# West Heslerton C of E Primary School
## Computing Curriculum Progression

| | EYFS | Key Stage 1 | | Lower Key Stage 2 | | Upper Key Stage 2 | |
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| **Computing systems and networks** | **Nursery:** I know how to operate simple equipment, e.g. turn on CD player, uses a remote control, can navigate touch-capable technology with support.<br><br>**Reception:** Can I begin to list different IT in my home. | Can I identify technology<br>Can I identify a computer and its main parts<br>Can I use a mouse in different ways<br>Can I use a keyboard to type<br>Can I use the keyboard to edit text<br>Can I create rules for using technology responsibly | Can I recognise the uses and features of information technology and similarities and differences between digital and non-digital<br>Can I identify information technology in the home<br>Can I identify information technology beyond school<br>Can I explain how information technology benefits<br>Can I show how to use information technology safely<br>Can I recognise that choices are made when using information technology<br>Can I begin to show an understanding of the world wide web/internet | Can I explain how digital devices function<br>Can I identify input and output devices<br>Can I recognise how digital devices can change the way we work<br>Can I explain how a computer network can be used to share information<br>Can I explore how digital devices can be connected<br>Can I recognise the physical components of a network | Can I describe how networks physically connect to other networks<br>Can I recognise how networked devices make up the internet<br>Can I outline how websites can be shared via the World Wide Web<br>Can I describe how content can be added and accessed on the World Wide Web<br>Can I recognise how the content of the WWW is created by people<br>Can I evaluate the consequences of unreliable content | Can I explain that computers can be connected together to form systems<br>Can I recognise the role of computer systems in our lives<br>Can I recognise how information is transferred over the internet<br>Can I explain how sharing information online lets people in different places work together<br>Can I contribute to a shared project online<br>Can I evaluate different ways of working together online | Can I identify how to use a search engine<br>Can I describe how search engines select results<br>Can I describe how search engines select results<br>Can I explain how search results are ranked<br>Can I recognise why the order of results is important, and to whom<br>Can I recognise how we communicate using technology<br>Can I evaluate different methods of online communication |
| **Vocabulary** | remote control names of equipment that use technology | Computer mouse/trackpad, draw, click, double-click, click and drag, input device, computer, keyboard, mouse, shift, space bar, capital letter, full stop, screen, typing,<br><br>Safely, responsibly, computer, technology | Information Technology (IT), computer, USB (memory stick), resize, barcode, scanner/scan, device Internet, information, world wide web<br><br>Permission, appropriate | Digital device, input, output, process, program, connection, network, network switch, network switch, server, wireless access point (WAP) non-digital, cables, sockets | internet, network, router, network, security, switch, server, wireless, access point (WAP), web page, web address, links, files, content, download, sharing, ownership, permission, information, accurate, honest, adverts, legal. | system, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration | Search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine Index, crawler, bot, search engine, ranking, search engine, search engine optimisation, links, web crawlers, selection, ranking, communication, internet, public, private, one- way, two-way, one to one, one to many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround |

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| **Programming** | **Nursery:**<br>Can I make toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.<br><br>Can I show an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets<br><br><br>**Reception:**<br>Can I develop digital literacy skills by being able to access, understand and interact with a range of technologies<br><br>Can I complete a simple program on electronic devices | Can I explain what a given command will do<br>Can I act out a given word<br>Can I combine forwards and backwards commands to make a sequence<br>Can I combine four direction commands to make sequences<br>Can I plan a simple program<br>Can I find more than one solution to a problem<br><br>Can I choose a command for a given purpose<br>Can I show that a series of commands can be joined together<br>Can I identify the effect of changing a value<br>Can I explain that each sprite has its own instructions<br>Can I design the parts of a project<br>Can I use my algorithm to create a program | Can I describe a series of instructions as a sequence<br>Can I explain what happens when we change the order of instructions<br>Can I use logical reasoning to predict the outcome of a program (series of commands)<br>Can I explain that