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Computing Implementation

NATIONAL CURRICULM Programmes of Study		
EYFS – In the moment	**KEY STAGE 1**	**KEY STAGE 2**
ELG-Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. • Seeks to acquire basic skills in turning on and operating equipment. • Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car. • Knows how to operate simple equipment. • Shows an interest in technological toys with knobs or pulleys, or real objects. • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. • Knows that information can be retrieved from computers. • Completes a simple program on a computer. • Interacts with age-appropriate computer software	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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Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS						
Year 1 Computing	**DL**-Online Safety- E-safety rules **DL**- How we use technology	**DL**-Online Safety- personal information **IT**-Basic computer skills	**DL**-Online Safety- Passwords **IT**-Word- Create, save, retrieve	**DL**-Online Safety- Being safe online/reporting (Jessie and friends) **IT**- Using technology to collect information	**DL**-Online Safety- Being kind **CS**-Algorithms- non computational	**DL**-Online Safety- Making the right decisions (Smartie the penguin) Communication **CS**-Algorithms- programming
Year 2 Computing	**DL**-Online Safety-Rules **IT**- Basic skills	**DL**-Online Safety- Online identity **IT**- create digital content	**DL**-Online Safety- Online habits **IT**- Presenting data (creating charts/pictographs)	**DL**-Online Safety- being seen by others Privacy and security **IT**- use technology to organise and present ideas	**DL**-Online Safety- Passwords **CS**- Algorithms (non computational- position and direction)	**DL**-Online Safety- Online relationships **CS**- Beebots (programming, algorithms, debugging)
Year 3 Computing	**DL**-Online Safety-Sharing information **DL**- What is a computer?	**DL**-Online Safety- Passwords **IT**- Create digital content	**DL**-Online Safety- Communicating with others **CS**- Scratch	**DL**-Online Safety- Self identity and online representation **IT**- Databases	**DL**-Online Safety- Data/digital footprint **IT**- create digital content combining sounds, text and graphics	**DL**-Online Safety- Spending time using technology **DL**- Using the internet
Year 4 Computing	**DL**-Online Safety- Online identity **IT**- Animation	**DL**-Online Safety- passwords **IT**- Animation	**DL**-Online Safety-Online relationships **DL**-What is the internet? Internet research	**DL**-Online Safety- Online interactions **CS**- Micro:bits	**DL**-Online Safety- Time limits **IT**- Presenting Data	**DL**-Online Safety-Private information **IT**- Multimedia (ebook, image & video editing)
Year 5 Computing	**DL**-Online Safety- Online identity and altered images **IT**- Data and statistics	**DL**-Online Safety- Healthy habits (sleep) **CS**- Scratch- Programming- if commands	**DL**- Online safety- Online image **CS**- Scratch- Programming- then commands	**DL**-Online Safety- apps/trust **IT**- Multimedia (text, sound, photo, video)	**DL**-Online Safety- Positive contributions **CS**- TinkerCad (3d shapes)	**DL**-Online Safety- Online communications **CS**- App Design
Year 6 Computing	**DL**-Online Safety- Gender roles **DL**- Computer systems & history of computers **CS**- Binary	**DL**-Online Safety-Age regulations **IT**- Digital Art and imagery	**DL**-Online Safety-Online image **IT**- Communication (emails, blogging, forums)	**DL**-Online Safety- Online issues **IT**- Databases	**DL**-Online Safety-Self regulation **CS and DL**- Physical systems	**DL**-Online Safety- Well being **CS**- Python (micro:bits)

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		Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	Evaluating digital content	• I can tell an adult when something worrying or unexpected happens wile I am using the internet. • I am careful with technology devices. • I can operate simple equipment. • I can use a safe part of the Internet to play and learn.	• I can tell an adult when I see something unexpected or worrying online. • I can recognise an age appropriate website. • I can use links to websites to find information. • I can begin to identify some of the benefits of using technology. • I can recognise ways that technology is used in my home and community.	• I can describe the things that happen online that I must tell an adult about. • I can talk about why I should go online for a short amount of time. • I can talk about why it is important to be kind and polite online and in real life. • I know that not everyone is who they say they are on the Internet. • I am starting to understand that other people have created the information I use.	• 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 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 tell you whether a resource I am using is on the Internet, the school network or own device • I can identify key words to use when searching safely on the World Wide Web • I can describe different parts of the Internet.	• I can recognise and evaluate different types of information I find on the World Wide Web. • 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 different parts of a webpage. • I can use a search engine to find appropriate information and check its reliability.	• I protect my computer or device from harm on the internet • 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 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.

