Progression of Skills:

Computing: 'Switched on computing'	
Nursery	Reception
Personal, Social, Emotional Development **3 / 4 year olds:** ● Increasingly follow rules, understanding why they are important. **Physical Development** **3 / 4 year olds:** ● Match their developing physical skills to tasks and activities in the setting. **Understanding the World** **3 / 4 year olds:** ● Explore how things work.	**Personal, Social, Emotional Development** **Reception:** ● Show resilience and perseverance in the face of a challenge. **ELG: PSED: Managing Self** ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. ● Explain the reasons for rules, know right from wrong and try to behave accordingly. **Physical Development** **Reception:** ● Develop their small motor skills so that they can use a range of tools competently, safely and confidently. ● Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time'. **Expressive Arts and Design** **Reception:** ● Explore, use and refine a variety of artistic effects to express their ideas and feelings. **ELG: EAD: Creating with materials:** ● Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Year 1	Year 2
Algorithms - *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*	
• I can create a series of instructions and plan a journey for a programmable toy	• I can understand that algorithms are used on digital devices e.g. scratch/scratch junior This links in with Switched on computing 2.1 unit - We are astronauts This uses scratch as their main software. useful links - http://scratch.mit.edu and they have online tutorials http://info.scratch.mit.edu/video_tutorials
Create programs - *Pupils should be taught to create and debug simple programs*	
• I can create digital content • I can store digital content • I can retrieve content E.g. taking, storing photos and showing photos on an ipad, recording their voice and finding their stored document, doing a drawing on an ipad and finding where it is stored.	• I can write a simple program and test it e.g. scratch This link in with the above topic in switched on computing unit 2.1 - We are astronauts Switched on computing unit 2.2 - we are game testers links in with this focusing on predicting the behaviour of simple programs
Using technology - *Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve digital*	
• I can use a website e.g. navigate around a cbeebies website • I can use a camera purposefully • I can record sound and play back e.g on an ipad or talking tins	• I can understand that programs require precise instructions • I can organise content • I can retrieve digital content • I can manipulate digital content e.g editing photos, word document, powerpoint This links in with switched on computing unit 2.3 - we are photographers useful links - http://picasa.google.co.uk, iphoto - www.apple.com/uk/ios/photo, taking photos on an ipad - www.dummies.com/howto/content/taking-photos-on-your-ipad.html. Switched on computing unit 2.5 - we are detectives - this is based on the children reading, sending and replying to emails.
uses of ICT beyond school	
• I can talk about some of the IT uses in their own home	• I can know how technology is used in school and outside of school Switched on computing has links with this in unit 2.2 - we are game testers
Safe use (e-safety)	
• I can use technology safely e.g. I understand that technology is fragile and valuable i.e. not pouring water over it • I can keep personal information private e.g. do not say your full name and/or address	• I know where to go for help if concerned. e.g. CEOP, parents, trusted adult Switched on computing unit 2.1 - We are researchers has links to this (based on children researching a topic and sharing their findings)

Reasoning - *Pupils should be taught to use logical reasoning to predict the behaviour of simple programs*

	● I can predict what the outcome of a simple program will be (logical reasoning). e.g. scratch This links in with Switched on computing 2.1 unit - We are astronauts This uses scratch as their main software. useful links - http://scratch.mit.edu and they have online tutorials http://info.scratch.mit.edu/video_tutorials as well as the unit 2.2 - we are game testers

Year 3	Year 4	Year 5	Year 6
Create Programmes- *Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*			
● I can write programs that accomplish specific goals (This links to 'Switched On's 'we are programmers unit 3.1. Scratch is a useful program for this but role playing games could be used for an 'unplugged' approach)	● I can give an 'on-screen' robot specific instructions that takes them from A to B (This links to Switched On Computing's' We are software developers' unit 4.1. and 'we are toy designers' unit 4.2. Scratch is a useful program for this and so is Isle of Tune)	● I can use technology to control an external device, for example, flight simulators, robots, lights and thermostats(This links to Switched On Computing's We are game developers' Unit 5.1. Scratch is a useful program for this but so could role playing activities for an 'unplugged' approach).	● I can write a program that combines more than one attribute (Scratch is a useful program for this)
Develop Programmes- *Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*			
● I can design a sequence of instructions, including directional instructions (This links to Switched On Computing's 'We are bug fixers unit 3.2. Can use bee bots or role playing activities or Isle of Tune)	● I can experiment with variables to control models (This links to Switched On Computing's' We are software developers' unit 4.1. and 'we are toy designers' unit 4.2. You could create a game on scratch where you keep a score or keep a tally of how many people come in and out of a classroom)	● I can develop a program that has specific variables identified (This links to Switched On Computing's 'We Are Artists' unit 5.3. Scratch is a useful program for this)	● I can develop a sequenced program that has repetition and variables identified (Scratch is a useful program for this)

