Newton Leys Primary School and Nursery

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Content	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.		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.			

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Computer Science Skills	- To explain what a given command will do. - To act out a given word - To combine forwards and backwards commands to make a sequence. - To combine four direction commands to make sequences. - To plan a simple program - To find more than one solution to a problem - To choose a command for a given purpose - To show that a series of commands can be joined together. - To identify the effect of changing a value - To explain that each sprite has its own instructions. - To design the parts of a project - To use my algorithm to create a program	- To describe a series of instructions as a sequence - To explain what happens when we change the order of instructions. - To use logical reasoning to predict the outcome of a program (series of commands) - To explain that programming projects can have code and artwork. - To design an algorithm - To create and debug a program that I have written. - To explain that a sequence of commands has a start. - To explain that a sequence of commands has an outcome. - To create a program using a given design - To change a given design - To create a program using my own design - To decide how my project can be improved	- To explore a new programming environment - I can identify that each sprite is controlled by the commands I choose. - To explain that a program has a start. - To recognise that a sequence of commands can have an order. - To change the appearance of my project - To create a project from a task description - To explain how a sprite moves in an existing project. - To create a program to move a sprite in four directions. - To adapt a program to a new context -To develop my program by adding features - To identify and fix bugs in a program - To design and create a maze based (given) challenge	- To identify that accuracy in programming is important. - To create a program in a text-based language - To explain what 'repeat' means. - To modify a count-controlled loop to produce a given outcome. - To decompose a program into parts - To create a program that uses count-controlled loops to produce a given outcome. - To develop the use of count-controlled loops in a different programming environment - To explain that in programming there are infinite loops and count controlled loops. - To develop a design which includes two or more loops which run at the same time. - To modify an infinite loop in a given program - To design a project that includes repetition. - To create a project that includes repetition	- To control a simple circuit connected to a computer. - To write a program that includes count-controlled loops. - To explain that a loop can stop when a condition is met, e.g., number of times. - To conclude that a loop can be used to repeatedly check whether a condition has been met. - To design a physical project which includes selection. - To create a controllable system which includes selection. - To explain how selection is used in computer programs. - To relate that a conditional statement connects a condition to an outcome. - To explain how selection directs the flow of a program. - To design a program which uses selection. - To create a program which uses selection. - To evaluate my program	- To define a 'variable' as something that is changeable. - To explain why a variable is used in a program. - To choose how to improve a game by using variables. - To design a project that builds on a given example. - To use my design to create a project. - To evaluate my project - To create a program to run on a controllable device. - To explain that selection can control the flow of a program. - To update a variable with a user input - To use a conditional statement to compare a variable to a value. - To design a project that uses inputs and outputs on a controllable device. - To develop a program to use inputs and outputs on a controllable device.

