

Computing Progression of Skills

Programming	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum Objectives: KS1: 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 KS2: 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	- I can make a floor robot move. - I can use simple software to make something happen. - I make choices about buttons and icons I press, touch or click. <u>ELG: Listening, Attention and Understanding:</u> Children listen to and follow sets of instructions, asking questions to clarify their understanding. Children hold conversations about what they have observed. <u>ELG: Speaking</u> Children give instructions to each other and to supporting adults and explain their observations. <u>ELG: Self-Regulation</u> Children are able to focus on instructions and control immediate impulses to touch and use the floor robots, waiting for their turn. <u>ELG: Managing Self</u> Children show independence, resilience and perseverance when 'debugging' problems <u>ELG: Building relationships</u> Children take it in turns to use the floor robots, showing sensitivity to their own and others.	- I can give instructions to my friend and follow their instructions to move around. - I can describe what happens when I press buttons on a robot. - I can press the buttons in the correct order to make my robot do what I want. - I can describe what actions I will need to do to make something happen and begin to use the word algorithm. - I can begin to predict what will happen for a short sequence of instructions. - I can begin to use software/apps to create movement and patterns on a screen. - I can use the word debug when I correct mistakes when I program.	- I can give instructions to my friend (using forward, backward and turn) and physically follow their instructions. - I can tell you the order I need to do things to make something happen and talk about this as an algorithm. - I can program a robot or software to do a particular task. - I can look at my friend's program and tell you what will happen. - I can use programming software to make objects move. - I can watch a program execute and spot where it goes wrong so that I can debug it.	- I can break an open-ended problem up into smaller parts. - I can put programming commands into a sequence to achieve a specific outcome. - I keep testing my program and can recognise when I need to debug it. - I can use repeat commands. - I can describe the algorithm I will need for a simple task. - I can detect a problem in an algorithm which could result in unsuccessful programming.	- I can use logical thinking to solve an open-ended problem by breaking it up into smaller parts. - I can use an efficient procedure to simplify a program. - I can use a sensor to detect a change which can select an action within my program. - I know that I need to keep testing my program while I am putting it together. - I can use a variety of tools to create a program. - I can recognise an error in a program and debug it. - I recognise that an algorithm will help me to sequence more complex programs. - I recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology.	- I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. - I can refine a procedure using repeat commands to improve a program. - I can use a variable to increase programming possibilities. - I can change an input to a program to achieve a different output. - I can use 'if' and 'then' commands to select an action. - I can talk about how a computer model can provide information about a physical system. - I can use logical reasoning to detect and debug mistakes in a program. - I use logical thinking, imagination and creativity to extend a program.	- I can deconstruct a problem into smaller steps, recognising similarities to solutions used before. - I can explain and program each of the steps in my algorithm. - I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm. - I can recognise when I need to use a variable to achieve a required output. - I can use a variable and operators to stop a program. - I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen. - I can use logical reasoning to detect and correct errors in a algorithms and programs.
