Langafel C of E Primary School Computing Progression Map

KS1

Aims

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Skills	Knowledge
▪ 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 ▪ 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.	▪ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions ▪ recognise common uses of information technology beyond school

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Year 1	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Previous learning		Year 1 term 1		Year 1 term 2	Year 1 term 3	
Skill		To write simple instructions. To follow simple instructions. To use left, right, forward, backwards. To combine instructions to move a programmable toy.	To search for images online. To save images. To open images. To change images. To word process captions.	To plan an algorithm. To test an algorithm. To find mistakes in an algorithm (bug). To de-bug an algorithm.	To save work in a file. To retrieve work from a file. To use an animation software. To identify risks online.	To search for information online.
Knowledge	Can they recognise hurtful comments online? Can they recognise the different between public and private? Can they recognise what a computer is? Can they recognise software and hardware? Can they identify input and output devices?	Can they recognise the information to keep private? Can they understand an algorithm is a set of instructions?	Can they recognise how we can use the internet? Can children share ways of staying safe online?	Can they explain what we can use the internet for? Can they explain how to stay safe when using the internet? Can they plan a set of instructions for a task? Can they find mistakes in a set of instructions?	Can they understand not everyone online is who they say they are? Can they understand risks online? Can they understand that computers can be used to animate?	Can they understand how we can communicate online? Can they understand how we can use a computer in different ways?

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Vocab	Software Hardware Computer Input Output Public private	Algorithm Instruction Program Code Beebot Directions Forwards/backwards Left/right Private	Images Open Close Save Share online	bug debug algorithm instruction directions Forwards/backwards Left/right internet	Save Open Animation Risks online	Internet Online Key words search

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Year 2						
Previous learning	Year 1 term 1	Year 1 terms 2 & 5	Year 1 term 6	Year 1 terms 2&5 Year 2 term 2		Year 1 term 3
Skills	To design a device with input, output and process.	To write an algorithm for a task. To use repeat commands. To use right angles turns.	To use key words in searches. To use word processing software. To type. To change font type and colour. To use the delete key. To save a file. To open a file. To insert an image.	To predict the outcome of an algorithm. To sequence an algorithm correctly. To repeat instructions. To de-bug algorithms.	To collect data. To enter data to make a graph.	To save work To open work To use art tools including stamp, blur, smudge

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Knowledge	Can children recall what information should be kept private? Can children understand what we use a computer for? Can children recognise input, output and processes?	Can children suggest things that should not be placed online? Can children understand algorithms are a set of instructions? Can children understand right angled turns?	Can they recognise the importance of using key words in searches? Can they understand the purpose of word processing?	Can children recognise ways of staying safe online? Can they recognise mistakes in an algorithm are known as bugs?	Can they recognise when something does not feel right online? Can they understand that the internet is not always reliable?	Can they understand different ways that a computer can be used including creating images?
Vocab	Input Output Process Devices Computer Private public	Algorithm instructions Right angles Repeat Sequence Turns	Font Space Delete Enter Insert Image Save Open close	Algorithm instructions Right angles Repeat Sequence Turns Bugs debug	Data Graph Chart Open Save reliable	Save Open Close Blur Smudge

Langafel C of E Primary School Computing Progression Map

KS2

Aims

can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation

- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Skills

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
- 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;

Knowledge

- 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
- recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

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Year 3	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Previous learning	Year 1 & 2 term 1	Year 1 terms 2 & 4 Year 2 terms 2 & 4	Year 2 term 3	Year 1 terms 2 & 4 Year 2 terms 2 & 4 Year 3 term 2		Year 1 terms 2 & 4 Year 2 terms 2 & 4 Year 3 term 2 & 4
Skill	To evaluate the usefulness of a website.	To program a Probot. To sequence a set of instructions. To create algorithms to make shapes.	To type. To change font size, type, colour. To insert 'wordart'. To insert an image. To use 'find' and 'replace' To delete text To use 'thesaurus' tool.	To use accurate key words in searches. To combine blocks in 'Scratch'. To change the background and sprite in 'Scratch'. To program two sprites to interact. To debug.	To create a slideshow that moves from slide to slide. To combine text, images, hyperlinks to relate to the audience.	To sequence blocks in Scratch. To debug an algorithm. To repeat a sequence. To use the 'forever' block in Scratch. To create a new sprite.
Knowledge	Can children recognise input, output and processes? Can they recognise hardware and software? Can they name and recognise parts of a computer?	Can they understand the importance of sequencing in an algorithm? Can they relate real communities to how to create a friendly online community?	Can they explain what to do when they see something online that upsets them? Can they recognise how word processors are used to make documents?	Can they recognise the importance of accurate key words in searches? Can they explain the functions of different blocks in 'Scratch'? Can they recognise when there is a mistake in an algorithm?	Can they recognise how to be respectful online?	Can they explain what cyberbullying is and how to deal with it?

