Computing Progression Map

Level Expected at the End of EYFS

We have selected the most relevant statements from Development Matters age ranges for Three and Four-Year-Olds and Reception as well as highlighting the statements within the ELGs which feed into the programme of study for computing.

Computing			
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
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.

Computer Science							
	EYFS Computational Thinking	**Year 1 Computational Thinking**	**Year 2 Computational Thinking**	**Year 3 Computational Thinking**	**Year 4 Computational Thinking**	**Year 5 Computational Thinking**	**Year 6 Computational Thinking**
	Children can: Use logical reasoning to understand simple instructions and predict the outcome.	Children can: Learn that decomposition means breaking a problem down into smaller parts. Use decomposition to solve unplugged challenges. Use logical reasoning to predict the behaviour of simple programs. Develop the skills associated with sequencing in unplugged activities. Follow a basic set of instructions. Assemble instructions into a simple algorithm.	Children can: Articulate what decomposition is. Decompose a game to predict the algorithms used to create it. Learn that there are different levels of abstraction. Explain what an algorithm is. Follow an algorithm. Create a clear and precise algorithm. Learn that programs execute by following precise instructions. Incorporate loops within algorithms.	Children can: Use decomposition to explain the parts of a laptop computer. Use decomposition to explore the code behind an animation. Use repetition in programs. Use logical reasoning to explain how simple algorithms work. Explain the purpose of an algorithm. Form algorithms independently.	Children can: Use decomposition to solve a problem by finding out what code was used. Use decomposition to understand the purpose of a script of code. Identify patterns through unplugged activities. Use past experiences to help solve new problems. Use abstraction to identify the important parts when completing both plugged and unplugged activities.	Children can: Decompose animations into a series of images. Decompose a program without support. Decompose a story to be able to plan a program to tell a story. Predict how software will work based on previous experience. Write more complex algorithms for a purpose.	Children can: Decompose a program into an algorithm. Use past experiences to help solve new problems. Write increasingly complex algorithms for a purpose.

Computer Science							
	EYFS Programming	**Year 1 Programming**	**Year 2 Programming**	**Year 3 Programming**	**Year 4 Programming**	**Year 5 Programming**	**Year 6 Programming**
	Children can: Follow instructions as part of practical activities and games. Learn to give simple instructions. Experiment with programming a Bee-bot/Blue- bot and learning how to give simple commands. Learn to debug instructions, with the help of an adult, when things go wrong.	Children can: Program a Floor robot to follow a planned route. Learn to debug instructions when things go wrong. Using program language to explain how a floor robot works. Learn to debug an algorithm in an unplugged scenario.	Children can: Use logical thinking to explore software, predicting, testing and explaining what it does. Use an algorithm to write a basic computer program. Use loop blocks when programming to repeat an instruction more than once.	Children can: Use logical thinking to explore more complex software; predicting, testing and explaining what it does. Incorporate loops to make code more efficient. Continue existing code. Make reasonable suggestions for how to debug their own and others' code.	Children can: Create algorithms for a specific purpose. Code a simple game. Use abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient.	Children can: Program an animation. Iterating and developing their programming as they work. Confidently use loops in their programming. Use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Write code to create a desired effect. Using a range of programming commands. Use repetition within a program.	Children can: Debug quickly and effectively to make a program more efficient. Remix existing code to explore a problem. Use and adapt nested loops. Change a program to personalise it. Evaluate code to understand its purpose.

Information Technology							
	EYFS Using Software	**Year 1 Using Software**	**Year 2 Using Software**	**Year 3 Using Software**	**Year 4 Using Software**	**Year 5 Using Software**	**Year 6 Using Software**
	Children can: Use a simple online paint tool to create digital art.	Children can: Use a basic range of tools within graphic editing software. Take and edit photographs. Develop control of the mouse through dragging, clicking and resizing of images to create different effects. Develop understanding of different software tools.	Children can: Develop word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Use word processing software to type and reformat text. Use software (and unplugged means) to create story animations. Create and labelling images	Children can: Take photographs and record video to tell a story. Use software to edit and enhance their video adding music, sounds and text on screen with transitions.	Children can: Build a web page and create content for it. Design and create a webpage for a given purpose. Use online software for documents, presentations, forms and spreadsheets. Use software to work collaboratively with others	Children can: Use logical thinking to explore software more independently, making predictions based on their previous experience. Use software programs to create music. Use video editing software to animate. Identify ways to improve and edit programs, videos, images etc. Independently learn how to use 3D design software. Use repetition within a program.	Children can: Use logical thinking to explore software independently, iterating ideas and testing continuously. Use search and word processing skills to create a presentation. Create and edit sound recordings for a specific purpose. Create and edit videos, adding multiple elements: music, voiceover, sound, text and transitions. Using design software to design a product. Create a website or online document with embedded links and multiple pages.