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Digital safety						
• I can ask an adult when I want to use the Internet. • I can be kind to my friends. • I can tell you about technology that is used at home and in school. • I can talk about the amount of time I spend using a computer / tablet / game device.	• I can keep my password private. • I can tell you what personal information is. • I can talk about why it's important to be kind and polite. • I can agree and follow sensible e-Safety rules.	• I can explain why I need to keep my password and personal information private. • 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 can talk about what makes a secure password and why they are important. • I can protect my personal information when I do different things online. • I can use the safety features of websites as well as reporting concerns to an adult. • I can recognise websites and games appropriate for my age. • I can make good choices about how long I spend online. • I ask an adult before downloading files and games from the Internet. • I can post positive comments online.	• I choose a secure password when I am using a website • I can talk about the ways I can protect myself and my friends from harm online. • I use the safety features of websites as well as reporting concerns to an adult. • I know that anything I post online can be seen by others. • I choose websites and games that are appropriate for my age. • I can help my friends make good choices about the time they spend online. • I can talk about why I need to ask a trusted adult before downloading files and games from the Internet. • I comment positively and respectfully online.	• I protect my password and other personal information. • I know that anything I post online can be seen, used and may affect others. • I can talk about the dangers of spending too long online or playing a game. • I can explain the importance of communicating kindly and respectfully. • I can discuss the importance of choosing an age-appropriate website or game. • I can explain why I need to protect my computer or device from harm. • I can explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult	• I protect my password and other personal information. • I can explain the consequences of sharing too much about myself online. • I can explain the consequences of spending too much time online or on a game. • I can explain the consequences to myself and others of not communicating kindly and respectfully • I support my friends to protect themselves and make good choices online, including reporting concerns to an adult

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Information Technology / create						
• I can tell you about different kinds of information such as pictures, video, text and sound. • I can move objects on a screen. • I can create shapes and text on a screen. • I can use technology to show my learning.	• 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 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 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 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 talk about the different ways I use technology to collect information, including a camera, miccroscope or sound recorder.	• 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 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 organise data in different ways. • I can plan, create and search a database to answer questions. • I can choose the best way to present data to my friends. • I am confident to explore new media to extend what I can achieve. • I can use photos, video and sound to create an atmosphere when presenting to different audiences. • 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 give constructive feedback to my friends to help them improve their work and refine my own work.	• 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 talk about mistakes in data and suggest how it could be checked. • 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 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 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.

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store		• I can save information in a special place and retrieve it again.	• I can save and retrieve work on the Internet, the school network or my own device. • I can save and open files on the device I use.	• I can talk about the different ways data can be organised.	I can select an appropriate tool to communicate and collaborate online		
retrieve		• I can save information in a special place and retrieve it again.	• I can save and retrieve work on the Internet, the school network or my own device. • I can save and open files on the device I use.	• I can search a ready-made database to answer questions. • I can collect data help me answer a question.	• I can collect data and identify where it could be inaccurate. • I can plan, create and search a database to answer questions.	• I can search a database using different operators to refine my search.	• I use the skills I have developed to interrogate a database.
send				• I can use an appropriate tool to share my work online.	• I can use a data logger to record and share my readings with my friends. • I can use an appropriate tool to share my work and collaborate online.	• I can use different online communication tools for different purposes.	• I can select an appropriate tool to communicate and collaborate online

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Computer Science	**Programming**	• I can make a floor robot move. •I can use simple software to make something happen. • I can make choices about the buttons and icons I press, touch or click on.	• I can describe what actions I will need to do to make something happen and begin to use the word algorithm • I can give instructions to my friend and follow their instructions to move around. • 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 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 give instructions to my friend (using forward, backwards 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 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 know that I need to keep testing my program while I am putting it together. • 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 can recognise that using algorithms will also help solve problems in other learning such as maths, science, design and technology	• 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 decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program	• 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 logical reasoning to detect and correct errors in an algorithm and programs. • I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen • I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm • I can deconstruct a problem into smaller steps, recognising similarities to solutions used before.
	Digital systems		• I can press the buttons in the correct order to make my robot do what I want. • I can describe what happens when I press buttons on a robot.	• I can program a robot or software to do a particular task		• I can use a sensor to detect a change which can select an action within my program. • I can use a variety of tools to create a program.		