Computing Upper Key Stage 2

Pupils should be taught to:	**How we do this in Y5?**	**How we do this in Y6?**	Vocabulary	Apps/Software	Notes and resources
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Y5 pupils will have a strong understanding of designing programs, and as a result, debugging to ensure the end result is the desired outcome. Y5 pupils will meet this by: • Children will be designing their own programs, and debugging as and when required. The children will be using timers and score pads to control and stimulate the system.	YR6 pupils will have a sustained understanding of debugging programs to accomplish specific goals. Yr6 pupils will meet this by: • Children will be designing their own programs, and debugging as and when required. The children will be using timers and score pads to control and stimulate the system. • PPT including hyperlinks and layering. Debugging this if there are errors.	**YR5** Program, debug, timers, variables, stimulation, design **Plus extra in resources** **YR6** Logo app layering toolbar icon application, hyperlink **Plus extra in resources**	**Y5**: Scratch Google sites **Y6**: Scratch PPT Microbits	Linked Vocabulary that both year groups should know: • **Object** • **Action** • **Input** • **Output** • **Control** • **Event** • **Variable** Children should be encouraged to use the above vocabulary during computing lessons, particularly during their logical reasoning. Differentiation is by outcome. Some children will produce a game in its simplest form. A more able child will produce a more complex game, relying on excellent programming skills. Using a trackpad and menu driven options is a challenge for them but this builds digital confidence and helps eventually with transition in Y6. **Links for teaching** BBC what is an Algorithm

					BBC What is decomposition? Scratch help cards
use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Y5 pupils will meet this through their lessons on programming. They will also do so by: • Children to be able to create a formula to convert measurements using the how many tools, using different variables. • Children to be able to use text coding and create a game with a timer and score pad. • Blogging – children will be creating a multimedia blog that has various media output, dependent on an input.	Y6 pupils will build on the programming from Y5 and extend the use of variables and various forms. The will do this by: • Scratch looking at different variables. • Microbits. Formula, converting measurements strands to be embedded within Yr 6 Enterprise. Digital Literacy	**YR5** Create, formula, variables, code, multimedia **YR6** navigate, sequence, algorithm, animation, design, slides	**Y5**: Scratch **Y6**: Scratch Microbits	Children should be given the chance to physically see the impact a different variable can have – not just doing something the once, without being able to compare. Children could be encouraged to use logical reasoning to predict what could happen through the use of good questioning: What do you think could happen if I change x? Is this successful dependent on x? Links for teaching: BBC How do computers use variables?. http://www.bbc.co.uk/guides/zqrq7ty

use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Children will have experience of thinking computationally and using their logical reasoning skills from Y3 and Y4. Pupils will now be building on this skills by: Pupils explaining the coding process and reflecting on the strengths and weaknesses of their algorithms.	YR6 pupils will have a sustained understanding of debugging programs to accomplish specific goals. Yr6 pupils will meet this by: • Children will be designing their own programs, and debugging as and when required. The children will be using timers and score pads to control and stimulate the system. • PPT including hyperlinks and layering. Debugging this if there are errors.	**Yr5** algorithms, errors, detect, debug, program, variables **Yr6** Control, stimulate, debug, hyperlinks, layering	**Y5** Microsoft Word Scratch **Yr6** PPT Word Scratch Microbits	Teachers should encourage children to use computing vocabulary during their answers, and be reflective. Pupils should reflect on their end result, as well as the whole coding process. Possible questions teachers could ask: What do you like about your creation? What do you not like? What do you think would have happened if the variable was changed to x?
understand computer networks including the internet; how they can provide multiple services, such	Y5 pupils will meet this by: • Computer Museum – Using the computer museum within the Computer Room to explore the components of a	Embedded across the wider curriculum, not explicitly taught in Year 6.	**Yr5** Components, services, communication, networks, router, WAN, LAN	**Y5**: Google Slides	Children need to have a strong understanding of how a computer works, not just how to use one. This LO enables children to delve into the components of the computer. Computing Museum – children can explore the main parts of a computer, looking at how they work.

as the world wide web; and the opportunities they offer for communication and collaboration	computer. • Children will be using the internet and their connection skills via connect-mapping to share ideas regarding computer networks.				Children could be pushed to offer reasoning skills by teacher asking 'would the computer work if x was taken out? Why?' Links for teaching: BBC what is the WWW? New! Journey to the bottom of the internet video The internet map The submarine cable map History of computing Map that shows connected devices - and Who has internet access? ICT Technician – discuss schools network connection.
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **These areas should be covered in generic lesson time.**	Children will be taught about search engines, including internet safety by: • Research during topic work. This will be done in classrooms on cohort chrome-books. • Internet safety sessions (See below for guidance). • Multimedia presentation in Summer1. • Ongoing classroom rules and code of	Children will be taught about search engines, including internet safety by: • Research during topic work. This can be done in classrooms on iPads. • Internet safety sessions (See below for guidance). • Multimedia presentation in Summer. • Ongoing classroom rules and code of conduct talk.		**YR5** NCCE **YR6** NCCE	Children should have opportunity to research independently, enabling them to familiarise themselves with search engines. Topic work is a good opportunity for this. Teachers should continually discuss internet safety and ensure their pupils know how to behave online. Possible questions: What is a search engine? How do they work? Would the results be any different if I removed this one word? How do I know the results are trustworthy? Do I believe everything I read?

	conduct talk.				Teaching Resources BBC How do Search Engines work? Evaluating digital content
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 **These areas should be covered in generic lesson time.**	Children will have the opportunity to meet this learning objective by: • Creating documents as part of their topic work, IE Word processing (posters/fliers). Data handling charts (maths). Presentation slides. Audio podcasts Videos. • Children will be creating a blog, including graphs, charts and photos. • Multimedia presentation – topic related, summer 1. • Children will be analysing data, creating charts and graphs and using the internet to	Children will have the opportunity to meet this learning objective by: • Designing and creating an app. IE PPT adding and refining use of hyperlinks. Adding pictures and changing font/colour to suit design. • Children will create a blog including photos, screenshots to follow the process of their app creation.	**Y5** Podcast Filters Blog, vlogger **Y6** Logo app layering toolbar icon application	**Y5:** Microsoft office Google slides **Y6:** Microsoft office Google sheets	This LO lends itself well to cross-curricular activities. Teachers could assess children's understanding of a topic by having them create an online document showcasing their information, while at the same time testing their computing fluency. Ideas: • Posters • Non-Chronilogical reports • Newspaper article • Letters • Postcards • Interviews

	connect the data and compare.				
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Y5 pupils will have a very strong understanding of E-Safety, and they will continue to strengthen their understanding by: • Internet Safety block session – to understand what the SMART rules are and be able to create a know-how comic strip. • Internet safety assembly – including workshop. • Internet safety day	Y6 pupils will have a very strong understanding of E-Safety, and they will continue to strengthen their understanding by: • Internet Safety block session – to understand what the SMART rules are and be able to create a know-how comic strip. • Internet safety assembly – including workshop. • Internet safety day		**YR5** NCCE **YR6** NCCE	Internet Safety is a big focus. The first unit of work every half term is internet safety. The lessons are essential and will remind the children of the importance after the summer holiday. Each new unit will also begin with a small focus on internet safety. Internet safety is not to be taught only as stand alone, it should be an ongoing focus and class teachers should look out for learning opportunities within lessons. IE: Mini plenaries – stopping the children and asking what the best thing child x could do in this situation, and why.