programming projects can have code and artwork<br>Can I design an algorithm<br>Can I create and debug a program that I have written<br><br>Can I explain that a sequence of commands has a start<br>Can I explain that a sequence of commands has an outcome<br>Can I create a program using a given design<br>Can I change a given design<br>Can I create a program using my own design<br>Can I decide how my project can be improved | Can I explore a new programming environment<br>Can I identify that each sprite is controlled by the commands I choose<br>Can I explain that a program has a start<br>Can I recognise that a sequence of commands can have an order<br>Can I change the appearance of my project<br>Can I create a project from a task description<br><br>Can I explain how a sprite moves in an existing project<br>Can I create a program to move a sprite in four directions<br>Can I adapt a program to a new context<br>Can I develop my program by adding features<br>Can I identify and fix bugs in a program<br>Can I design and create a maze-based challenge | Can I identify that accuracy in programming is important<br>Can I create a program in a text- based language<br>Can I explain what 'repeat' means<br>Can I modify a count-controlled loop to produce a given outcome<br>Can I decompose a program into parts<br>Can I create a program that uses count-controlled loops to produce a given outcome<br><br>Can I develop the use of count- controlled loops in a different programming environment<br>Can I explain that in programming there are infinite loops and count controlled loops<br>Can I develop a design which includes two or more loops which run at the same time<br>Can I modify an infinite loop in a given program<br>Can I design a project that includes repetition<br>Can I create a project that includes repetition | Can I control a simple circuit connected to a computer<br>Can I write a program that includes count-controlled loops<br>Can I explain that a loop can stop when a condition is met, eg number of times<br>Can I conclude that a loop can be used to repeatedly check whether a condition has been met<br>Can I design a physical project that includes selection<br>Can I create a controllable system that includes selection<br><br>Can I explain how selection is used in computer programs<br>Can I relate that a conditional statement connects a condition to an outcome<br>Can I explain how selection directs the flow of a program<br>Can I design a program which uses selection<br>Can I create a program which uses selection<br>Can I evaluate a program | Can I define a 'variable' as something that is changeable<br>Can I explain why a variable is used in a program<br>Can I choose how to improve a game by using variables<br>Can I design a project that builds on a given example<br>Can I use my design to create a project<br>Can I evaluate my project<br><br>Can I create a program to run on a controllable device<br>Can I explain that selection can control the flow of a program<br>Can I update a variable with a user input<br>Can I use an conditional statement to compare a variable to a value<br>Can I design a project that uses inputs and outputs on a controllable device<br>Can I develop a program to use inputs and outputs on a controllable device |
| **Vocabulary** | Click, On/Off, Up, Down, Space, Left, Right, Clear | sequence, program, debug, challenge, instructions, event, action, object, block, command, forwards, backwards, turn, clear, | instruction, sequence, clear, unambiguous, algorithm, program, sequence, order, algorithm, commands, prediction, artwork, design, | Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, | program, turtle, commands, code, snippet, algorithm, design, debug, logo, command, pattern, repeat, repetition, count controlled loop, value, count-controlled, | Microcontroller, Crumble controller, components, switch, motor, LED, Sparkle, crocodile clips, connect, battery box, program, condition, true, | variable, change, name, value, set, change, event, design, algorithm, code, task, artwork, program, |

| | | | go, left, right, plan, directions, algorithm, route, plan ---------- ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start block, run, background, delete, reset, algorithm, predict, effect, change, value, design, instructions, delete, algorithm, appropriate, | route, mat, debugging, decomposition --------- Sequence, command, program, run, program, start, outcome, predict, blocks, sprite, algorithm, design, actions, project, blocks, design, modify, change, design, build, match, compare, debug, features, evaluate | turn, point in direction, go to, glide, Sequence, event, task, design, run the code, order, note, chord, stage, costume, backdrop, design, algorithm, bug, debug --------- Motion, event, sprite, algorithm, logic, move, resize, algorithm Extension block, pen up, set up, pen, design, actions, debugging, errors, setup | loop, trace, decompose, procedure, debug, program --------- scratch, programming, sprite, blocks, code, loop, repeat, value, forever, count controlled loop, costume, animate, | false, input, output devices, selection, condition, action, task, design, selection, repetition, condition, action, microcontroller, Crumble controller, switch, crocodile clips, battery box Task, design, selection, repetition, algorithm, debug, evaluate --------- Selection, condition, true, false, outcomes, conditional statement - the linking together of a condition and outcomes- algorithm, program, debug, Task, design, algorithm, input, program, selection, condition, outcomes, test, run, implement, share, evaluate, constructive | debug, improve, evaluate, share. ---------- micro:bit, makecode, input, process, output, flashing, USB, selection, condition, if... then.... Else, variable, random, sensing, accelerometer, compass, direction, design, task, algorithm, step counter, plan, code, test, debug. |
