Nether Green Junior School

Computing curriculum intent

At Nether Green Junior school we believe that every child should feel valued and experience the feeling of success in a wide range of curriculum areas, therefore we provide a curriculum that is inspiring, engaging and relevant for the children whilst promoting opportunities for independent learning. Computing in the Primary Curriculum encompasses elements of both Information and Communication Technology (ICT) and Computer Science. Technology plays an important role in children's lives and in society today, and is constantly evolving and developing. Computing in our school is taught through a series of engaging, practical and stimulating activities.

The aim of Nether Green Junior School is to develop children's Computing knowledge, understanding and skills, in different contexts and on a range of devices, progressing through the school towards empowering children to apply their knowledge of ICT and Computing with increasing independence. Where appropriate, projects undertaken will be in the context of curriculum topics, providing a wealth of opportunities for children to understand how the skills they are learning are applicable in the wider world, and ultimately to understand how technology can be used as a tool to significant advantage.

Year group	Prior Knowledge	New Knowledge	Vocabulary	Challenge	Skills
Y3 Autumn	**Understanding and Sharing Data:** Y1 – creating pictograms. Y2 – creating and using a branching database. **Programming:** Y1 – understanding that an algorithm is a set of instructions. Y2 – thinking about ways to make an algorithm clearer and more effective.	**Understanding and Sharing Data:** Creating and searching a card-based database to find information. **Programming:** Creating a program that will carry out a task until it is stopped.	**Understanding and Sharing Data:** data, information, database, record, field, search, chart, personal information. **Programming:** program, repetition, algorithm, repeat, sequence, loop, sprite, count-controlled loop, debug, code	**Understanding and Sharing Data:** Design own questionnaires to collect data and produce a database from. Design appropriate searches within these. Suggest internet search terms. **Programming:** Explore the variety of coding options in specified programs (eg. Complex procedures in MSWLogo, wider variety of routine blocks in Scratch).	**Understanding and Sharing Data:** Develop mouse & keyboard skills. Answer questions using charts. Search for information using a database. Identify the kind of data that can be stored in a database **Programming:** Create a simple program to control a sprite Plan an algorithm away from the computer then test out. Debug simple programs.

				Opportunity to transfer skills from one program to another (eg. Draw a square in MSWLogo, then in Scratch).	Create multiple solutions to a problem. Predict the outcome of simple programs. Use repeat loops to make programs more efficient. Identify repetition in programs.
Y3 Spring	**Key Skills:** Y1 – understanding what a computer is. Y2 – using a computer to open and edit files. **Communicating - Text and Images:** Y1 – logging onto a computer and using a simple program. Y2 – word processing.	**Key Skills:** Using a computer on the school network, including logging on securely. **Communicating - Text and Images:** Desktop publishing to create a poster.	**Key Skills:** password, keyboard, mouse, computer, device, input, output, save, open, file, search **Communicating - Text and Images:** font, image, graphic, copyright, design, save, open, document, file, folder, apps	**Key Skills:** Independently develop skills to improve efficiency of computer use (eg. Word processing speed, accessing files on school computers) **Communicating - Text and Images:** Use more advanced tools in various software packages to produce more complex end results (eg. Editing backgrounds, inserting images from files)	**Key Skills:** Develop mouse and keyboard skills, including typing with all fingers. Open, edit and save a file using an appropriate filename. Remember and use an individual password. **Communicating - Text and Images:** Log onto a computer network. Develop mouse skills – left, right, double click, highlighting. Develop keyboard skills – simple typing, basic keys. Open and save documents. Highlight text and change appearance. Insert an image, shape or WordArt.

					Evaluate a piece of work according to criteria.
Y3 Summer	**Communicating – Multimedia:** Y1 – recording sounds with a microphone and taking photographs. Y2 – putting sounds and images together to tell a story. **Programming:** Y1 – learning that a program is something that a computer follows to achieve a desired outcome. Y2 – improving programs so that they are easy to follow and efficient. Y3 – creating a program that will carry out a task until it is stopped (Aut 2)	**Communicating – Multimedia:** Exploring digital music tools and software to create compositions. **Programming:** Using repetition in algorithms to make them more efficient.	**Communicating – Multimedia:** copyright, audio, tempo, pitch, record, play, stop, pause, media, loop, export, track, edit **Programming:** program, algorithm, sequence, sprite, to debug, repetition, events, input, forever loops, code, test	**Communicating – Multimedia:** Use more advanced tools in various software packages to produce more complex end results (eg. Editing backgrounds, inserting images from files) **Programming:** Explore the variety of coding options in specified programs (eg. Complex procedures in MSWLogo, wider variety of routine blocks in Scratch). Opportunity to transfer skills from one program to another (eg. Draw a square in MSWLogo, then in Scratch).	**Communicating – Multimedia:** Develop mouse skills. Add music loops to software. Complete simple editing of music clips. Record audio in software. **Programming:** Create a simple program to control a sprite. Plan a program away from the computer then test out, including algorithms for each part. Debug simple programs. Predict the outcome of simple programs. Use a range of Events to trigger actions in a program. Use forever loops to keep a program running. Identify repetition in programs.

