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.	Look at a variety of scratch games and discuss what the 'input' is. Can they design a new game that uses various inputs – differentiation including sending messages Sort a selection of images from hardware to software and define both. Could they create an animation explaining both? Children look at a variety of scenarios and decide whether the tasks are best suited to humans or computers and explain why they think that. They could then go on to design human/computer systems appropriate for use	● I know that computers collect data from various input devices, including sensors and application software. ● I know the difference between hardware and application software, and their roles within a computer system. ● I know why and when computers are used. ● I can show an awareness of tasks best completed by humans or computers. ● I know the main functions of the operating system.
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 create a simple text-based adventure game including variables and conditionals. The program will take them several weeks and will involve constant debugging. They can keep a journal to map the barriers they've had to overcome. Children create a complex game that needs to be broken down into steps e.g. background, characters and actions. This can be based around the same brief for everyone but they are left to implement it as they wish. Compare the code afterwards.	● 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 designs solutions by decomposing a problem and create a subsolution for each of these parts ● I know that different solutions exist for the same problem. ● I know the difference between, and appropriately I can use if and if, then and else statements.

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)	Discuss the role of DNS as a phonebook – it lists all the IP addresses and all the URLs and matches them up. This is because URLs are easier to remember than a list of numbers. Computers communicate through a system called binary – this is a system which has two options 1 or 0, or on or off. Sounds can be sent as on or off, light can be sent as on or off, current can be sent as on or off. 'Crack the code' activities with binary, including binary counting. Binary bracelets for their initials. Packet game – break a website into small pieces and send it through the different routes. Chn are transporting the different pieces through the internetwork. Get the chn to take on the role of different types of connection e.g. wifi, wired and fibre – use this to discuss the pros and cons of each method Get the children to explain their current understanding of physical and wireless networks. What are these? Why would you use each? Your may connect to wireless internet if you are in range of it but what if you're out? How does it have internet then? Brainstorm. Create a blog post explaining the different types of network. Explore the HTML code in a range of websites – look at them and discuss what it does. Introduce the children to a set of tags (with the layout of the HTML document already created) and ask them to suggest what they think they do. Show them the HTML document, which they create. Children can begin to create a website with these tags – either editing existing ones and then building on it or starting from scratch.	• I can explain the role of a DNS • I can explain why computers use binary to send information • I can explain that the Internet uses packets when sending data • I know the difference between physical, wireless and mobile networks. • I can explain why different methods are use to send information • I can design a webpage and create a basic HTML file
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.	Google have a selection of lesson plans (including examples of progression) which you can access at http://www.google.com/insidesearch/searcheducation. There is also a 'Google A Day' (http://www.agoogleaday.com/) activity which challenges participants to answer a research question using their searching skills Does Google know everything? Is there any information Google doesn't have? Why? How?	• I can explain the use of key words to match with search queries and the impact more or less search terms will make • I can explain how a search engine's index works • I can explain what factors a search engine uses when ranking • I can explain that not search engines try to personalise what you see so that not everyone will see the same results • I can suggest some websites that the search engines don't index
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. Activities 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