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| | EYFS | Key Stage 1 | | Lower Key Stage 2 | | Upper Key Stage 2 | |
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| **Data and Information** | <u>Nursery:</u><br>I know that information can be retrieved from digital devices and the internet?<br><br><u>Reception:</u> | Can I label objects<br>Can I identify that objects can be counted<br>Can I describe objects in different ways<br>Can I count objects with the same properties<br>Can I compare groups of objects<br>Can I answer questions about groups of objects | Can I recognise that we can count and compare objects using tally charts<br>Can I recognise that objects can be represented as pictures<br>Can I create a pictograms and databases<br>Can I select objects by attribute and make comparisons<br>Can I recognise that people can be described by attributes<br>Can I collect data<br>Can I suggest simple questions to ask of data<br>Can I answer simple questions using collected data<br>Can I explain that we can present information using a computer | Can I create questions with yes/no answers<br>Can I identify the object attributes needed to collect relevant data<br>Can I create a branching database<br>Can I identify objects using a branching database<br>Can I explain why it is helpful for a database to be well structured<br>Can I compare the information shown in a pictogram with a branching database | Can I explain that data gathered over time can be used to answer questions<br>Can I use a digital device to collect data automatically<br>Can I explain that a data logger collects 'data points' from sensors over time<br>Can I use data collected over a long duration to find information<br>Can I identify the data needed to answer questions<br>Can I use collected data to answer questions | **Flat-file databases**<br>Can I use a form to record information<br>Can I compare paper and computer-based databases<br>Can I outline how grouping and then sorting data allows us to answer questions<br>Can I explain that tools can be used to select specific data<br>Can I explain that computer programs can be used to compare data visually<br>Can I apply my knowledge of a database to ask and answer real-world questions | **Spreadsheets**<br>Can I identify questions which can be answered using data<br>Can I explain that objects can be described using data<br>Can I explain that formula can be used to produce calculated data<br>Can I apply formulas to data, including duplicating<br>Can I create a spreadsheet to plan an event<br>Can I choose suitable ways to present data |
| **Vocabulary** | Mouse, Keyboard, screen , Cursor, | Group, object, property, value, label, colour, data set, more, less, most, least, fewest, the same, search, image, size, shape | More than, less than, most, least, organise, data, object, tally chart, votes, total Pictogram, enter, compare, objects, count, explain, more, less, more common, least common, attribute, group, same, different, more than/less than, most/least popular, sharing, data, conclusion, block diagram | Attribute, value, questions, table, objects, branching database, database, , equal, even, separate, order, organise, value, question, j2data, selecting, pictogram, compare, information, decision tree | data, table, input device, sensor, data logger, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion, layout. | Database, data, information, record, field, sort, order, group, search, criteria, graph, chart, axis, compare, filter, presentation | Spreadsheet, data, data heading, data set, cells, columns and rows, object, spreadsheet application, format, common attribute, formula, calculation, cell reference, operation, range, duplicate, sigma Propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools, data |

| | | EYFS | Key Stage 1 | | Lower Key Stage 2 | | Upper Key Stage 2 | |