Computing long term plan

Nether Green Junior School

Y4 Autumn	**Communicating - Text and Images:** Y1 – logging onto a computer and using a simple program. Y2 – word processing. Y3 – desktop publishing to create a poster. **Programming:** Y1 – understanding that an algorithm is a set of instructions. Y2 – thinking about ways to make an algorithm clearer and more effective. Y3 – using repetition in algorithms to make them more efficient.	**Communicating - Text and Images:** Taking photos and using software to manipulate digital images to create original artwork. **Programming:** Understanding that breaking a string of code down into chunks can make it easier to identify errors, and exploring methods of doing this.	**Communicating - Text and Images:** computer, technology, hardware, software, copyright, crop, resize, edit, filter, layer **Programming:** program, algorithm, sequence, sprite, decomposition, event, to debug, repetition, loops, code, co-ordinates, random	**Communicating - Text and Images:** Use advanced tools within given software to edit images (eg. remove background, recolour, reshape) with a focused goal that will enhance the end product. **Programming:** Investigate and explore to refine small sections of code, debugging where appropriate, and recombine these to create a smooth, elegant end result without glitches. Explain to others how best to identify errors in code.	**Communicating - Text and Images:** Log onto a computer network. Develop mouse skills – left, right, double click, highlighting. Take a photo using a device. Open and save documents. Change tools or add filters. Evaluate a piece of work according to criteria. **Programming:** Create a simple animation program Decompose a program into parts and create an algorithm for each part. Debug simple programs. Predict the outcome of programs. Use different events to make things happen in programs.
Y4 Spring	**Understanding and Sharing Data:** Y1 – creating pictograms. Y2 – creating and using a branching database.	**Understanding and Sharing Data:** Understanding personal data and how data is stored and shared online.	**Understanding and Sharing Data:** data, information, network, server, web browser, internet, satellite, chart,	**Understanding and Sharing Data:** Design and create own methods to collect data and analyse this to	**Understanding and Sharing Data:** Develop mouse and keyboard skills. Collect and present information effectively.

	Y3 - searching a card-based database to find information. **Key Skills:** Y1 – understanding what a computer is. Y2 – using a computer to open and edit files. Y3 – using a computer on the school network, including logging on securely.	 **Key Skills:** Building on using networked computers, including developing use of shared filing systems.	infographic, database, personal information **Key Skills:** Type, copy, paste, save as, save, file, folder, search, left-click, right-click, double-click, password, secure	develop meaningful information. **Key Skills:** Devise secure passwords and make suggestions for how often they should be changed. Copy and paste files from a variety of locations, managing several internet browser tabs or desktop programs simultaneously.	Use technology safely and responsibly **Key Skills:** Develop mouse and keyboard skills. Develop efficiency with saving, locating, opening and editing files.
Y4 Summer	**Programming:** Y1 – learning that a program is something that a computer follows to achieve a desired outcome. Y2 – improving programs so that they are easy to follow and efficient. Y3 – creating a program that will carry out a task until it is stopped. **Communicating – Multimedia:** Y1 – recording sounds with a microphone and taking photographs.	**Programming:** Using selection in an algorithm to change outcomes (if… else…) **Communicating – Multimedia:** Using animation software to create a stop-motion film.	**Programming:** program, algorithm, sequence, sprite, decomposition, event, selection, to debug, repetition, loops, code, broadcast **Communicating – Multimedia:** sound, text, image, video, file, transition, onion skinning, duplicate, frame,	**Programming:** Investigate and explore to refine small sections of code, debugging where appropriate, and recombine these to create a smooth, elegant end result without glitches. Explain to others how best to identify errors in code. **Communicating – Multimedia:** Use advanced tools within given software to edit images (eg. onion skin,	**Programming:** Plan out programs effectively. Use selection in programs to change what happens when a condition is met. Recognise selection in programs. Use flowcharts to model physical systems. **Communicating – Multimedia:** Use a camera /microphone/tablet to