Reasoning- *Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*			
• I can discern when it is best to use technology and where it adds little or no value	• I can make an accurate prediction and explain why they believe something will happen- linked to programming (This links to Switched on Computing's 'We are meteorologists' unit 4.6. Children could play chess in pairs against a computer and reason with each other before ach move)	• I can analyse and evaluate information reaching a conclusion that helps with future developments (This links to Switched On Computing's We are game developers' Unit 5.1 and 'We are cryptographers' unit 5.2. Scratch is a useful program for this- children could do 3 stars and a wish on each other's games/ programs)	• I can design algorithms that use repetition and 2-way selection ((Scratch is a useful program for this)

Networks - *Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*			
• I can navigate the web to complete simple searches (Can be done as part of other subjects) • I can understand computer networks, including the internet; how they can provide multiple services (This links with Switched on Computing's 'we are network engineers' unit 3.4	• I can understand how to search for specific information and know which information is useful and which is not (This links with Switched On Computing's 'we are musicians' unit 4.3 and 'we are HTML editors' unit 4.4)	• I can understand computer networks including the internet, how they can provide multiple services, such as the world wide web and the opportunities they present for communication and collaboration. (This links with Switched on Computing's 'we are bloggers' unit 5,5)	

Search Engines- *Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content*			
• I can use a range of software for similar purposes (Could be powerpoint, word or video editing/ creating software for example. This links to Switched On Computing's 'we are presenters' Unit 3.3) • I can collect and present information (Could be done using padlet, prezi, or powerpoint This links to Switched On Computing's 'we are presenters' Unit 3.3)	• I can select and use software to accomplish given goals (This links with Switched On Computing's 'we are musicians' unit 4.3 and 'we are HTML editors' unit 4.4 and 'We are meteorologists' unit 4.6)	• I can understand how search results are selected and ranked (This links to Switched On Computing's 'we are web developers' unit 5.4. Children could do research on a given topic and note down how many results there are for different search terms and discuss what effect changing the wording has)	• I can be aware that some search engines may provide misleading information (Discussions on clickbait, result filtering, adverts, domain names such as .gov, .sch and verification)