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	Can they understand how a computer works?					
Vocab	Computer Input Output Process Screen CPU Hard drive hardware	Algorithm instructions Right angles shapes Repeat Sequence Turns Bugs debug	Font Space Delete Enter Insert Image Save Open Close wordart	Algorithm Repeat Sequence Blocks Sprite script Bugs debug	PowerPoint Presentation Slide Transition Images hyperlink	Cyberbullying Algorithm Repeat Sequence Blocks Sprite script Bugs debug
Year 4						
Previous learning		Year 2 terms 2 & 4 Year 3 term 2		Year 3 term 6	Year 3 term 5	Year 3 term 5 Year 4 term 4
Skills	To send an email. To vlog using Learn Pads.	To type instructions to draw shapes. To use degrees to create right angles. To predict outcomes of algorithms. To create algorithms for on screen robots.	To enter data into cells in a spreadsheet. To order and sort data. To total amounts in a spreadsheet.	To recognise the role of blocks in 'Scratch'. To create an algorithm to move a sprite. To add a score variable. To create a simple game.	To create a lengthy presentation on either Prezi or PowerPoint. To add different fonts, backgrounds, images, hyperlinks to slides. To change slide transition.	To predict outcomes of algorithms. To use the 'if' block in 'Scratch'. To edit and amend scripts in 'Scratch' to create own games.

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					To add sound to slides.	
Knowledge	Can they provide ways we use technology to communicate effectively? Can they explain how emails are sent? Can they explain how to use technology safely?	Can they explain what a digital footprint is? Can they explain what an algorithm is?	Can they recall the SMART rules for online safety? Can they explain what we can use a spreadsheet for? Can they recognise cells, rows and columns in a spreadsheet?	Can they explain what plagiarism is? Can they explain that role of each block in 'Scratch'? Can they share ideas on games?	Can they explain the purposes of passwords? Can they explain what makes a strong password?	Can they explain the function of blocks in 'Scratch'? Can they decide what makes a 'good' game?
Vocab	Communicate Technology Email Send Attachment vlog	Digital footprint Algorithm instructions Right angles shapes Repeat Sequence Turns Bugs debug	Safe Meet Accept Reliable Tell Spreadsheet Row Cell Column formula	Plagiarism Algorithm Repeat Sequence Blocks Sprite script Bugs Debug Variable score	Password Slides Presentation Transition Images Hyperlink prezi	Algorithm Repeat Sequence Blocks Sprite script Bugs Debug Variable Score Function

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Year 5						
Previous learning	Year 2 term 3 Year 3 term 4 Year 4 term 1		Year 2 term 1 Year 3 term 1	Year 2 term 4 Year 3 term 2 Year 4 term 2	Year 2 term 5	Year 3 term 5 Year 4 term 4
Skills	To search the internet effectively. To select appropriate information. To present information in a blog. To comment on other's blogs respectfully.	To compare websites for usefulness. To search the internet effectively.	To use flow charts. To create a set of instructions for tasks. To recognise inputs and outputs in an algorithm.	To use repeat to draw shapes. To use degrees to create angles. To predict outcomes of algorithms. To create algorithms for an on screen image.	To collect data using a data logger. To input data into a spreadsheet. To create graphs and charts from data.	To use the 'sensing' blocks in a 'Scratch' maze game. To create a life variable in 'Scratch'. To de-bug algorithms.
Knowledge	Can they use key words to search the internet? Can they choose appropriate information from the internet? Can they explain what a blog is?	Can they recognise what the internet is? Can they understand how sites are ordered in searches?	Can they recognise what they should and shouldn't post online?	Can they recognise that not all photos online are as they are in real life?	Can they recognise when something is cyberbullying? Can they understand how to use a data logger?	Can they recognise what 'spam' is? Can they recognise when something does not work in a game?
Vocab	Search Key words Blogs audience	Internet Search engine Key words	Flow charts Input Output Problem solving Decomposition	Algorithm Repeat Sequence Angles shapes	Data Data logger Graph Chart spreadsheet	Algorithm Repeat Sequence Blocks Sprite

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			Process Decision Bug Debug algorithm	Bugs Debug		script Bugs Debug Variable Score Function
Year 6						
Previous learning	Year 3 term 1	Year 5 term 3	Year 1 term 5		Year 4 term 3	Year 3 term 5 Year 4 term 4 Year 5 term 6
Skills		To use flow charts. To find bugs in a flow chart. To de-bug flow charts.	To map out a storyboard. To take images. To combine images to create an animation. To add sound to an animation.	To record audio for a purpose. To add sound effects. To create a podcast.	To input data into cells on a spreadsheet. To create formulae. To format cells.	To predict an algorithm's purpose. To edit an algorithm. To use variables. To create a password algorithm in 'Scratch'.
Knowledge	Can they explain how we can communicate effectively through social media? Can they explain what a network is and how it works? Can they explain how a filtering	Can they understand how a flow chart can be used to plan an algorithm? Can they understand 'if' statements in a flow chart? Can they explain how to report online abuse?	Can they explain how to create a safe online profile? Can children explain how stop-motion animation works?	Can they recognise what should and shouldn't be placed on social media sites? Can they recognise the features of an effective podcast?	Can they offer advice to others on what to do if someone is abusive online? Can they explain how we can use spreadsheets?	Can they explain the purpose of passwords and the risks of having a weak password?

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	system words and how it keeps us safe?					
Vocab	Communication Internet Hubs Router Wi-fi Cables Server websites	Flow charts Input Output Problem solving Decomposition Process Decision Bug Debug algorithm	Story board Animation Camera Images Audio Stop-motion profile	Record Audio Podcast Audience Sound effects Social media	Spreadsheet Data Cells Rows Columns Formulae Total	Algorithm Repeat Sequence Blocks Sprite script Bugs Debug Variable Score Function