	Y2 – putting sounds and images together to tell a story. Y3 – exploring digital music tools and software to create compositions.		animation, effect, soundtrack, narration	place holder frames) with a focused goal that will enhance the end product. Include more frames to give a smoother transition in animation.	take photos or create an animation. Develop mouse skills. Plan using animation to tell a story. Identify and correct errors in an animation (e.g. hand in frame).
Y5 Autumn	**Communicating - Text and Images:** Y3 – desktop publishing to create a poster. Y4 – taking photos and using software to manipulate digital images to create original artwork. **Communicating – Multimedia:** Y3 – exploring digital music tools and software to create compositions. Y4 – using animation software to create a stop-motion film.	**Communicating - Text and Images:** Collaborating to create a website (or simulation of). **Communicating – Multimedia:** Creating a podcast and exploring audio editing tools and software.	**Communicating - Text and Images:** blog, URL, wiki, World Wide Web, webpage, digital footprint, hyperlink, web browser **Communicating – Multimedia:** sound, text, image, video, file, record, play, stop, pause, media, trim, podcast, narration, clip, soundtrack, sound effect, loop.	**Communicating - Text and Images:** Create a more complex design for a website, including internal and external links that provide reliability and integrity for the information contained. **Communicating – Multimedia:** Develop editing skills to collate audio files and include smooth transitions between these for a professional end product.	**Communicating - Text and Images:** Develop keyboard and mouse skills. Evaluate the reliability of a webpage. Use key tools in given software. Evaluate and improve a piece of work according to criteria. **Communicating – Multimedia:** Use a microphone/tablet to record audio. Develop mouse skills. Edit audio clips. Layer audio clips for effect.
Y5 Spring	**Understanding and Sharing Data:** Y3 – searching a card-based database to find information. Y4 – understanding personal data and how	**Understanding and Sharing Data:** Learning how to search the internet in a responsible, efficient way (advanced search terms).	**Understanding and Sharing Data:** data, information, network, server, web browser, internet, World Wide Web, search engine, algorithm, personal	**Understanding and Sharing Data:** Develop own complex, in-depth questioning strategies to interrogate data encountered online	**Understanding and Sharing Data:** Develop mouse & keyboard skills. Use technology safely and responsibly.

	data is stored and shared online. **Key Skills:** Y3 – using a computer on the school network, including logging on securely. Y4 – building on using networked computers, including developing use of shared filing systems.	**Key Skills:** Learning to type efficiently with both hands. Organising files in a shared system and	information, terms & conditions **Key Skills:** type, save, precise, open, edit, search engine, media, file, shortcut, password	in order to make informed decisions about reliability. **Key Skills:** Find different ways to locate a missing file or folder, then reinstate to its correct location. Explore ways to improve word processing skills (eg. Music to type to as a base rhythm, different keyboards, different devices)	Search for information effectively online. **Key Skills:** Develop mouse & keyboard skills. Develop skills for saving and locating files on a shared system.
Y5 Summer	**Programming:** Y3 - using repetition in algorithms to make them more efficient. Y4 – understanding that breaking a string of code down into chunks can make it easier to identify errors. Y3 – creating a program that will carry out a task until it is stopped. Y4 – using selection in an algorithm to change outcomes (if… else…)	**Programming:** Learning to create programs that can be used in on- and off-screen models to carry out tasks and procedures. Children will have the opportunity to work with WER Robots and develop problem solving skills and strategies that could be applied in real world scenarios.	**Programming:** program, algorithm, sequence, repetition, loops, selection, procedure, event, to debug, code, sensor, physical system, input, output, decomposition, LED, operators, variable, sprite	**Programming:** Debug longer, more complex strings of code, identifying common areas of error. Produce more efficient programs that will get the desired outcome in fewer steps, without missing out essential elements.	**Programming:** Plan out programs effectively. Use selection in programs to change what happens when a condition is met. Recognise selection in programs. Use flowcharts to model physical systems. Model sensors in programs. Debug algorithms and programs. Use variables in programs to control a physical system. Recognise variables in programs.