Using Programmes- *Pupils should be taught to 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*			
• I can collect, analyse, evaluate and present data using the platform of Google Forms, sending a quiz/ poll to other children in school and present that data to others. (This links with Switched On Computing's 'We are opinion Pollsters' unit 3.6	• I can produce and upload a podcast or a song (This links with Switched On Computing's 'we are musicians' unit 4.3. Ipads can record and edit audio, this could be a way of showcasing learning at the end of a unit)	• I can combine sequences of instructions and procedures to turn devices on and off (This is linked to Switched On Computing's 'we are artists' unit 5.3. Scratch is a useful program for this)	• I can present the data collected in a way that makes it easy for others to understand (NCES Kid's Zone – Create a Graph is useful for this)
Safe Use(Internet Safety)- *Pupils should be taught to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*			
• I can safely engage in online spaces, including in group chats, being aware that personal information and identifying photographs and/or videos should not be shared. (This links with Switched on Computing's 'we are network engineers' unit 3.4 and 'we are communicators' unit 3.5. Interland be internet awesome and thinkuknow band runner game work well for this and discrete lessons on Internet Safety also can use- (Unsolicited emails and attachments; Captain Kara and Winston'S SMART Adventure (KnowITall), chapter 1, "What should you keep Accept?" on childnet.com) • I can develop strategies for staying safe when using the Internet. • I can use the Internet to undertake independent and appropriate research and attempt to distinguish between fact and fiction (Children could use child friendly search engines to find information through key words www.kidsclick.org http://kids.yahoo.com/) • I can understand that the internet contains fact, fiction and opinions (Inaccurate information online;	• I can recognise acceptable and unacceptable behaviour using technology. This links with Switched On Computing's 'we are musicians' unit 4.3. Interland be internet awesome and thinkuknow band runner game work well for this and discrete lessons on Internet Safety) • I can safely use the Internet for research and follow lines of enquiry. • I can understand the function of a search engine and the importance of using correct search criteria. • I can use the internet as a resource to support my work, and begin to understand plagiarism. (ThinkUKnow Cybercafe Lesson 5, `Responsible use of the internet' www.thinkuknow.co.uk/8_10/ (click on Jason for the web browsing section) • I can know that not everything I find on the Internet is true (spoof website https://www.allaboutexplorers.com/) and know what to do if I find something they are uncomfortable with (This links with Switched On Computing's 'we are musicians' unit 4.3) • I can use a range of communication	• I can understand that I have to make choices when using technology and that not everything is true and/or safe. (Interland be internet awesome and thinkuknow band runner game work well for this and discrete lessons on Internet Safety) • I can develop my online set of protocols in order to keep safe online. • I can recognise inaccuracy and bias on the web and evaluate websites for their validity • I can use online tools to exchange information and collaborate with others within and beyond their school and begin to evaluate their effectiveness. (Children's search engines; www.kidsclick.org http://kids.yahoo.com/ www.askforkids.com • ThinkUKnow Cybercafe Lesson 5, "Responsible use of the Internet" For copyright free pictures and music; NEN Gallery Audio Networks • I can understand the potential risks of providing personal information in an increasing range of online technologies both within and outside school.(This links to Switched On	• I can become increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable. (Interland be internet awesome and thinkuknow band runner game work well for this as well as discussions around CEOP, online communications and discrete lessons on Internet Safety) • I can confidently and competently use the Internet as a tool for research and critically evaluate websites for their use. • I can know that not all information they find on the Internet is accurate or unbiased and develop strategies for identifying the origin of a website. • I can be aware of copyright issues and know that not all resources I find on the Internet are legal to use or copy (even if sources are acknowledged) Resources: Children's search engines; www.kidsclick.org http://kids.yahoo.com/ www.askforkids.com For copyright free images; NEN image gallery Audio Networks

Captain Kara and Winston's SMART Adventure (KnowITall), chapter 2, "What is Reliable?" on childnet.com • I can develop awareness of online protocols, in order to stay safe on the web, such as understanding our acceptable usage policy,understanding what cyber bullying is and that we do not share usernames and passwords (School AUP KS1 and 2 Safer Internet Day Assembly video http://www.thinkuknow.co.uk/teachers/ Captain Kara and Winston's SMART Adventure (KnowITall), chapter 3, "What should you keep Safe?" on childsnet.com)	tools to collaborate and exchange information with others, e.g. email, blog, forums. (They can use their google accounts to email each other as well as classroom and padlet. Children should be taught explicitly about the to box and email etiquette) • I can understand and abide by our acceptable use policy. • I can be aware of the need to develop a set of online protocols in order to stay safe online. • I can develop awareness of relevant e-Safety issues. (Resources: thinkuknow.co.uk/teachers KnowIT All Activity 3 (The SMART Adventure on childnet.com); drama activity highlighting an e-Safety issue. "Where's Klaus" video from CEOPS (teachers will need to register at the ThinkUKnow website to download this video) Key E-safety Resource: Switched On Computing's 'we are co-authors' Unit 4.5	Computing's 'we are bloggers' unit 5.5. ThinkUKnow Cybercafe Lessons: 6 – chatting with care 7 – Using text and picture messaging 8 – behaving responsibly www.thinkuknow.co.uk/8_10/ Captain Kara and Winston's SMART Adventure (KnowITall), chapter 3, "What Should you keep safe?") • Children recognise their own right to be protected from the inappropriate use of technology by others and the need to respect the rights of other users (KS 2 Safer Internet Day Assembly video. http://www.thinkuknow.co.uk/teachers/ School Internet Acceptable Use Policy "Where's Klaus" video from CEOPS (teachers will need to register at the ThinkUKnow website in order to download this video)	

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