Vocabulary		Algorithm Backward Button Clear Code Debug Distance Floor robot Forward Go Instructions Mistake Move Pause / Wait Predict Program Quarter turn / rightangle Turn left Turn right Sequence Stop	Algorithm Backward Button Clear Code Debug Distance Execute Floor robot Forward Go Half turn Instructions Mistake / Error Move Pause / Wait Predict Program Quarter turn / rightangle Turn left Turn right Sequence	Algorithm Background Block Collaboration Control Costume Debug Event Forever Imagine Implement Input Make mistakes Movement Pattern Output Persevere Repeat Rotation	Algorithm Background Block Collaboration Computational thinking Control Costume Debug Design Effect Event Forever Imagine Implement Input Make mistakes Movement Pattern	Algorithm Block Broadcast Collaboration Computational thinking Control Debug Decomposition Design Effect Event Forever Imagine Implement Input Make mistakes Pattern Output	Abstraction Algorithm Broadcast Collaboration Computational thinking Control Debug Decomposition Design Effect Event Forever Imagine Implement Input Make mistakes Pattern Output

			Stop Symbol	Sequence Sprite Stage Wait / Pause	Output Persevere Repeat Rotation Selection (If Then) Sequence Sprite Stage Wait / Pause	Persevere Repeat Rotation Selection (If Then) Sequence Sprite Variable X position / Y position	Persevere Repeat Rotation Selection (If Then) Sequence Sprite Variable X position / Y position
Multimedia National Curriculum Objective: KS1: use technology purposefully to create, organise, store, manipulate and retrieve digital content KS2: 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	• I can move objects on a screen. • I can create shapes and text on a screen. • I can use technology to show my learning. <u>ELG: Writing</u> Children have a variety of experiences to type and draw their name using simple software/ apps, including the use of keyboards. <u>ELG: Comprehension</u> Children use video to retell and create stories. Green screening is used for children to imagine themselves in different places. <u>ELG: Being imaginative and creative</u> Children record sounds on a wellie walk or during exploration of instruments. Actions are imagined around the sound when it is played back. Children record phrases to describe feelings and objects. <u>ELG: Fine motor skills</u> Children use 2Paint/ other simple software to make marks and paint a picture. <u>ELG: The Natural World</u> Children take photographs of their environment and how the seasons change, using them to make comparisons.	• I can be creative with different technology tools. • I can use technology to create and present my ideas. • I can use the keyboard or a word bank on my device to enter text. • I can save information in a special place and retrieve it again.	• I can use technology to organise and present my ideas in different ways. • I can use the keyboard on my device to add, delete and space text for others to read. • I can tell you about an online tool that will help me to share my ideas with other people. • I can save and open files on the device I use.	• I can create different effects with different technology tools. • I can combine a mixture of text, graphics and sound to share my ideas and learning. • I can use appropriate keyboard commands to amend text on my device, including making use of a spellchecker. • I can evaluate my work and improve its effectiveness. I can use an appropriate tool to share my work online.	• I can use photos, video and sound to create an atmosphere when presenting to different audiences. • I am confident to explore new media to extend what I can achieve. • I can change the appearance of text to increase its effectiveness. • I can create, modify and present documents for a particular purpose. • I can use a keyboard confidently and make use of a spellchecker to write and review my work. • I can use an appropriate tool to share my work and collaborate online. I can give constructive feedback to my friends to help them improve their work and refine my own work.	• I can use text, photo, sound and video editing tools to refine my work. • I can use the skills I have already developed to create content using unfamiliar technology. • I can select, use and combine the appropriate technology tools to create effects that will have an impact on others. • I can select an appropriate online or offline tool to create and share ideas. • I can review and improve my own work and support others to improve their work.	• I can talk about audience, atmosphere and structure when planning a particular outcome. • I can confidently identify the potential of unfamiliar technology to increase my creativity. • I can combine a range of media, recognising the contribution of each to achieve a particular outcome. • I can tell you why I select a particular online tool for a specific purpose. • I can be digitally discerning when evaluating the effectiveness of my own work and the work of others.
