Mill Hill Community Primary School
Long Term Plan – Computing Key Skills

Computing						
National Curriculum						
KS1 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. KS2 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.						
Computing Knowledge						
	Y1 • Create a series of instructions and plan a journey for a programable toy/icon	Y2 • Understand that algorithms are used on digital devices	Y3 • Write programs that accomplish specific goals • Design a sequence of instructions, including	Y4 • Give an 'on-screen' robot specific instructions that takes them from A-B	Y5 • Use technology to control an external device • Develop a program that has	Y6 • Give an 'on-screen' robot specific instructions that takes them from A-B

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	• Create, store and retrieve digital content	• Write a simple program and test it • Predict what the outcome of a simple program will be (logical reasoning) • Understand that programs require precision instructions • Organise, retrieve and manipulate digital content • Know where to go for help if concerned	directional instructions • Discern when it is best to use technology and where it adds little or no value • Navigate the web to complete simple searches • Use a range of software for similar purposes • Collect and present information • Understand what computer networks do and how they can provide multiple services • Use technology respectfully and responsibility • Know different ways they can get help, if concerned	• Experiment with variables to control models • Make an accurate prediction and explain why they believe something will happen (linked to programming) • Select and use software to accomplish given goals • Produce and upload a podcast • Recognise acceptable and unacceptable behaviour using technology	specific variables identified • Analyse and evaluate information reaching a conclusion that helps future developments • Understand how search results are selected and ranked • Combine sequences of instructions and procedures to turn devices on and off • Understand that they have to make choices when using technology and that not everything is true and / or safe	• Experiment with variables to control models • Make an accurate prediction and explain why they believe something will happen (linked to programming) • Select and use software to accomplish given goals • Produce and upload a podcast • Recognise acceptable and unacceptable behaviour using technology

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Computing Key Skill						
Aspect	Y1	Y2	Y3	Y4	Y5	Y6
Algorithms	1.1 Give simple instructions to everyday devices to make things happen.	2.1 Recognise what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions.	3.1 Use logical reasoning to explain how a simple algorithm works.	4.1 Detect and correct errors in algorithms and programs (debug).	5.1 With support begin to produce algorithms by using logical and appropriate structures to organise data and create precise and accurate sequences of instructions.	6.1 Produce algorithms independently using logical and appropriate structures to organise and record data.
Computational thinking	1.2 Make choices to control simple models or simulations.	2.2: Write and test simple programs.	3.2 Use sequence, selection and repetition in programs.	4.2 Test programmes using models and simulations. Design and write programs that accomplish specific goals, working with variable for input and output.	5.2 Use flow charts and other diagrams to follow how a process or model works.	6.2 Create flowcharts and other diagrams to explain how a process or model works.
Problem solving	1.3 Solve a problem using ICT.	2.3 Use logical reasoning to predict the behaviour of simple programs.	3.3 Analyse and tackle problems by decomposing into smaller parts.	4.3 Use logical reasoning to detect problems, make changes and find out what happens as a result.	5.3 Use logical reasoning to solve problems and model situations and processes. Predict what will happen when variables and rules within a model are changed.	6.3 Independently problem solve and model situations and processes, by understanding and explaining the impact of changing variables and rules within a model. 6.4 Demonstrate knowledge and

