



# Northwick Park Primary Academy Computing Progression Ladder



	Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Target Tracker	Talk about their feelings using words like 'happy', 'sad', 'angry' or 'worried' Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (ELG)	Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies.	Use technology safely and keep personal information private.	Use technology safely and respectfully, keeping personal information private. Use technology safely and recognise acceptable and unacceptable behaviour.	Use technology responsibly and understand that communication online may be seen by others. Understand where to go for help and support when they have concerns about online technologies.	Understand the need to only select age appropriate content.	Use technology respectfully and responsibly. Identify a range of ways to report concerns about content and contact in and out of school.
Online Safety	Talk about good & bad choices in real life e.g. taking turns, being kind, helping others, telling an adult if something upsets you	Understand they need to follow certain rules to remain safe when visiting places online	Stay safe online by choosing websites that are good for them to visit & not inappropriate sites	Choose a secure password for age-appropriate websites	To understand how pupils can protect themselves from online identity theft.	To gain a greater understanding of the impact that sharing digital content can have and review sources of support when using technology.	Identify benefits and risks of mobile devices broadcasting its location and of giving personal info and device access to different software.
	Play appropriate games on the Internet	Begin to understand that if you create something you own it	Explore what cyber-bullying means & what to do when they encounter it	Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully	To identify the risks and benefits of installing software including apps.	To review pupils' responsibility to one another in their online behaviour.	Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon.
	Talk about good and bad choices when using websites - being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private	Learn that many websites ask for information that is private & discuss how to responsibly handle such requests	Know that if they put information online it leaves a digital footprint or "trail" & they need to manage it so it's not hurtful	Discuss criteria for rating informational websites a site.	To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.	To know how to maintain secure passwords.	To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user.
	Have an understanding of how to keep log in details safe and how they protect us.	Learn that directory sites with alphabetical listings offer one way to find things on the Internet	Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results	Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button	To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.	To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online.	To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour.
		To understand the importance of logging out when they have finished.	Explore how email can be used to communicate with real people within their schools, families & communities	Discuss if what they see on web pages is true.	To identify the positive and negative influences of technology on health and the environment.	To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. To learn about how to reference sources	To begin to understand how information online can persist and give away details of those who share or modify it.
			Realise that not all websites are equally good sources of information	Think about why 'spoof' sites might exist and how to check that the information is accurate.	To understand the importance of balancing game and screen time with other parts of their lives.	Ensuring reliability through using different methods of communication	To understand the importance of balancing game and screen time with other parts of their lives,



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Target Tracker	Explore how things work	Recognise common uses of information technology in the home and school environment.	Recognise common uses of information technology beyond school.	Recognise familiar forms of input and output devices and how they are used. Make efficient use of familiar forms of input and output devices	Use other input devices such as cameras or sensors.		
Computers	Children can identify some common uses of technology within the classroom and wider school e.g. microwave, photocopier	Children understand what is meant by technology and can identify a variety of examples both in and out of school.	Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge.	Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs.	Children can use equipment such as digital cameras correctly and upload the content to a useable program.		
		They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.	Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically.	Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.	Children can make use of user inputs and outputs such as 'print to screen.		
				Children understand how variables can be used to store information while a program is executing.			



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Target Tracker	Explore how things work	Use technology purposefully to create digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Use technology purposefully to create digital content comparing the benefits of different programs.	With support select and use a variety of software to accomplish goals.	With support select and use a variety of software on a range of digital devices. With support select, use and combine a variety of software on a range of digital devices to accomplish given goals	Independently select and use appropriate software for a task. Independently select, use and combine a variety of software to design and create content for a given audience.	Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information. Design and create a range of programs, systems and content for a given audience.
Using Computers	Children are able to use a PC or iPad to log into familiar programs	Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work.	Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.	Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database.	Children make informed software choices when presenting information and data. They create linked content using a range of software	Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief.	Children make clear connections to the audience when designing and creating digital content.
	Children are able to navigate to a given program and activity set for them.	Children are able to follow simple instructions to access online resources	Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.	Children can consider what software is most appropriate for a given task.	Children are able to make improvements to digital solutions based on feedback.	Children objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode.	The children design and create their own blogs to become a content creator on the internet
			Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches.	Children can create purposeful content to attach to emails	Children share digital content within their community.	Children are able to use several ways of sharing digital content.	They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.
			Children are able to edit more complex digital data such as music compositions.				



