



**HIGHER
WALTON
C. OF E.
PRIMARY
SCHOOL**

Higher Walton CE Primary School

'Life in all its Fullness' John 10:10

Weaving **Computing**
Knowledge, Skills and Understanding into the
National Curriculum

From EYFS—Year 6

24 – 36 months (Typically Nursery 1)	36 – 48 months (Typically Nursery 2)	48 – 60 / 60-71 months (Typically Reception)
<ul style="list-style-type: none"> ➤ Seeks to acquire basic skills in turning on and operating some digital equipment 	<ul style="list-style-type: none"> ➤ Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support ➤ Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets ➤ 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 digital devices and the internet 	<ul style="list-style-type: none"> ➤ Completes a simple program on electronic devices ➤ Uses ICT hardware to interact with age appropriate computer software ➤ Can create content such as a video recording, stories, and/or draw a picture on screen ➤ Develops digital literacy skills by being able to access, understand and interact with a range of technologies ➤ Can use the internet with adult supervision to find and retrieve information of interest to them

EARLY LEARNING GOALS 2021

- No ELG for Technology

KEY STAGE ONE

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.

KEY STAGE TWO

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.

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.7	2.1	3.1	4.1	5.1	6.1
COMPUTER SCIENCE - CODING	KNOWLEDGE	<ul style="list-style-type: none"> Understand what coding means Know the save, print, open and new icons 	<ul style="list-style-type: none"> Understand what an algorithm is Know what debugging is 	<ul style="list-style-type: none"> Understand and use variables using 'if' Develop understanding of timers and repeat commands 	<ul style="list-style-type: none"> Understand and use variables using 'if/else' and 'repeat until' 	<ul style="list-style-type: none"> Understand decomposition in coding 	<ul style="list-style-type: none"> Understand decomposition and abstraction in coding
	SKILLS	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Design algorithms and code them Compare different object types Use the repeat command Use the timer command Debug programs 	<ul style="list-style-type: none"> Design algorithms using flowcharts Use the if command for selection Design an algorithm that models a real-life situation 	<ul style="list-style-type: none"> Use the if/else command for selection Use flowcharts including selection Use 'repeat until' with variables to determine the repeat 	<ul style="list-style-type: none"> Represent a program design and algorithm Create a simulation using decomposition Explore string and text variables Use the launch command Program a playable game using timers and score pad 	<ul style="list-style-type: none"> Use the program design process to develop algorithms for more complex programs , using abstraction and decomposition Code, test and debug these designs Use functions and tabs to improve code Use input functions to code user interactivity
	NEW VOCAB	Action , Background, Button, Character, Code block, Code design, Coder, Coding, Collision detection, Command, Design mode, Input, Object, Program, Properties, Scale, Stop command, Sound, When clicked, When key	Bug, Repeat, Timer	Control, Event, If, Output, Simulation, Selection, Variable	Alert, Get input, If/Else	Decomposition, Sequence	Abstraction, Function

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.4 / 1.5			4.5		
COMPUTER SCIENCE - COMPUTATIONAL THINKING	KNOWLEDGE	<ul style="list-style-type: none"> • Know that the order of instructions affects the results ▪ Compare the effect of following instructions to completing tasks without instructions ▪ Understand the effect of direction keys ▪ Understand how to create and debug a set of instructions ▪ Understand how to change and extend the algorithm list 			<ul style="list-style-type: none"> • Understand the structure of Logo coding language 		
	SKILLS	<ul style="list-style-type: none"> • Follow and create simple instructions on the computer • Use direction keys in an algorithm • Create a longer algorithm • Set challenges for friends • Access challenges set by friends or teacher 	•	•	<ul style="list-style-type: none"> • Input simple instructions in logo • Use logo to create shapes • Use the repeat function to create shapes • Use and build procedures in logo 	•	•
	NEW VOCAB	Algorithm, Arrow, Backwards, Challenge, Computer, Debug, Direction, Forwards, Instruction, Left turn, Program, Rewind, Right turn, Undo	•	•	Logo BK, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD	•	•

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.9			4.8		6.6
COMPUTER SCIENCE - NETWORKS	KNOWLEDGE	<ul style="list-style-type: none"> Understand where technology is used 			<ul style="list-style-type: none"> Know the different parts of a computer 		<ul style="list-style-type: none"> Know what the internet consists of Know what LAN and WAN are Know how the internet has developed Know how the internet is accessed in school
	SKILLS	<ul style="list-style-type: none"> Record examples of technology in the environment 					
	NEW VOCAB	Technology			CPU, Graphics card, Keyboard, Motherboard, Monitor, Mouse, Network card, RAM, Speakers		Internet, LAN (Local Area Network), Network, Network cables, Router, World wide web, WAN (Wider Area Network), Wireless