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Information Technology	To make careful choices when painting a digital picture - To explain why I chose the tools I used. - To compare painting a picture on a computer and on paper - To make careful choices when changing text - To explain why I used the tools that I chose. - To compare writing on a computer with writing on paper - To identify a computer and its main parts - To create rules for using technology responsibly - To use technology to label, group, count, compare and describe a set of objects.	- To review and refine our computer work. - To know what devices can be used to take photographs. - To identify information technology in the home - To identify information technology beyond school - To explain how information technology benefits us. - To recognise that choices are made when using information technology. - To recognise that we can count and compare objects using tally charts. - To recognise that objects can be represented as pictures. - To select objects by attribute and make comparisons. - To recognise that people can be described by attributes. - To explain that we can present information using a computer - To use technology to label, group, count, compare and describe.	- To recognise how text and images convey information. - To recognise that text and layout can be edited. - To consider how different layouts can suit different purposes. - To consider the benefits of desktop publishing - To explain that animation is a sequence of drawings or photographs. - To relate animated movement with a sequence of images - To plan an animation - To identify the need to work consistently and carefully. - To review and improve an animation. - To evaluate the impact of adding other media to an animation - To create questions with yes/no answers - To create a branching database - To explain why it is helpful for a database to be well structured. - To identify objects using a branching database - To identify the object attributes needed to collect relevant data. - To compare the information shown in a pictogram with a branching database	- To describe how networks physically connect to other networks. - To recognise how networked devices make up the internet. - To outline how websites can be shared via the World Wide Web. - To recognise how the content of the WWW is created by people. - To evaluate the consequences of unreliable content - To explain that data gathered over time can be used to answer questions. - To explain that a data logger collects 'data points' from sensors over time. - To use data collected over a long duration to find information. - To identify the data needed to answer questions. - To use collected data to answer questions. - To change the composition of an image - To describe how images can be changed for different uses. -To recognise that not all images are real. - To evaluate how changes can improve an image. - To identify that sound can be digitally recorded.	- To identify that drawing tools can be used to produce different outcomes. - To use tools to achieve a desired effect. - To recognise that vector drawings consist of layers. - To evaluate my vector drawing - To explain that tools can be used to select data to answer questions. - To apply my knowledge of a database to ask and answer real-world questions. - To explain that computers can be connected together to form systems. - To recognise the role of computer systems in our lives - To recognise how information is transferred over the internet. - To explain how sharing information online lets people in different places work together. - To evaluate different ways of working together online - To capture video using a digital device - To recognise the features of an effective video - To identify that video can be improved through reshooting and editing. - To consider the impact of the choices made when making and sharing a video	- To identify questions which can be answered using data. - To explain that objects can be described using data. - To explain that formula can be used to produce calculated data. - To choose suitable ways to present data - To review an existing website and consider its structure. - To consider the ownership and use of images (copyright) - To recognise the need to preview pages. - To outline the need for a navigation path - To recognise the implications of linking to content owned by other people. - To describe how search engines select results. - To explain how search results are ranked. - To recognise why the order of results is important, and to whom. - To evaluate different methods of online communication - To compare working digitally with 2D and 3D graphics - To construct a digital 3D model of a physical object - To design a digital model by combining 3D objects

			- To explain how digital devices function - To identify input and output devices - To recognise how digital devices can change the way we work.	- To explain that a digital recording is stored as a file. - To explain that audio can be changed through editing. - To show that different types of audio can be combined and played together. - To evaluate editing choices made	- To develop and improve a digital 3D model

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Digital Literacy	- To use the shape tool and the line tools - To use a computer on my own to paint a picture. - To use a computer to write - To add and remove text on a computer. - To identify that the look of text can be changed on a computer. - To use a mouse in different ways - To use a keyboard to type - To use the keyboard to edit text. - To identify technology. *There is lots of overlap with IT.*	- To create music for a purpose - To use tools to change an image. - To use a digital device to take a photograph. - To create a pictogram - To show how to use information technology safely. - To recognise the uses and features of information technology. *There is lots of overlap with IT.*	- To choose appropriate page settings. - To add a content to a desktop publishing publication. - To explain how a computer network can be used to share information. - To explore how digital devices can be connected. *There is lots of overlap with IT.*	- To describe how content can be added and accessed on the World Wide Web. - To use a digital device to collect data automatically. - To explain that digital images can be changed. - To make good choices when selecting different tools - To use a digital device to record sound. *There is lots of overlap with IT.*	- To create a vector drawing by combining shapes - To group objects to make them easier to work with - To use a form to record information. - To compare paper and computer-based databases - To contribute to a shared project online - To recognise video as moving pictures, which can include audio. - To identify digital devices that can record video. *There is lots of overlap with IT.*	- To apply formulas to data, including duplicating - To create a spreadsheet to plan an event. - To plan the features of a web page - To identify how to use a search engine. - To recognise how we communicate using technology. - To use a computer to create and manipulate three-dimensional (3D) digital objects. - To identify that physical objects can be broken down into a collection of 3D shapes. *There is lots of overlap with IT.*