Vocabulary		Animate App Backspace Camera Delete Insert Keyboard Open Photo(graph) Print Right click Save Shift Sound	Animate/Animation App Backspace Clipart Copy Delete Enter Folder Image Insert Keyboard Open Photo(graph) Print	Animate Animation App Backspace Clipart Copy Delete Document Edit Enter Folder Font Greenscreen Image	Animate Animation App Audience Backspace Clipart Comic strip Document Edit Enter Folder Font Greenscreen Image	Animate Animation App Audience Bullet points Clipart Comic strip Document Edit Folder Font Greenscreen Insert	Animate Animation App Audience Bullet points Clipart Comic strip Document Edit Folder Font Greenscreen Insert

		Space bar Video / Film	Right click Save Select Shift Software Sound Space bar Video / Film	Insert Hyperlink Keyboard Layout Narration Open Photo(graph) Right click Save Select Shift Slides Software Sound Space bar Style Text Video / Film	Insert Heading Hyperlink Layout Narration Persuasive Presentation Right click Select Screen shot Shift Slides Software Sound effect Storyboard Space bar Storyboard Style Template Text	Heading / subheading Hyperlink Layout Narration Persuasive Right click Select Screen shot Shift Slides Software Sound effect Sound recording Storyboard Style Tab Template Theme	Heading / subheading Hyperlink Layout Narration Persuasive Production Right click Select Screen shot Shift Slides Software Sound effect Sound recording Storyboard Style Tab Template Theme
Technology in our lives National Curriculum Objective: KS1: recognise common uses of information technology beyond school KS2: 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	- I can tell you about technology that is used at home and in school. - I can operate simple equipment. - I can use a safe part of the Internet to play and learn. <u>ELG: Past and Present</u> Children observe adults using simple search engines to find information. <u>ELG: Listening, Attention and Understanding and Speaking</u> Children share conversations with experts/ other classes nationally and internationally using Zoom etc. <u>ELG: People, Culture and Communities</u> Children experience travelling the world using Google Earth software and similar apps, visiting 3D buildings, seeing photographs and street views. They watch videos of life in other countries <u>ELG: Creating with Materials</u> Children use play technology and junk models to role play work environments such as vets, builders, shop, hospital etc. They have opportunities to explore old technology such as phones, keyboards, old PCs etc. <u>ELG: People, Culture and Communities</u> Children contribute to the decision of photos for the newsletter/ school website/ tapestry, which show case	- I can recognise the ways we use technology in our classroom. - I can recognise ways that technology is used in my home and community. - I can use links to websites to find information. - I can begin to identify some of the benefits of using technology.	- I can tell you why I use technology in the classroom. - I can tell you why I use technology in my home and community. - I am starting to understand that other people have created the information I use. - I can identify benefits of using technology including finding information, creating and communicating. - I can talk about the differences between the Internet and things in the physical world.	- I can save and retrieve work on the Internet, the school network or my own device. - I can talk about the parts of a computer. - I can tell you ways to communicate with others online. - I can describe the World Wide Web as the part of the Internet that contains websites. - I can use search tools to find and use an appropriate website. - I think about whether I can use images that I find online in my own work.	- I can tell you whether a resource I am using is on the Internet, the school network or my own device. - I can identify key words to use when searching safely on the World Wide Web. - I think about the reliability of information I read on the World Wide Web. - I can tell you how to check who owns photos, text and clipart. - I can create a hyperlink to a resource on the World Wide Web. - I can recognise that websites use different methods to advertise products	- I can describe different parts of the Internet. - I can use different online communication tools for different purposes. - I can use a search engine to find appropriate information and check its reliability. - I can recognise and evaluate different types of information I find on the World Wide Web. - I can describe the different parts of a webpage. - I can find out who the information on a webpage belongs to - I know which resources on the Internet I can download and use. - I can describe the ways in which websites advertise their products to me.	- I can tell you the Internet services I need to use for different purposes. - I can describe how information is transported on the Internet. - I can select an appropriate tool to communicate and collaborate online. - I can talk about the way search results are selected and ranked. - I can check the reliability of a website. - I can tell you about copyright and acknowledge the sources of information that I find online. - I know that websites can use my data to make money and target their advertising

	their learning environment and classroom learning.						