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			2.5		4.7		
COMPUTER SCIENCE - SEARCHING	KNOWLEDGE		<ul style="list-style-type: none"> Know the terminology associated with searching Understand how to search on the internet 				
	SKILLS				<ul style="list-style-type: none"> Locate information on a search results page Use search effectively to find information Assess whether information is true and reliable 		
	NEW VOCAB		Internet, search, search engine, website		Easter egg, Internet browser, Spoof website		

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.8	2.3	3.3	4.3	5.3	6.3
INFORMATION TECHNOLOGY - SPREADSHEETS	KNOWLEDGE	<ul style="list-style-type: none"> Know what a spreadsheet program looks like 		<ul style="list-style-type: none"> Know the symbols more than, less than and equals to Know about cell references 	<ul style="list-style-type: none"> Know that cells can be formatted in different ways 		
	SKILLS	<ul style="list-style-type: none"> Open a spreadsheet program Enter data into cells in a spreadsheet Use image tools to add clipart to cells Use lock, move cell, speak and count control tools 	<ul style="list-style-type: none"> Use lock, move cell, speak and count control tools to make a counting machine Copy and paste in a spreadsheet Use the totalling tools Use a spreadsheet for money calculations Use the equals tool Collect data and produce a graph 	<ul style="list-style-type: none"> Use symbols to compare values Collect data and produce a variety of graphs Use the advanced mode for cell references 	<ul style="list-style-type: none"> Format cells as currency, percentage or decimal Use the formula wizard to calculate averages Combine tools to make spreadsheets such as timed tables tests Use a spreadsheet to model a real life situation Add a formula to a cell to make an automatic calculation 	<ul style="list-style-type: none"> Use the formula wizard to add a formula to make an automatic calculation Test a hypothesis in a spreadsheet Use a spreadsheet to model a real life situation and answer questions 	<ul style="list-style-type: none"> Use the formula wizard to add a formula Investigate probability using a spreadsheet Create graphs using the data collected Use a spreadsheet to create a computational model and answer questions
	NEW VOCAB	Arrow keys, Backspace, Cell, Clipart, Column, Count tool, Cursor, Delete, Image, Lock, Move cell, Row, Speak tool, Spreadsheet	Copy and paste, Equals tool	Advanced mode, Spin tool, Symbols ><=	Average, Charts, Formula, Formula wizard, Random tool, Timer	Hypothesis	Count tool, Dice tool

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.2/ 1.3	2.4	3.6/ 3.8		5.4	
INFORMATION TECHNOLOGY – DATABASES AND GRAPHS	KNOWLEDGE	<ul style="list-style-type: none"> Understand that data can be represented in pictures 					
	SKILLS	<ul style="list-style-type: none"> Make a pictogram Sort items digitally using grouping in Purple mash 	<ul style="list-style-type: none"> Use yes/no questions to separate information Construct a binary tree to sort items Use a binary tree to answer questions Use a database for more complex questions Use the search tool 	<ul style="list-style-type: none"> Sort objects using yes/no questions Make a branching database Enter data in a graph and answer questions Solve an investigation and present results 		<ul style="list-style-type: none"> Search for information in a database Contribute to a class database Create a database 	<ul style="list-style-type: none">
	NEW VOCAB	Collate, data, pictogram Criteria, group, sort	Binary tree, Database, Question	Branching database Bar chart, Block graph, Field, Graph, Line graph		Charts, Collaborative, Find, Record, Sort, group and arrange, Statistics and reports, Table	

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.7 (music)	2.8 (stories)	3.5 (email)	4.4 (text)	5.7 (concept maps)	6.4 / 6.7 (blog, quiz)
INFORMATION TECHNOLOGY – COMMUNICATING IDEAS (WRITING, EMAIL, MUSIC, ANIMATION)	KNOWLEDGE	<ul style="list-style-type: none"> Know that music can be composed digitally 		<ul style="list-style-type: none"> Know how to use email safely 	<ul style="list-style-type: none"> Understand how font size and style can affect the impact of text 	<ul style="list-style-type: none"> Understand the need for visual representation of complex ideas Understand and use the correct terminology when making concept maps 	<ul style="list-style-type: none"> Know the purpose of a blog and its key features Understand how changing visual properties affects the blog Understand the importance of regularly updating a blog Understand why school blog posts are approved by an adult Know how to use question types in 2quiz
	SKILLS	<ul style="list-style-type: none"> Make music digitally Explore, edit and combine sounds Edit and refine music digitally Upload a sound from a bank of sounds Record and upload environmental sounds Use uploaded sounds to create a tune 	<ul style="list-style-type: none"> Explore how a story can be presented in different ways Make a quiz Make a fact file Make a presentation to the class 	<ul style="list-style-type: none"> Open and respond to an email Add an attachment 	<ul style="list-style-type: none"> Change font size and style 	<ul style="list-style-type: none"> Create a concept map Create a collaborative concept map and use to present to an audience 	<ul style="list-style-type: none"> Plan the theme and content of a blog Write content for a blog Make a range of quizzes including picture based and database quizzes

