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What will a Morpeth Partnership Computer Scientist look like?		
	At the end of Year 2 they will have the following knowledge:	At the end of Year 6 they will have the following knowledge:
Being a computer scientist	The National Curriculum for Computing aims to ensure that all pupils : • can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation • can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems • can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems • are responsible, competent, confident and creative users of information and communication technology	The National Curriculum for Computing aims to ensure that all pupils : • can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation • can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems • can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems • are responsible, competent, confident and creative users of information and communication technology
Knowledge	During 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 • create and debug simple programs • use logical reasoning to predict the behaviour of simple programs • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school • 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	
	During Key Stage 2, 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 • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	

	• 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 • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in 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 • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Progression of key skills from Y1 - Y13

	Computer Science	**Information Technology**
End of Year 1	• To understand what algorithms are • To create simple programs	• To use technology purposefully to access, create, store and retrieve digital content • To use technology safely & to understand the need to keep personal information private • To recognise common uses of information technology beyond school
End of Year 2	• To understand that algorithms are implemented as programs on digital devices • To understand that programs execute by following precise and unambiguous instructions • To use logical reasoning to predict the behaviour of simple programs and debug simple programs	• To use technology purposefully to access, organise, edit and manipulate digital content • To use technology respectfully and identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies
End of Year 3	• To write and debug programs that accomplish specific goals • To use sequences in programs • To work with various forms of input and output	• To use search technologies effectively • To use a variety of software to accomplish given goals • To collect information • To design, create and present content • To use technology responsibly and identify a range of ways to report concerns about contact

End of Year 4	• To design, create and to use logical reasoning to debug programs that accomplish specific goals • To use repetition in programs • To control or simulate physical systems • To understand how computer networks can provide multiple services, such as the world wide web • To appreciate how search results are selected	• To select a variety of software to accomplish given goals • To select, use and combine internet services • To analyse and evaluate information • To collect and present data • To understand the opportunities computer networks offer for communication • To identify a range of ways to report concerns about content and recognize acceptable and unacceptable behaviour
End of Year 5	• To solve problems by decomposing them into smaller parts • To use selection in programs • To work with variables • To use logical reasoning to explain how some simple algorithms work and detect and correct errors in algorithms • To understand computer networks including the internet • To appreciate how search results are ranked	• To combine a variety of software to accomplish given goals • To select, use and combine software on a range of digital devices • To analyse and evaluate data • To design and create systems • To understand the opportunities computer networks offer for collaboration • To be discerning in evaluating digital content
End of Year 6	• To use computational abstractions • To model state of real world problems • To use a programming language to solve computational problems • To understand simple Boolean logic • To understand how numbers, text and pictures can be represented in binary	• To undertake creative projects with challenging goals • To use multiple applications and work with applications across a range of devices • To collect data • To understand a range of ways to use technology respectfully and safely • To recognise inappropriate content, contact, conduct and know how to report concerns

End of Year 7	• To model behaviour of real world problems • To make use of appropriate data structures • To design modular programs that use procedures or functions (Scratch – block based) • To understand the hardware components & software that make up computer systems • To understand how instructions are stored by computer systems	• To analyse data • To meet the needs of known users • To protect online identity and privacy • To reuse digital artefacts for a given audience and attend to usability of digital artefacts
End of Year 8	• To develop modular programs that use procedures or functions • To use at least one additional programming language (Python – text based) to solve real world problems • To understand uses of Boolean logic in programming • To understand how text, sound and pictures can be manipulated digitally in the form of binary digits • To evaluate computational abstractions	• To understand a range of ways to use technology securely and responsibly • To revise digital artefacts for a given audience and attend to their trustworthiness • To combine multiple applications to achieve challenging goals

End of Year 9	• To design computational abstractions • To be able to carry out simple operations on binary numbers • To model state and behaviour of physical systems • To use logical reasoning to compare the utility of alternative algorithms for the same problem • To understand uses of Boolean logic in circuits • To understand how computer system components communicate with one another and how computer systems communicate with other systems • To understand how instructions are executed by computer systems • To understand several key algorithms that reflect computational thinking • To understand how sounds can be manipulated digitally in the form of binary digits	• To repurpose and create digital artefacts for a given audience • To select multiple applications to achieve challenging goals
End of Year 11		

End of Year 13		

Computer Science concepts

At the end of Key Stage 1, the pupils will have developed an understanding of the following computing concepts;	At the end of Key Stage 2, the pupils will have developed an understanding of the following computing concepts;	At the end of Key Stage 3, the pupils will have developed an understanding of the following computing concepts;
Program (algorithm), Logical reasoning, Instructions, Debug, Information retrieval, manipulation, Online, Internet, Digital, Software, Hardware, Login/out,	Program (algorithm), Logical reasoning, Instructions, Debug, Information retrieval, manipulation, Online, Internet, Digital, Software, Hardware, Login/out, Design, Input, Output, Sequence and Repetition, Network, WWW, Analyse and Evaluate, Search, Browser, Control, Physical Systems, Simulate,	

https://drive.google.com/drive/folders/10eYF_hJuDf14I3CB6dPUAVedFCrLg5Wq