KNOWLEDGE PROGRESSION YEAR GROUP OVERVIEW – Computing

Features

• At key stage 1, the knowledge progression takes full account of the national curriculum's strands of:
  ○ Algorithms
  ○ Creating Programs
  ○ Reasoning
  ○ Using Technology
  ○ Uses of IT beyond school
  ○ Being Safe

• At key stage 2, the knowledge progression takes full account of the national curriculum's strands of:
  ○ Creating Programs
  ○ Developing Programs
  ○ Reasoning
  ○ Networks
  ○ Search Engines
  ○ Using Programs
  ○ Being Safe

• Skills are dependent on specific knowledge. A skill is the capacity to perform and in order to perform a deep body of knowledge needs to be acquired and retained.
• These knowledge statements should be what pupils retain for ever. In other words, this knowledge is within their long-term memory and will be retained.
• When considering pupils' improvement in subject specific vocabulary, pupils could be provided with a knowledge organiser which contains all words used for computing for their age group.

National Curriculum Subject Content

Strand	Algorithms	Reasoning	Creating Programs	Using Technology	Uses of IT beyond school	Safe use
Key Stage 1	• *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*	• *Pupils should be taught to use logical reasoning to predict the behaviour of simple programs*	• *Pupils should be taught to create and debug simple programs*	• *Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve digital content*	• *Pupils should be taught to recognise common uses of information technology beyond school*	• *Pupils should be taught to 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*

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Strand	Reasoning	Creating Programs	Developing Programs	Using programs	Networks	Search Engines	Safe use
Key Stage 2	• *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*	• *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*	• *Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*	• *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*	• *Pupils should be taught to - 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*	• *Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content*	• *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*

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Strand	Year 1	Year 2	Strand	Year 3	Year 4	Year 5	Year 6
Algorithms	• create a series of instructions and plan a journey for a programmable toy	• understand that algorithms are used on digital devices	**Reasoning**	• discern when it is best to use technology and where it adds little or no value	• make an accurate prediction and explain why they believe something will happen (linked to programming	• analyse and evaluate information reaching a conclusion that helps with future developments	• design algorithms that use repetition and 2-way selection
Reasoning		• predict what the outcome of a simple program will be (logical reasoning).					
Creating Program	• create, store and retrieve digital content	• write a simple program and test it	**Creating Programs**	• write programs that accomplish specific goals	• give an 'on-screen' robot specific instructions that takes them from A to B	• use technology to control an external device	• write a program that combines more than one attribute
			Developing Programs	• design a sequence of instructions, including directional instructions	• experiment with variables to control models	• develop a program that has specific variables identified	• develop a sequenced program that has repetition and variables identified
			Using Programs	• understand what computer networks do and how they provide multiple services	• produce and upload a podcast	• combine sequences of instructions and procedures to turn devices on and off	• present the data collected in a way that makes it easy for others to understand
Using Technology	• use a website and a camera • record sound and play back	• understand that programs require precise instructions • organise, retrieve and manipulate digital content	**Networks**	• navigate the web to complete simple searches	• know how to search for specific information and know which information is useful and which is not		
			Search engines	• use a range of software for similar purposes • collect and present information	• select and use software to accomplish given goals	• understand how search results are selected and ranked	• be aware that some search engines may provide misleading information
Uses of IT beyond school	• talk about some of the IT uses in their own home	• know how technology is used in school and outside of school					
Safe use	• use technology safely • keep personal information private	• know where to go for help if concerned.	**Safe use**	• use technology respectfully and responsibly • Know different ways they can get help if concerned	• recognise acceptable and unacceptable behaviour using technology	• understand that they have to make choices when using technology and that not everything is true and/or safe	• be increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable