Building Tomorrow, Leading the Way

AQUEDUCT PRIMARY SCHOOL COMPUTING PROGRESSION GRID

AREAS OF LEARNING	Computing science	Information technology	Digital Literacy
	Pupils understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation. Pupils analyse problems in computational terms and have repeated practical experiences of writing computer programs in order to solve such problems. Pupils evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. Pupils are responsible, competent, confident, and creative users of information and communication technology.	**Substantive and disciplinary knowledge** **Substantive Knowledge**- Computer Science - The technical design. The design of new software, the solution to computing problems and the development of different ways to use technology. Information Technology - The technical knowledge. The design, use and understanding of hardware and software; computers and electronic systems for storing and using information. Digital Literacy - The technical skills. The ability to use information and communication technologies to find, create, evaluate, and communicate information. **Disciplinary Knowledge**- Disciplinary knowledge in computing is the use and interpretation of substantive knowledge in order to develop original digital content and programs. The core strands are E-Safety, Programming, Multimedia, Technology in our lives.	
END POINTS FOR THE END OF RECEPTION KEY STAGE ONE	**By the end of reception:** • Know a range of technology is used in places such as homes and schools. • Select and use technology for particular purposes. • Create a simple program on an electronic device. • Create content such as a recording, drawing or picture on a screen. **By the end of KS1 pupils should be taught to:** • Understand what algorithms are, how they are implemented as programs on digital devise 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 technology.		
END POINTS FOR THE END OF KEY STAGE TWO	**By the end of KS2 pupils should be taught to:** • Design, write and debug programs to 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	Digital Literacy – E-Safety (Autumn 1 and Spring 2)		Computer Science (Spring 1 and Summer 2)		Information Technology (Autumn 2 and Summer 1)		Vocabulary	Cross-curricular opportunities
RECEPTION	Talk about good and bad choices in real life (link to how the same things can happen on computers. Talk about good and bad choices when using websites – being kind, telling an adult is something upsets them and keeping themselves safe by keeping information private.		Help adults operate equipment around school. Independently operate simple equipment (turning equipment on and off) Press buttons on a floor robot and talk about movement (using beebots) Recognise purposes for using technology in school and home. Understand that things we create belong to us and can be shared with others using technology. Recognise we can use the internet to play and learn.		Use a mouse to rearrange objects and pictures on a screen. Recognise text, images and sound when using ICT. Use a camera or sound recorder to collect photos or sound. Use a keyboard to write their name.		Save, print, load, login Select, navigate, click Technology, computer, tablet, laptop, record	
YEAR GROUP	Digital Literacy – E-Safety (Autumn 1 and Spring 2)		Computer Science (Spring 1 and Summer 2)		Information Technology (Autumn 2 and Summer 1)		Vocabulary	Cross-curricular opportunities
KS1	Cycle 1	Cycle 2	Cycle 1	Cycle 2	Cycle 1	Cycle 2	<u>Digital literacy</u> Content Contract Contact Conduct Trusted adult Devices Search engine report <u>Computer Science</u> Program Command Run Sprite Forwards Backwards Direction	**English – One golden write a year to be typed up on Microsoft Word.** **Safe internet searching embedded throughout all research lessons across all subjects**
	Begin to understand there are a variety of sources of information and begin to recognise the differences. Explore what cyber-bullying means and what to do if I encounter Understand that not all websites are equally good	Stay safe online by choosing websites that are good for me to visit and not inappropriate sites. Understand what the internet is and the purposes that it is used for. Use safe internet searches such	Physically follow and give each other instructions to move around. (Simon says, following exact commands) Explore outcomes when buttons are pressed in sequences on a robot (beebots) Programme a floor robot to move forwards and backwards.	Begin to predict what will happen for a short sequence of instructions in a program (Purplemash, 2code, chimps, turtle) Begin to program a floor robot. Physically follow and give each other forward,	Create my own document adding text and images. Use index fingers (left and right hand) on a keyboard to build words. Use a space bar (thumbs) to make spaces between words.	Show control using a mouse in paint to draw a picture. Use index fingers on a keyboard to build words and sentences. Create my own document adding text and images.		

	sources of information. it. Independently use safe search engines to search the internet. Know that if someone puts information online it leaves a digital footprint or 'trail'. Begin to understand what the internet is and why it is used.	as kiddle and kidrex. Begin to understand the reasons why we can use the internet. Understand that if I create something, I own it (pictures, messages) Begin to understand that many websites ask for information that is private. Understand that not all things on the internet will be true.	Begin to use software to create algorithms, movement and patterns on a screen (Purplemash, 2code, chimps) To use the word debug to correct any mistakes when programming a floor robot. (Purplemash, 2code, chimps, bubbles - L3 the wrong bubbles pop) Begin to predict what will happen for a short sequence of instructions in a program. Physically follow and give each other forward, backward and turn (right-angle) instructions. Create an algorithm to achieve a purpose. Predict what will happen and test results (Purplemash, 2code, chimps, turtle) Begin to programme a floor robot. Turn a floor robot.	backward and turn (right-angle) instructions. Create an algorithm to achieve a purpose.	Type out a sentence using Microsoft word. Use a video or camera to record an activity. Use a keyboard to enter text (index fingers left and right hand) Know when and how to use the RETURN/ENTER key. Use SHIFT and CAPS LOCK to enter capital letters. Use DELETE and BACKSPACE buttons to correct text. Edit and save a document. Find a document I have saved.		**Information Technology** Mouse Navigate Edit Save Create Document	