					Create and use procedures in programs.
Y6 Autumn	**Programming:** Y3 - using repetition in algorithms to make them more efficient. Y4 – understanding that breaking a string of code down into chunks can make it easier to identify errors. Y5 – working with WER robots and the VJC programming software that these run on; programming robots to follow commands, as used in a simulation (eg. Military, medical, astronomy). **Communicating – Text and Images:** Y3 – desktop publishing to create a poster. Y4 – taking photos and using software to manipulate digital images to create original artwork. Y5 – collaborating to create a website (or simulation of).	**Programming:** Creating programs involving variables to develop simple maths games. **Communicating – Text and Images:** Create infographics to share knowledge built during wider curriculum study (eg. Victorians).	**Programming:** program, algorithm, variables, repetition, loops, selection, procedure, subroutine, to debug, code, sensor, physical system, input, output, decomposition, LED **Communicating – Text and Images:** keywords, design, raster, bitmap, vector, file format	**Programming:** Develop a strong understanding of variables by including multiples within a single program, creating more interactive, engaging games for young users. **Communicating – Text and Images:** Consider strongly how to influence and engage their audience through use of layout, colours, cohesion and style.	**Programming:** Plan out programs effectively. Use variables in programs to track the score. Recognise variables in programs. Debug algorithms and programs. **Communicating – Text and Images:** Develop keyboard and mouse skills. Use key tools in given software. Evaluate and improve a piece of work according to criteria. Combine media effectively.

Y6 Spring	[redacted]	**Key Skills:** Consolidate and practice all skills covered in KS2 through regular use of devices in school and at home.	**Key Skills:** type, copy, paste, save as, save, file, folder, search, left-click, right-click, double-click, password, secure, precise, open, edit, search engine, media, file, shortcut, system	**Key Skills:** Reflect on the filing system in their MyDocs / PupilShare areas of the network. Devise improvements to make the space more efficient and streamlined. Evaluate user experience from different operating systems and compare (eg. iOS on an iPad vs. Android tablets / Chromebook vs. Windows on the school PCs).	**Key Skills:** Develop mouse & keyboard skills. Open, edit and save documents.
Y6 Summer	**Programming:** Y3 – creating a program that will carry out a task until it is stopped. Y4 – using selection in an algorithm to change outcomes (if… else…) Y5 – creating a game in Scratch with a score-keeping variable element. **Understanding and Sharing Data:**	**Programming:** Plan and develop a Rainforest themed maze game using knowledge of selection and variables. **Understanding and Sharing Data:**	**Programming:** program, algorithm, sequence, repetition, decomposition, selection, variable, procedure, input, output, sprite, to debug, loops, code, operators **Understanding and Sharing Data:**	**Programming:** Develop an increased level of interaction between selection and variables to improve the quality and complexity of the games they design. **Understanding and Sharing Data:**	**Programming:** Plan out programs effectively using all levels of abstraction (plan, algorithm, task). Debug algorithms and programs and evaluate for effectiveness. Use sequence, selection, repetition and variables to create complex programs. Recognise sequence, selection, repetition and variables in a variety of software. **Understanding and Sharing Data:**

	Y3 – searching a card-based database to find information. Y4 – understanding personal data and how data is stored and shared online. Y5 – learning how to search the internet in a responsible, efficient way (advanced search terms). **Communicating – Multimedia:** Y3 – exploring digital music tools and software to create compositions. Y4 – using animation software to create a stop-motion film. Y5 – creating a podcast and exploring audio editing tools and software.	Create a spreadsheet to organise data and budgeting, link to Y6 enterprise project. **Communicating – Multimedia:** Develop photography and cinematography skills to create a movie trailer for "4 years at NGJS".	data, information, spreadsheet, chart, infographic, database, personal information, formula, cell, row, column, mode, median, mean, range **Communicating – Multimedia:** sound, media, video, file, edit, clip, script, record, play, stop, pause, media, trim, narration, sound effect, credits, wide shot, close up, mid shot, pan, zoom	Develop formulae within a spreadsheet that are dependent on inputs, then investigate to find optimal conditions for profit. **Communicating – Multimedia:** Experiment with and explore different styles of image capture and look into the most effective way to create the desired atmosphere within a film.	Develop mouse and keyboard skills. Use technology safely and responsibly. Use formulae in a spreadsheet to find out information. Enter data into a spreadsheet and create graphs to present information. **Communicating – Multimedia:** Use a camera/tablet to record video effectively. Edit video clips. Add titles, audio, effects to software. Export a video.