	NEW VOCAB	BPM, Composition, Digitally, Instrument, Music, Sound effects (SFX), Soundtrack, Tempo, Volume	Animated, Audience, Concept map, Narrative, Node, Non-fiction, Presentation, Quiz	Address book, Attachment, CC, Compose, Communication, Email, Formatting, Password, Report to the teacher, Save to draft, Send	Bold, Font, Italic, Underline	Collaborative, Concept, Connection, Idea, Thought, Visual	Blog, Blog page, Blog post, Icon Quiz
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KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.6	2.6		4.6	5.5	5.6
INFORMATION TECHNOLOGY - ART & DESIGN	KNOWLEDGE	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know features of key artists (impressionism - Monet, pointillism - Seurat, Mondrian, Morris) 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know what makes a good animated film or cartoon. Know how animations are created by hand 		<ul style="list-style-type: none"> Understand the use of CAD to design for a purpose. Understand printing and making.
	SKILLS	<ul style="list-style-type: none"> Add animation to a story Add sound to a story, including voice recordings and music they have composed Add backgrounds Copy and paste pages Share their e-books 	<ul style="list-style-type: none"> Learn functions of 2Paint a Picture tool Create digital art in the style of key artists studied 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Use onion skinning in animation. Add backgrounds and sounds to animations. Use 'stop motion' animation. Share animation on class display board and by blogging. 	<ul style="list-style-type: none"> Set a scene. Create a game environment. Create a game quest. Share a game. Evaluate games. 	<ul style="list-style-type: none"> Use 2Design and Make Explore the effect of moving points when designing.
	NEW VOCAB	Animation, Display Board, e-Book, Font, File, Sound effect	Impressionism, Pointillism, Surrealism, palette, share, template	<ul style="list-style-type: none"> 	Flipbook, Frame, Onion-skinning, Background, Play, Sound, Stop motion, Video clip	Computer game, customise, evaluate, image, interactive, screenshot, texture, perspective, playability	CAD, modelling, viewpoint, 3D printing

KNOWLEDGE, SKILLS AND UNDERSTANDING BREAKDOWN FOR COMPUTING

PM Unit		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		1.1*	2.2	3.2	4.2	5.2	6.2
DIGITAL LITERACY – ONLINE SAFETY	KNOWLEDGE	<ul style="list-style-type: none"> • Know the meaning of icons used in Purplemash • Understand how to log in safely • Understand the importance of logging out 	<ul style="list-style-type: none"> • Know how to search and refine searches • Understand that the internet can be used for sharing content • Know that email can be used for communicating with others • Understand how to talk to others online <ul style="list-style-type: none"> ▪ Understand that anything shared online leaves a digital footprint • Understand how to keep personal data safe 	<ul style="list-style-type: none"> • Know what makes a safe password • Know how to keep a password safe • Understand how the internet can be used for communication • Understand how a blog can communicate with a wide audience • Know what age restriction symbols mean on devices and media • Understand that not everything on the internet is true 	<ul style="list-style-type: none"> • Understand how to protect themselves from online identity theft • Understand that their digital footprint can aid identity theft • Know the risks and benefits of installing software / apps • Know what plagiarism is and the consequences • Know how to behave appropriately when collaborating online • Identify positive and negative influences of technology on their health and the environment • Understand the importance of balancing screen time with other parts of their lives 	<ul style="list-style-type: none"> • Understand the impact that sharing digital content can have • Know how to maintain a secure password • Understand the advantages, disadvantages, permissions and purposes of altering an image digitally, and the reasons for this • Know how to reference sources in their work • Understand the impact of incorrect information online 	<ul style="list-style-type: none"> • Know the risks and benefits of mobile devices broadcasting their location • Know the risks and benefits of giving personal information • Review the meaning of digital footprint • Understand what constitutes appropriate online behaviour • Understand the importance of balancing screen time with other parts of their lives • Identify positive and negative influences of technology on their health and the environment • Understand how information shared online can persist

	SKILLS	<ul style="list-style-type: none"> Log in and out safely Open, save, and print Find saved work Search Purple Mash to find resources Add pictures and text to work Explore tools and games on Purple Mash 	<ul style="list-style-type: none"> Open and send simple emails via a safe platform (2Email) Share content online via Purple Mash 			<ul style="list-style-type: none"> Search the internet with consideration for reliability of sources Check validity of information 	<ul style="list-style-type: none"> Identify secure sites by looking for privacy seals of approval
	NEW VOCAB	Log in, Username, Password, Avatar, My Work, Log out, Save, Notification, Topics, Tools	Attachment, Digital Footprint, Email, Internet, Search, Sharing	Blog, Concept map, PEGI rating, Spoof website, Webpage, Website	Computer virus, Cookies, Copyright, Identity theft, Malware, Phishing, Plagiarism, Screen time, Spam	Bibliography, Citation, Encryption, Online safety, Reference, Reputable, Shared image, Smart rules	

- Includes an introduction to using PurpleMash