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Year 3/4	Cycle 1	Cycle 2	Cycle 1	Cycle 2	Cycle 1	Cycle 2	**Digital Literacy** Content, Conduct, Contact, Contract, Protect, Anonymous, Behaviour **Computing Science** Algorithm, Prediction, Command, Sequence, Block, Sprite, Debug **Information technology** Text, Image, Desktop, Publishing, Content, Edit,	English – One golden write a year to be typed up on Microsoft Word. Safe internet searching embedded throughout all research lessons across all subjects History – Create a quiz linked to local history unit to be emailed to teachers. PDC – Create a Wellbeing poster during mental health week selecting the appropriate software.
	Agree sensible e-safety rules for the classroom. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if I feel uncomfortable or upset online (e.g. awareness of the report abuse button.) Research a topic safely. Use appropriate tools to collaborate and communicate online (Internal e-mails.) Use simple search tools and find appropriate websites.	Talk about what games they enjoy playing and what good choices are when playing games e.g., content, screen time. Use classdojo to share information and talk about who can see it and how to communicate safely and respectfully.	Test and improve/debug programmed sequences. Explore outcomes when giving sequences on purplemash. Use repeated algorithms to achieve solutions to tasks.	Create an algorithm to tell a simple story. Explain algorithms planned by others and identify any problems – Purplemash, 2Code, traffic light.	Create and modify documents and text. Experiment with fonts, size and colour of text. Use a keyboard effectively, including the use of keyboard shortcuts. Use a keyboard to enter text (index fingers and right hand.) Know when and how to use the RETURN/ENTER key. Use SHIFT and CAPS LOCK to enter capital letters. Use DELETE and BACKSPACE buttons to correct text. Find a document they have saved.	Use font sizes and effects such as bullet points effectively. Correctly use spell check. Look at theirs and a friend's work and provide feedback that is constructive and specific. Edit and resave a document. Save work on the school network, on the internet and on individual devices.		

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Year 5/6	Cycle 1	Cycle 2	Cycle 1	Cycle 2	Cycle 1	Cycle 2	**Digital Literacy** Content, Conduct, Contact, Contract, Protect, Anonymous, Behaviour, Online bullying, Age restrictions, Abuse, Banter, Stereotype, podcast **Computing Science** Algorithm, Prediction, Command, Sequence, Block, Sprite, Debug, Selection, Input Output, Scratch **Information technology** Text, Image, Desktop, Publishing, Content, Edit, Hyperlink, Content, Record, Audio, Resize, Duplicate, Modify, Data, Cell, Formula	English – One golden write a year to be typed up on Microsoft Word. D&T – Microbit coding to be incorporated into lighthouse project (cycle 2, Spring 2) History – WW2 link for presentations Safe internet searching embedded throughout all research lessons across all subjects
	Follow the e-safety rules when using any technology in school and at home. Demonstrate how to be as safe as possible, for their own personal use of the internet and choices they make. Discuss the importance of keeping an adult informed about what they are doing online and how to report concerns. Know the best way of being specific when researching to gain information needed. Screen share within a safe environment.	Show an awareness of how safe individuals need to be when using online communication tools, e.g., blogs, messaging. Take appropriate steps to protect devices from virus threats. Show an awareness of the best way of being specific in their research to gain the information needed. Connect a computing device to a keyboard, mouse or printer. Describe different parts of a computing device and how it connects to the internet.	Record in some detail the steps (the algorithm) that is required to achieve an outcome. Predict the outputs for the steps in an algorithm. Plan, program test and review a program. Write a program which follows an algorithm to solve a problem for a floor robot. Design, write and debug a program using a second programming language based on their own ideas.	Write a program which follows an algorithm to achieve a planned outcome for appropriate programming software. Control on screen mimics and physical devices using one or more input. Create variables to provide a score, trigger or action in a game. Link errors in a program to problems in the original algorithm. Explain a rule-based algorithm in their own words. Experiment with timers in programs.	Select an appropriate on-line tool to support different tasks. Add sound, images, text, transitions, hyperlinks and HTML code effectively in presentations. Analyse and evaluate data using their chosen software and graphs. Select, use and combine a range of programs on multiple devices. Design and create systems in response to a given goal.	Consider the audience, atmosphere and structure of their presentation or video. Collect and use information and media from a range of sources (considering copyright issues) and add the information to a presentation for a specific audience. Evaluate the effectiveness of their own work and the work of others.		