Vocabulary		Communicate QR Code Search Technology / Computing devices World Wide Web / Internet	Communicate QR Code Search engine Technology / Computing devices Website World Wide Web / Internet	Communicate Computing devices Copyright email Filter Internet QR Code Reliability Search engine Search result Webpage Website World Wide Web	Blog Citation Communicate Computing devices Copyright email Filter Hyperlink Internet QR Code Reliability Search engine Search result Search query Vlog Webpage Website World Wide Web	Blog Citation Communicate Computing devices Copyright Email Digital content Digital advertising Filter Hyperlink Internet Internet Services QR Code Reliability Search engine Search result Search query Vlog Webpage Website World Wide Web	Blog Citation Client Copyright Digital content Digital advertising Domain Filter Hyperlink Internet Service Provider LAN Local Area Network Packets Protocol Router QR Code Reliability Search engine Search result Search query Vlog Webpage Website WAN Wider Area Network
Handling data National Curriculum Objective: KS1: use technology purposefully to create, organise, store, manipulate and retrieve digital content KS2: 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	I can tell you about different kinds of information such as pictures, video, text and sound. <u>ELG: Being Imaginative and Expressive</u> Children collect sounds and make recordings. They know where information is stored and can play it back. <u>ELG: Creating with Materials</u> Children take photographs of their creations. The know where it is stored to go back and reflect on their learning. They can talk about what can be learnt from photos and videos online, or photos in books. <u>ELG: Number</u> Children use Numberblocks and mathematics apps to sequence, order and discuss number to 10.	- I can talk about the different ways in which information can be shown. - I can use technology to collect information, including photos, video and sound. - I can sort different kinds of information and present it to others. - I can add information to a pictograph and talk to you about what I have found out.	- I talk about the different ways I use technology to collect information, including a camera, microscope or sound recorder. - I can make and save a chart or graph using the data I collect. - I can talk about the data that is shown in my chart or graph. - I am starting to understand a branching database. - I can tell you what kind of information I could use to help me investigate a question.	- I can talk about the different ways data can be organised. - I can search a ready-made database to answer questions. - I can collect data help me answer a question. - I can add to a database. - I can make a branching database. - I can use a data logger to monitor changes and can talk about the information collected.	- I can organise data in different ways. - I can collect data and identify where it could be inaccurate. - I can plan, create and search a database to answer questions. - I can choose the best way to present data to my friends. - I can use a data logger to record and share my readings with my friends.	- I can use a spreadsheet and database to collect and record data. - I can choose an appropriate tool to help me collect data.. - I can present data in an appropriate way. - I can search a database using different operators to refine my search. - I can talk about mistakes in data and suggest how it could be checked.	- I can plan the process needed to investigate the world around me. - I can select the most effective tool to collect data for my investigation. - I can check the data I collect for accuracy and plausibility. - I can interpret the data I collect. - I can present the data I collect in an appropriate way. - I use the skills I have developed to interrogate a database.
Vocabulary		Collect Data Found out Pictograph Questions Record	Branching database Collect Data Decision tree Found out Graph	Branching database Chart Collect Data Database Data logger	Branching database Chart Collect Data Database Data logger	Anomaly Average Chart Collect Complex questions Data	Analyse Anomaly Average Chart Collect Complex questions

		Sort Venn diagram	Investigate Pictograph Questions Record Sort Venn diagram	Decision tree Graph Information Interpret Investigate Questions Record Results Tally Sort Venn diagram	Decision tree Field Graph Hypothesis Information Interpret Investigate Predict Questions Record Results Tally Sort Venn diagram	Database Data logger Decision tree Formulae Field Graph Hypothesis Information Interrogate Interpret Investigate Model Plausible Predict Questions Record Results Tally Sort Venn diagram	Data Database Data logger Decision tree Formulae Field Graph Hypothesis Information Interrogate Interpret Investigate Knowledge Model Plausible Predict Process Questions Record Results Tally Sort Venn diagram
Online safety National Curriculum Objective: KS1: 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: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	Autumn: • I use rules given to me by a trusted adult when I use technology. • I am kind to my friends • I use a safe part of the Internet to play and learn. • I make sure a trusted adult is with me. Spring: • I use a log in to access devices. • I see information that is put online about me. • I use devices with other people, talking about what we do I am careful with technology devices. Summer: • I tell you the things that are the same about my friend and me. • I use apps, games and websites that trusted adults show me. • I use a device for a limited time. <u>ELG: Building Relationships</u> Children show sensitivity to their own and others’ needs when discussing technological devices <u>ELG: Managing Self</u> Children understand rules of using computing and demonstrate appropriate behaviour	• I agree and use sensible rules to keep me safe when I use technology • I explain why it's important to be kind and polite • I use links to websites to find information • I tell a trusted adult what I want to use a device for • I show a trusted adult when something worrying or unexpected happens when