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| Creative Media | | **Nursery:**<br><br><br><br>**Reception:**<br>I can create content such as a video recording, stories, and/or draw a picture on screen. | Can I describe what different freehand tools do<br>Can I use the shape tool and the line tools<br>Can I make careful choices when painting a digital picture<br>Can I explain why I chose the tools I used<br>Can I use a computer on my own to paint a picture<br>Can I compare painting a picture on a computer and on paper<br><br>Can I use a computer to write<br>Can I add and remove text on a computer<br>Can I identify that the look of text can be changed on a computer<br>Can I make careful choices when changing text<br>Can I explain why I used the tools that I chose<br>Can I compare writing on a computer with writing on paper<br><br><br>Can I use an Ipad (swipe/scroll/click) to find and play games from home screen links<br>Can I begin to use a laptop keyboard and mouse | Can I know what devices can be used to take photographs<br>Can I use a digital device to take a photograph<br>Can I describe what makes a good photograph<br>Can I decide how photographs can be improved<br>Can I use tools to change an image<br>Can I recognise that images can be changed<br><br>Can I say how music/sounds can make us feel<br>Can I identify that there are patterns in music<br>Can I describe how music/sounds can be used in different ways<br>Can I show how music is made from a series of notes<br>Can I create audio recordings for a purpose<br>Can I review and refine our computer work<br><br>Can I add text and images to a desktop publishing document<br>Can I change text and layout<br>Can I plan a simple animation<br>Can I create a simple animation<br>Can I begin to evaluate and edit an animation<br><br>Can I use an Ipads to take photos, search internet, use pic collage | Can I explain that animation is a sequence of drawings or photographs<br>Can I relate animated movement with a sequence of images<br>Can I plan an animation<br>Can I identify the need to work consistently and carefully<br>Can I review and improve an animation<br>Can I evaluate the impact of adding other media to an animation<br><br>Can I recognise how text and images convey information<br>Can I recognise that text and layout can be edited<br>Can I choose appropriate page settings<br>Can I add content to a desktop publishing publication<br>Can I consider how different layouts can suit different purposes<br>Can I consider the benefits of desktop publishing<br><br>Can I use an Ipad to carry out – Internet | Can I identify that sound can be digitally recorded<br>Can I use a digital device to record sound<br>Can I explain that a digital recording is stored as a file<br>Can I explain that audio can be changed through editing<br>Can I show that different types of audio can be combined and played together<br>Can I evaluate editing choices made<br><br>Can I explain that digital images can be changed<br>Can I change the composition of an image<br>Can I describe how images can be changed for different uses<br>Can I make good choices when selecting different tools<br>Can I recognise that not all images are real<br>Can I evaluate how changes can improve an image<br><br>Can I use an Ipad to carry out Internet searches for a specific purpose<br><br>Can I use a laptops to word process (**B**, *i*, <u>U</u>), and for Desktop publishing and save and retrieve documents | Can I recognise video as moving pictures, which can include audio<br>Can I identify digital devices that can record video<br>Can I capture video using a digital device<br>Can I recognise the features of an effective video<br>Can I identify that video can be improved through reshooting and editing<br>Can I consider the impact of the choices made when making and sharing a video<br><br>Can I identify that drawing tools can be used to produce different outcomes<br>Can I create a vector drawing by combining shapes<br>Can I use tools to achieve a desired effect<br>Can I recognise that vector drawings consist of layers<br>Can I group objects to make them easier to work with<br>Can I evaluate my vector drawing<br><br>Can I use an Ipad to carry out Internet searches for specific purposes, create Powerpoint documents and print<br><br>Can I use a Laptop to word process (layout and | Can I review an existing website and consider its structure<br>Can I plan the features of a web page<br>Can I consider the ownership and use of images (copyright)<br>Can I recognise the need to preview pages<br>Can I outline the need for a navigation path<br>Can I recognise the implications of linking to content owned by other people<br><br>Can I use a computer to create and manipulate three- dimensional (3D) digital objects<br>Can I compare working digitally with 2D and 3D graphics<br>Can I construct a digital 3D model of a physical object<br>Can I identify that physical objects can be broken down into a collection of 3D shapes<br>Can I design a digital model by combining 3D objects<br>Can I develop and improve a digital 3D model<br><br>Can I use an Ipad confidently for a range of purposes and Air drop documents<br><br>Can I use a Laptop to word process (formatting), for Desktop publishing, to |

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| | | | Can I switch on a laptop and use it to carry out simple word processing | searches, create a Pic collage with text<br><br>Can I use a Laptop to Log on and shut down correctly, word process (font, colour, size) and use basic Desktop publishing | | inserting pictures), for Desktop publishing, create basic Powerpoints, use Basic Excel and Print documents | create Powerpoints for a specific purpose and use Excel |