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Target Tracker				Understand that computer networks enable the sharing of data and information. Understand that the internet is a large network of computers and that information can be shared between computers.	Understand what servers are and how they provide services to a network.	Begin to use internet services to share and transfer data to a third party.	Understand how computer networks enable computers to communicate and collaborate. Begin to use internet services within his/her own creations to share and transfer data to a third party.
Networks				Children can list a range of ways that the internet can be used to provide different methods of communication.	Children recognise the main component parts of hardware which allow computers to join and form a network.	Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe.	Children understand and can explain in some depth the difference between the internet and the World Wide Web.
				Children can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email	Children's ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.	Children can select the most appropriate form of online communications contingent on audience and digital content.	Children know what a WAN and LAN are and can describe how they access the internet in school.
				Children can describe appropriate email conventions when communicating in this way.			



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Target Tracker				Use simple search technologies. Use simple search technologies and recognise that some sources are more reliable than others.	Understand how results are selected and ranked by search engines.	Use filters in search technologies effectively. Use filters in search technologies effectively and appreciates how results are selected and ranked.	Be discerning when evaluating digital content. Use filters in search technologies effectively and is discerning when evaluating digital content.
Net Searching				Children can carry out simple searches to retrieve digital content.	Children understand the function, features and layout of a search engine.	Children search with greater complexity for digital content when using a search engine.	Children readily apply filters when searching for digital content.
				Children understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.	Children can appraise selected webpages for credibility and information at a basic level.	Children are able to explain in some detail how credible a webpage is and the information it contains	They are able to explain in detail how credible a webpage is and the information it contains.
							Children compare a range of digital content sources and are able to rate them in terms of content quality and accuracy.
							Children use critical thinking skills in everyday use of online communication.



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Target Tracker	<p>Explore how things work</p> <p>Increasingly follow rules, understanding why they are important</p> <p>Repeat actions that have an effect</p>	<p>Predict the behaviour of simple programs.</p> <p>Understand what algorithms are and how they are implemented on digital devices.</p>	<p>Use logical reasoning to predict the behaviour of simple programs.</p> <p>Create simple programs.</p> <p>Create and debug simple programs.</p> <p>Debug simple programs by using logical reasoning to predict the actions instructed by the code.</p> <p>Understand that programs execute by following precise and unambiguous instructions.</p>	<p>Design, write and debug programs that control or simulate virtual events.</p> <p>Use logical reasoning to explain how some simple algorithms work.</p>	<p>Decompose programs into smaller parts.</p> <p>Use logical reasoning to detect and correct errors in algorithms and programs.</p>	<p>Design, input and test an increasingly complex set of instructions to a program or device.</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems</p> <p>Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated.</p> <p>Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user.</p> <p>Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency.</p> <p>Include use of sequences, selection and repetition with the hardware used to explore real world systems</p>	<p>Include use of sequences, selection and repetition with the hardware used to explore real world systems. (</p> <p>Solves problems by decomposing them into smaller parts</p>
Coding	<p>Children can consider the steps needed to make common technology work e.g. copies from a photocopier.</p>	<p>Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.</p>	<p>Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.</p>	<p>Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables.</p>	<p>When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition.</p>	<p>Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts.</p>	<p>Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.</p>

	Children can begin to understand the sequence of a set of instructions and how they need to be followed accurately for a given outcome.	Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code.	Children can create a simple program that achieves a specific purpose.	Children make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this	Children make more intuitive attempts to debug their own programs.	Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.	Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.
	Children can use and program a programmable toy.	Children can work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm.	They can identify and correct some errors. Children's program designs display a growing awareness of the need for logical, programmable steps.	In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables.	Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures.	Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other.
		When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code.	Children can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	Children are combining sequence, selection and repetition with other coding structures to achieve their algorithm design	Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.
				Children can identify an error within their program that prevents it following the desired algorithm and then fix it.	Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs.	When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables	Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.
					As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables.		