I am using a device • I know what my personal information is and keep it private • I know that something I put online can be seen by others • I use different technologies, with a trusted adult, to communicate responsibly with others • I am careful about the icons I click or tap when I use technology devices • I tell you similarities and differences between people I know • I say how I feel when someone says something nice to me • I select from a list of apps, games and websites that a trusted adult gives me • I use devices for the time I am allowed and tell you what else I like doing	• I agree and use sensible rules to keep me safe when I use technology • I talk about why it is important to be kind and polite online and in real life • I know that not all information online is true • Before I use a device, I talk to a trusted adult about how I will keep myself safe • I tell a trusted adult when something worrying or unexpected happens when I am using a device • I explain why I need to keep my passwords and personal information private • I know that not everyone is who they say they are online • I identify some possible risks to devices • I identify similarities and differences between people I know and people I see in the media/online • I tell you how I feel when someone says something nice or not nice to me • I describe the things I enjoy about age appropriate apps, games and websites I am guided to use • I take a break when I have been using a device for too long	• I contribute to shared rules and use them to make good choices when I use technology • I describe the ways that people get bullied when they use different technologies and consider what I post • I think about whether I can use images that I find online in my own work • I use search tools to find appropriate information and decide whether I can trust it • I use the safety features of websites as well as reporting concerns to a trusted adult • I use a secure password and explain why they are important • I protect my personal information when I do different things online • I participate safely and responsibly in a secure online community • I ask a trusted adult before downloading files and games from the Internet • I identify images which have been digitally altered • I explain how I feel when someone responds to something I have shared online • I use age appropriate apps, games and websites from a	• I contribute to shared rules and use them to make good choices when I use technology • I comment positively and respectfully when I use different technologies • I explain how to check who owns photos, text and clipart • I identify key words to use when searching safely online and think about the reliability of information I find • I use a range of strategies to protect myself and my friends from harm online, including reporting concerns to a trusted adult • I know that anything I share online will stay there to be seen and used by others • I make safe choices when using technology to communicate responsibly with others • I explain why I need to ask a trusted adult before downloading files and games from the internet • I explain how digitally altered images in the media make me feel • I use appropriate strategies to deal with comments online • I choose apps, games and websites that are	• I contribute to shared rules and use them to support myself and others when we use technology • I always communicate kindly and respectfully and can describe the impact where this does not happen • I know which online resources I can download and use • I use a search engine to find and evaluate different types of information • I explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to a trusted adult • I use a secure password and safe screen name when I am using an online tool • I explain the risks of sharing too much about myself online • I compare my online and face-to-face relationships • I explain why I need to protect my computer or device from harm • I know the reasons why images are altered • I recognise that online friendships affect my feelings I select age-appropriate apps, games and websites and	• I contribute to shared rules and use them to support myself and others • I always communicate kindly and respectfully, working with others to help all enjoy use of technology • I acknowledge the sources of information that I find online • I talk about the way search results are selected and ranked and check the reliability of websites I visit • I support my friends to protect themselves and make good choices online, including reporting concerns to a trusted adult • I consider terms and conditions and adjust privacy settings to maintain control of my personal information • I check the information about me online and know that some of it can be uploaded by others • I explain how to communicate safely and responsibly with people I only know online • I protect my computer or device from harm on the internet • I explain how images in the media affect how we feel about ourselves

	<u>ELG: Self-Regulation</u> Children give focussed attention to teachers, knowing when to stop using computing equipment and how to ensure that an adult is present during use.		I do a range of other activities when I am not using devices	list I have agreed with others - I make good choices about when and why I use devices - I identify adverts online, including those within Google searches	appropriate for my age and explain my reasons to friends - I tell my friends about the sensible choices I make about when and why I use device - I ignore or close adverts that appear on my device and explain my reasons	encourage my friends to do the same - I evaluate my own and others' choices when using games and devices - I identify the intended audience for an advert	- I explain how online friendships affect our feelings - I select age-appropriate apps, games and websites and explain the potential risks of making different choices - I support my friends in evaluating their use of games and devices and make good choices for myself - I explain how my data is used to target adverts towards me
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