Information Technology							
	EYFS Using Email and internet searches	**Year 1 Using Email and internet searches**	**Year 2 Using Email and internet searches**	**Year 3 Using Email and internet searches**	**Year 4 Using Email and internet searches**	**Year 5 Using Email and internet searches**	**Year 6 Using Email and internet searches**
	Children can: Learn that we are connected to others when using the internet.	Children can: Recognise devices that are connected to the internet. Search and download images from the internet safely. Understand that we are connected to others when using the internet.	Children can: Search for appropriate images to use in a document. Understanding what online information is.	Children can: Learn to log in and out of an email account. Write an email including a subject, 'to' and 'from.' Send an email with an attachment. Reply to an email.	Children can: Understand why some results come before others when searching. Use keywords to effectively search for information on the internet. Understand that information found by searching the internet is not all grounded in fact. Search the internet for data.	Children can: Develop searching skills to help find relevant information on the internet. Learn how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.	Children can: Understand how search engines work.

Information Technology							
	EYFS Using data	**Year 1Using data**	**Year 2 Using data**	**Year 3 Using data**	**Year 4 Using data**	**Year 5 Using data**	**Year 6 Using data**
	Children can: Represent data through sorting and categorising objects in unplugged scenarios. Represent data through physical pictograms. Explore branch databases through physical games. .	Children can: Understand that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. Use representations to answer questions about data. Use software to explore and create pictograms and branching databases.	Children can: Collect and input data into a spreadsheet. Interpret data from a spreadsheet.	Children can: Understand the vocabulary to do with databases: field, record, data. Learning about the pros and cons of digital versus paper databases. Sort and filter databases to easily retrieve information. Create and interpret charts and graphs to understand data.	Children can: Understand that data is used to forecast weather. Record data in a spreadsheet independently. Sort data in a spreadsheet to compare using the 'sort by…' option. Design a device which gathers and records sensor data.	Children can: Understand how data is collected in remote or dangerous places. Understand how data might be used to tell us about a location.	Children can: Understand how barcodes, QR codes and RFID work. Gather and analyse data in real time. Create formulas and sorting data within spreadsheets.

Information Technology							
	EYFS Wider use of Technology	**Year 1 Wider use of Technology**	**Year 2 Wider use of Technology**	**Year 3 Wider use of Technology**	**Year 4 Wider use of Technology**	**Year 5 Wider use of Technology**	**Year 6 Wider use of Technology**
	Children can: Recognise common uses of information technology, in school and at home.	Children can: Recognise common uses of information technology, including beyond school. Understand some of the ways we can use the internet.	Children can: Learn how computers are used in the wider world.	Children can: Understand the purpose of emails. Recognise how social media platforms are used to interact.	Children can: Understand that software can be used collaboratively online to work as a team.	Children can: Learn about different forms of communication that have developed with the use of technology.	Children can: Learn about the Internet of Things and how it has led to 'big data'. Learn how 'big data' can be used to solve a problem or improve efficiency.

Digital Literacy							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Children can: Recognise that a range of technology is used for different purposes. Learn to log in and log out.	Children can: Log in and out and save work on their own account. When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. Understand how to interact safely with others online. Recognise how actions on the internet can affect others. Recognise what a digital footprint is and how to be careful about what we post.	Children can: Learn how to create a strong password. Understand how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online. Learn to be respectful of others when sharing online and ask for their permission before sharing content. Learn strategies for checking if something they read online is true..	Children can: Recognise that different information is shared online including facts, beliefs and opinions. Learn how to identify reliable information when searching online. Learn how to stay safe on social media. Consider the impact technology can have on mood. Learn about cyberbullying. Learn that not all emails are genuine, recognising when an email might be fake and what to do about it.	Children can: Recognise that information on the internet might not be true or correct and that some sources are more trustworthy than others. Learn to make judgments about the accuracy of online searches. Identify forms of advertising online. Recognise what appropriate behaviour is when collaborating with others online. Reflect on the positives and negatives of time spent online. Identify respectful and disrespectful online behaviour.	Children can: Identify possible dangers online and learn how to stay safe. Evaluate the pros and cons of online communication. Recognise that information on the internet might not be true or correct and learn ways of checking validity. Learn what to do if they experience bullying online. Learn to use an online community safely	Children can: Learn about the positive and negative impacts of sharing online. Learn strategies to create a positive online reputation. Understand the importance of secure passwords and how to create them. Learn strategies to capture evidence of online bullying in order to seek help. Use search engines safely and effectively. Recognise that updated software can help to prevent data corruption and hacking.