Use this website to discuss 'how Google works' http://www.google.co.uk/about/datacenters/gallery/#/tech	• I can explain that 'web crawlers' create an index • I can explain that search engines use algorithms to choose the 'best' results • I can explain that not all of the things on the Internet can be found by search engines • I can suggest reasons a website ranks as a top result
Digital Citizenship	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	• See separate sheet	Taught through stories, videos, discussions, assemblies, class circle times. Activites include: Making posters, comic strips, role play. Include in other lessons when necessary.	• I can explain the benefits of sharing information online • I can choose a sensible password including letters, numbers and upper/lowercase • I can show the same behaviours online as I do offline • I can explain what to do if I find something inappropriate • I can understand how quickly information on the internet can spread • I can understand that information can still be on the internet even if the original source is deleted • I can explain the laws surrounding copyright on the internet