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Online Safety	- Understand that rules help us stay safe, both in the real world and online. - Suggest strategies for staying safe in different online scenarios. - Help to develop a set of online safety rules that are easily understood and appropriate for Year 1. - Understand that unkind behaviour online can affect other people, even though we can't see them. - Understand that the rules created in Unit 1.1 can be applied to any concerns they may have about their online activities. - Learn the very basic principles of what the internet is. - Understand how people use the internet. - Understand that using computer devices too often can be bad for us and we should take time out form technology to do other things. - Discuss what to do if they see or hear something online that upsets them. - Understand what is meant by 'personal information'. recognise that anyone online who we don't know in real life is a stranger. - Understand how we can protect our personal	- Consider online safety scenarios encountered in Year 1 (both at school and at home) and appreciate how these new experiences can be used to update their online safety rules. - Consider what strategies they might use if their usual trusted adult is not available review and edit their online safety guidelines. - develop their online safety rules so they are easily understood and appropriate for Year 2 pupils. - Begin to understand the concept of online bullying and the role of the bystander. develop an understanding of the consequences of online bullying. - Recall their online safety rules for reporting concerns and inappropriate behaviour. - Understand the very basic principles of how search engines work. - Understand the key steps for searching the web safely. understand how to report concerns when searching the web. - Understand that passwords are an important part of keeping information safe. understand the differences between strong and weak passwords.	- Consider online safety scenarios encountered in Year 2 (both at school and at home) and appreciate how these new experiences can be used to refine their online safety rules. - Consider what new strategies they can apply to online safety scenarios, such as calling Childline. - Review and edit their online safety guidelines. - Develop and edit their online safety rules so they are easily understood and appropriate for Year 3 pupils. - begin to understand that information shared online cannot always be controlled develop a deeper. - understanding of the consequences of online bullying. - understand the role of a bystander in online bullying. use clues to make choices about which web pages they consider most useful and trustworthy. - understand that not all links are safe or trustworthy. - understand different ways to report concerns and inappropriate behaviour. - Understand that every time we use the internet, we leave a digital trail that	- Consider online safety scenarios encountered in Year 3 (both at school and at home) and appreciate how these new experiences can be used to update their online safety rules. - Consider what new strategies they can apply to online safety scenarios, beyond talking to a trusted adult. - Review and edit their online safety guidelines. - Develop their online safety rules so they are easily understood and appropriate for Year 4 pupils. - Understand that peer pressure can be a positive and negative influence. - Understand that access to the internet is not the same for everyone. - Recall ways to report concerns and inappropriate behaviour. - Understand that because of the internet, information can be spread more quickly and reach more people now than at any time in the past. - Understand that although information posted on the internet might not always be true or accurate, it lasts forever. - Understand the risks involved in clicking on and	- Consider online safety scenarios encountered in Year 4 (both at school and at home) and appreciate how these new experiences can be used to update their online safety rules. - Consider what new strategies they can apply to online safety scenarios, such as clicking the CEOP 'Report abuse' button. - Review and edit their online safety guidelines. - Develop their online safety rules so they are easily understood and appropriate for Year 5 pupils. - Recognise that online behaviour can have real life negative effects on other people. - Understand that we must take responsibility for our own actions online, regardless of what other people are doing. - Critically assess all information surrounding an online safety scenario to decide whether it constitutes online bullying. - Use their knowledge of online safety to reach a consensus on the appropriate response to an online incident. - Understand that some people get paid to endorse products online.	- Consider online safety scenarios encountered in Year 5 (both at school and at home) and appreciate how these new experiences can be used to update their online safety rules. - Consider what new strategies they can apply to online safety scenarios, such as using reporting buttons within websites and apps. - Review and edit their online safety guidelines. - Develop their online safety rules so they are easily understood and appropriate for Year 6 pupils. - Understand the negative consequences of sharing nude selfies. - Develop confidence in saying no when they are posed with a request for inappropriate and/or indecent images of themselves. - Understand that once an image is online, it stays online forever. - Understand what is meant by nude selfies and learn that, sending, sharing and storing inappropriate images of Under-18s is a crime. - Understand that most online sites and apps require an account holder to be a minimum of 13 years old.