| **Vocabulary** | | | size, toolbar, shift, shape, line, tools, insert, paintbrush, erase, fill, undo, paint program, colour, size<br><br>---------<br><br>Word processor, keyboard, mouse, cursor, select, font, toolbar, bold, italic, underline, Microsoft Word, keys, letters, type, numbers, space, backspace, text, capital letters, undo, redo, format, writing, typing, compare | device, camera, photograph, capture, image, digital, landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, Framing, focal point, subject matter, field of view, format, compose, natural lighting, artificial lighting, flash, focus, subject background, foreground Editing, tools, colour, filter, images, Pixlr, light source, focus, filter, changed, real<br><br>---------<br><br>music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, rhythm, notes, instrument, create, emotion, pitch, pulse/beat, open, edit<br><br>text, layout, font, images, copy, paste, delete,<br><br>animation, evaluation, frame, image, sequence<br><br>audio, record, microphone, speaker, stop, playback | Animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency<br><br>evaluation, animation, delete, frame, media, import, transition<br><br>----------<br><br>Text, images, advantages, disadvantages, communicate, font, font style, template, landscape, portrait, orientation, placeholder, desktop publishing, copy, paste, layout, purpose, benefit, content, | audio, record, playback, microphone, speaker, headphones, input, output, sound, start, stop, pause, save, file, edit, section, mixing, time shift.<br><br>-------<br><br>Image, edit, arrange, select, crop, undo, save, copyright, pixels, rotate, flip, adjustment, effects, colours, hue/ saturation, sepia, save, version, illustrator, vignette, retouch, edit, clone, recolour, image, fake, real, composite, cut, copy, paste, background, foreground, combine, alter, zoom. | Video, audio, AV, recording, capture, zoom, storage, digital, tape, save, videographer, technique, pan, tilt, content, light, camera, angles, export, lighting, setting, computer, split, edit, timeline, transition, special effects, title screen, end credits, export, constructive, feedback.<br><br>-------<br><br>vector, drawing tool, shapes, object, icon, toolbar, move, resize, colour, rotate, duplicate/ copy, organise, zoom, select, alignment grid, handles, consistency, modify, layers, front, back, order, copy, paste, group, ungroup, improvement, evaluate, alternatives, vector drawing. | Website, web page, browser, media, Hypertext Markup Language (HTML), Website, web page, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implications, external link, embed, copyright, fair use.<br><br>------<br><br>2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimension, placeholder, hole, group, ungroup, design, modify, evaluate, improve |

| | EYFS | Year 1 | Year 2 | Lower Key Stage 2 | Upper Key Stage 2 |
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| **Online safety** | **Nursery:**<br>I know to handle equipment safely.<br><br>I begin to know that I shouldn't use devices without supervision<br><br>**Reception:**<br>I begin to give reasons why we need to stay safe online.<br><br>Can I use the internet with adult supervision to find and retrieve information of interest to them | Can I identify what things count as personal information?<br><br>Can I identify how to keep personal information private?<br><br>Can I identify what is appropriate and inappropriate behaviour on the internet?<br><br>Can I demonstrate how to safely open and close applications and log on and log off from websites?<br><br>Can I use technology safely and identify where to go for help and support if I have concerns about online content/contact?<br><br>Can I use key vocabulary to demonstrate knowledge and understanding in this strand? | Can I reflect on my behaviour online?<br><br>Can I identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying?<br><br>Can I agree and follow sensible online safety rules?<br><br>Can I seek help from an adult when I see something that is unexpected or worrying?<br><br>Can I begin to demonstrate understanding of age-appropriate websites and adverts?<br><br>Can I use key vocabulary to demonstrate knowledge and understanding in this strand? | Can I reflect on my own digital footprint and behaviour online?<br><br>Can I identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying?<br><br>Can I agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords?<br><br>Can I seek help from an adult when I see something that is unexpected or worrying?<br><br>Can I demonstrate understanding of age-appropriate websites and adverts?<br><br>Can I use key vocabulary to demonstrate knowledge and understanding in this strand? | Can I protect my own password and other personal information?<br><br>Can I be a good online citizen and friend?<br><br>Can I judge what sort of privacy settings might be relevant to reducing different risks?<br><br>Can I seek help from an adult when they see something that is unexpected or worrying?<br><br>Can I discuss scenarios involving online risk?<br><br>Can I use key vocabulary to demonstrate knowledge and understanding in this strand? |
| **Vocabulary** | Safe, Internet, trusted adult, tell | safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet. | safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet. | safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public. | spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal. |