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Networks – knowledge and understanding	1.4 Discuss and share how and when they use ICT in everyday life.	2.4 Explain why digital folders are used.	3.4 Demonstrate a knowledge of computer systems and hardware by describing input and output devices used in everyday life.	4.4 Demonstrate knowledge and understanding of computer hardware including input, output and storage devices.	5.4 Demonstrate knowledge and understanding of computer systems and hardware by identifying and defining the functions of the processor, memory, backing storage and peripherals in a typical desktop computer.	understanding of how networks work by describing the types of services offered (e.g. through email, www, ftp and video conferencing).
Networks – using and applying D	1.5 Complete simple tasks on a computer by following instructions.	2.5 Organise work into digital folders.	3.5 Use software or search engines effectively.	4.5 Create programs to control physical systems. Discuss opportunities for online communication and collaboration.	5.5 Select, use and combine a variety of software, including internet services on a range of digital devices, explaining how email and online discussion areas are used for communication and collaboration.	6.5 Design and create/use a range of programs to accomplish given goals.
Digital literacy – knowledge and understanding	1.6 Show an awareness of information in different formats.	2.6 Recognise common uses of ICT beyond school.	3.6 Become discerning in evaluating digital contents.	4.6 Evaluate the quality and success of their solutions. Check the plausibility and usefulness of	5.6 Recognise the need for accuracy when searching for and selecting information. Use	6.6 Take account of accuracy and potential bias when searching for and selecting information.

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				information that they find.	different sources to double check information found.	6.7 Evaluate and improve presentations in the light or discussion, marking and audience response.
Digital literacy – using and applying	1.7 Make decisions about whether or not statements or images found on line are likely to be true.	2.7 Organise, store, manipulate and retrieve data in arrange of digital formats.	3.7 Identify and select appropriate information using straightforward lines of enquiry. Use different approaches to search and retrieve digital information, including the browser address bar and shortcuts.	4.7 Use and combine a variety of software and internet services on a range of digital devices to accomplish given goals, including collecting, analysing and evaluating and presenting data and information.	5.7 Prepare and present information in a range of forms, using ICT safely and responsibly.	6.8 Find, report and flag buttons in commonly used sites and name sources of help (e.g. ChildLine and Cybermentors). Find a Click-CEOP button and explain to parents what it is for.
E-safety – personal knowledge and understanding	1.8 Identify different devices that can go online, and separate those that do not.	2.8 Identify obviously false information in a variety of contexts. Identify personal information that should be kept private.	3.8 Identify ways to keep safe when using ICT. Think before sending and suggest consequences of sending /posting.	4.8 Recognise social networking sites and social networking features, built into other things, such as online games and handheld devices and consoles. Make judgements in order to stay safe whilst communicating with others online.	5.8 Judge what sort of privacy settings might be relevant for reducing different risks. Judge when to answer a question online and when not to.	6.9 Discuss scenarios involving online risk. State the source of information found online. Act as a role
E-safety responsibilities	1.9 Understand rules around e-safety and	2.9 Communicate safely, respecting and	3.9 Recognise online behaviours that would	4.9 Know who to tell if anything worries	5.9 Be a good online citizen and friend.	

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	know who to tell if something concerns them online.	considering other people's feelings online.	be unfair. Show respect for individuals and intellectual property.	them online. Identify potential risks when presented with scenarios, including social networking profiles. Use ICT responsibly, securely and safety,	Articulate what constitutes good behaviour online. Find and cite the web address for any information or resource found online.	model for younger children.
Data – knowledge and understanding	1.10 Explain that images give information. Say what a pictogram is showing them.	2.10 Explain how a branching diagram or tree works.	3.10 Identify how to select information to put into a data table. Recognise which information is suitable for their topic.	4.10 Describe how to sort and organise information to use in a database.	5.10 Describe how to check for and spot inaccurate data. Know which formulas to use to change a spreadsheet model.	6.10 Explain that changing the numerical data affects calculation.
Data – using and applying	1.11 Put data into a program (pictogram). Sort objects and pictures in lists or simple tables.	2.11 Place objects and pictures in a list or a simple table. Make simple Y/N tree diagram to sort information.	3.11 Design a questionnaire to collect information.	4.11 Create a branching database from information which they have collected and sorted.	5.11 Create data collection forms and enter data from these accurately. Make graphs from the calculations on their own spreadsheet.	6.11 Create data collection forms and enter data from these accurately. Make graphs from the calculations on their spreadsheet. Sort and filter information.