	information, including reporting worries to trusted adults. - Understand what is meant by 'digital citizen'. - Understand how to be responsible, respectful and safe online. - Understand that being a good digital citizen means having a kind heart, a warning tummy and a thinking brain; all things that keep us safe online. - Recall what to do if something happens online that makes them feel uncomfortable. - Understand the importance of playing games in shared spaces where grown-ups are available for support. - Understand the importance of taking breaks away from technology.	- Understand that sharing a password makes it weak. understand that the way technology is used is as important as good online behaviour. - Understand that the way we use technology impacts the people around us. - Further develop responses to incidents of poor behaviour online. - Recognise the PEGI age rating system for digital games. - Understand that the system is useful for helping people decide which games are appropriate. - Understand what to do if someone nearby is playing a game which is inappropriate for them.	can be found, copied, shared and broadcast - Understand that the things we upload onto the internet last forever. - understand that good online behaviour is important for making the internet an enjoyable place for everyone - understand that email is a widely used form of digital communication that lasts forever and can be shared. understand that internet identities are actively constructed by the user. recognise that internet identities can be misleading or not representative of the creator. - recall that personal information should not be shared by anyone online who we don't know in real life.	opening links on suspicious websites and in emails. - Understand that hacking can be illegal and has consequences for the hacker. - Develop awareness of viruses and what to do if they think their account has been compromised. - Understand that both digital rights and responsibilities are important to ensure the internet is a great place for everyone. - Understand that there are consequences for knowingly ignoring rights. - Further develop a positive and responsible attitude towards technology and internet use. - Understand that virtual friends are still strangers that they do not know. - Apply their knowledge of online safety to decide what information they, as virtual friends, can safely share online. - Recap rules for reporting suspicious or uncomfortable online situations.	- Develop a discerning attitude to online content so that they can confidently reach their own conclusions. - Appreciate the value of trusted adults in helping them reach an informed conclusion. - Understand that posting inappropriate information online can cause regret later. - Understand how to manage their online reputation. - Understand that, although information posted on the internet might not always be true or accurate, it can last forever. - Understand that it is possible to search the internet for information about particular individuals. - Understand that copyright laws exist to protect original content creators. - Understand that content they choose to use or upload on the internet may be subject to copyright laws. - Further develop their understanding of rights and responsibilities as digital citizens. - Understand different business models for online games. - Understand that accounts for devices are linked to real-life bank accounts. - Understand that some features in online games and apps cost real money. - Understand that research, parental controls and device	- Understand that they should check and adhere to the age restrictions of a site or app. - Understand why age restrictions apply to online communication tools. - Develop resilience to online behaviour and influences in an unfamiliar setting. - Learn how to use appropriate social networking sites safely. - Understand that they need to respect other people's preferences when uploading images or video to the internet. - Understand that everyone has the right to privacy and can refuse permission for images or videos of themselves being uploaded to the internet. - Develop their understanding that content posted on the internet can last forever. - Develop confidence in their ability to act appropriately when confronted with unfamiliar situations involving technology and the internet. - Revisit the key concepts of digital citizenship. Understand the risks involved with online gaming, including exposure to inappropriate content, grooming, bullying, trolling and the use of bribery tactics.

				settings are tools we can use to help us game confidently.	- Understand that research and parental controls and device settings are tools we can use to help us game safely and confidently. - Apply their knowledge of safe gaming practices to plan and deliver an assembly to other children and/or parents. - Consolidate everything they have learnt about age-appropriate online gaming in preparation for their transition to KS3.

	Computer Science	Information Technology	Digital literacy	Online Safety
EYFS	● I can help adults operate equipment around the school, independently operating simple equipment. ● I can use simple software to make things happen. ● I can explore options and make choices with toys, software and websites. ● I can press buttons on a floor robot and talk about the movement.	● I have developed an interest in ICT by using age-appropriate websites or programs. ● I can use a mouse to rearrange objects and pictures on a screen. Begin to use a keyboard. ● I recognise text, images and sound when using ICT. ● I can use a camera or sound recorder to collect photos or sound. ● I can use a simple pictogram or set of photos to count and organise information.	● I can play appropriate games on the Internet. ● I can talk about good and bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you.	● Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. ● Play appropriate games on the Internet. ● 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.