Computing Progression Map



Year group	Key skills and knowledge Computer Science	Key vocabulary	Links to Faith and Values
Year 1	 -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. Create a series of instructions and plan a journey for a programmable toy Know and understand that algorithms are sets of instructions Know that an output is the result of an input, e.g. the Bee Bot moved because the direction button was pressed Know that algorithms are implemented as programs on digital devices Know that instructions require sequential and precise inputs to achieve a given goal Know how to debug (find errors) in given instructions Know how to create a simple program e.g. a sequence of instructions for a Bee Bot to perform given tasks, or control an on screen sprite 	Device Control Input Output Direction Algorithm Instruction Sequence Sprite Commands	When using programmable toy to plan a journey this could be done on a grid planning the journey from Medina to Mecca (Link with Hajj) Use questioning to link key terminology with faith (e.g. Where are Allah's algorithms/instructions for how to be a Muslim found? – in the Quran).
Year 2	-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 programsUse logical reasoning to predict the behaviour of simple programs. Understand that algorithms are used on digital devices Write a simple program and test it Predict what the outcome of a simple program will be (logical reasoning). Understand that programs require precise instructions • Know how to write clear and precise algorithms for every day tasks • Know how to make predictions using logical reasoning for given algorithms • Know how to implement simple algorithms on digital devices e.g. Bee Bot, Blue Bot, Daisy the Dinosaur App, Scratch Jr App • Know how to decompose algorithms into small chunks to find errors and debug programs • Know how to use logical reasoning to predict the outcome of simple programs • Know how to improve and change a sequence of commands using a trial and error approach	Precise Logical Reasoning Digital devices Decompose Predict Logical reasoning Trial and error Sequence/sequential	Use questioning to link key terminology with faith (e.g. Are the algorithms for how to be a muslim precise? – talk about how there are specific instructions for how to pray, how to fast, how to do hajj) Children could write the algorithm for how to pray as an extension to other algorithms (E.g. how to make a sandwich, how to play tag). Give children the algorithm for prayer with an error in it. Children to decompose the algorithm into smaller chunks to debug/find the error and correct it.
Year 3	-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 simple algorithms work and to detect and correct errors in algorithms and programs Write programs that accomplish specific goals	Navigate Sprite Foreground Background Coordinates Commands Network	Use questioning to link key terminology with faith (e.g. If we are the sprits of this world, what is the background? Who inputs the commands? What is our network?). Use this to reflect on the power and magnificence of Allah.

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	Design a sequence of instructions, including directional instructions	Position	Children could use Scratch to
	Know how to navigate the Scratch programming environment		programme an Islamic themed game
	 Know how to create and alter a sprite and background 		(e.g. dress the muslim for Hajj, race to
	 Know how to work with various forms of input to control the sprite (mouse/keys) 		the ka'ba, Islamic quiz).
	 Know how to change the position of the sprite by using x and y coordinates 		
	 Know how to design and create programs that accomplish specific goals in Scratch 		
	(e.g. draw a shape)		
	 Know how to decompose tasks into smaller, separate steps to create an algorithm 		
	 Know how to use repetition in programs by identifying patterns 		
	 Know how to improve and change a sequence of commands using a trial and error approach 		
	-understand computer networks including the internet; how they can provide multiple		
	services, such as the world wide web		
	Understand what computer networks do and how they provide multiple services		
	Know that digital devices accept inputs, create outputs by following a process		
	Know how to classify inputs, processes and outputs		
	Know the similarities and differences between digital and analogue tools		
	Know that computers in school are connected in a network		
	Know why computers are networked		
	Know the difference between the Internet and the World Wide Web (WWW)		
	-Design, write and debug programs that accomplish specific goals, including controlling or	Precise	Incorporate faith linked audio and
	simulating physical systems; solve problems by decomposing them into smaller parts	Repetition	visual into programming (e.g.
	-use sequence, selection and repetition in programs; work with variables and various forms	Selection	adhaan, quran, nasheeds) to tell a
	of input and output	Conditional	story with an Islamic moral (note: it
	-use logical reasoning to explain how simple algorithms work and to detect and correct	Statements	is not permissible to represent a
	errors in algorithms and programs	Visual/audio	prophet as a sprite in some
	Give an 'on-screen' sprite specific instructions that take them from A to B	Servers	denominations so avoid children
	Experiment with variables to control sprites	Email	telling story of the prophet on
	Make an accurate prediction and explain why they believe something will happen	Internet	programming software).
	Know how to write increasingly more precise algorithms for use when programming	Physical	programming continuity:
	- using repetition	1, 5.60.	Lice questioning to link key
	Know how to use simple selection using conditional statements 'If, Then, Else' in		Use questioning to link key
Year 4	programs to make a decision		terminology with faith (e.g. what
	Know how to use a range of outputs (visual/audio)		conditional instructions are there in Islam? – encourage children to use
	Know how to use logical reasoning to systematically detect and correct errors in		
	programs		the conditional statements if, then,
	-understand computer networks including the internet; how they can provide multiple		else)
	services, such as the world wide web		
	Understand how information can be shared online		Discuss: Does the internet help to
	Know that servers on the internet are located across the planet		keep the ummah united (as we are
	Know that servers on the internet are located across the planet Know how networks are physically connected		instructed in the quran for example
			in 3:103 and 49:10 as well as many
	Know what can be shared using the internet Know how websites can be shared on the world wide web.		others)?
	Know how websites can be shared on the world wide web Understand how email is sent across the internet in packets.		
	Understand how email is sent across the internet in packets		
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Year 5

-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 simple algorithms work and to detect and correct errors in algorithms and programs

Use technology to control an external device

Develop a program that has specific variables

Combine sequences of instructions and procedures to turn devices on and off

- Know how to design and create a game platform incorporating skills learnt
- Know how to evaluate their own work, and that of peers, identifying errors.
- Know how to use variables within programs e.g. timers and score counters using conditional statements e.g. if the timer reaches 0, the game ends
- Know how to create programs that control or simulate physical systems (crumble boards/Lego Mindstorms)
- Know how to evaluate, and debug algorithms

-understand computer networks including the internet; how they can provide multiple services, such as the world wide web

-appreciate how search results are selected and ranked

Understand how search results are selected and ranked

Identify and know examples of physical computer systems

- Know how we view web pages on the internet
- Know how pages are ranked in a search engine and that the quality of results can vary
- Know and name a range of computer networks and how these connect people e.g. social media, internet, intranet and cloud services
- Know that computers can be connected together to form systems
- Know and recognise the role of computer systems in our lives

Know how information is transferred over the internet

Variables
Timers
Counters
Conditionals
Simulate Evaluate
Social media Intranet
Cloud services
External Platform

Encourage children to create games that have an Islamic link as a way of creating a programme for a specific audience. It could be an Islamic sprite, background or link to them (e.g. dress the muslim for Hajj, race to the ka'ba, Islamic quiz).

Discuss: Do you think the prophet would have liked the internet/social media? Why? What would he have used it for (note the children have previously discussed: Does the internet help to keep the ummah united (as we are instructed in the quran for example in 3:103 and 49:10 as well as many others)?

Year 6	-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 simple algorithms work and to detect and correct errors in algorithms and programs Write a program that combines repetition, selection and variables Write generic code that can be used across multiple projects • Know how to use a range of sequence, selection and repetition commands, combined with variables to implement game designs • Know how to broadcast messages • Know how to write generic code for use across multiple projects • Know how to critically evaluate projects, suggesting improvements • Know how to decompose code into sections for effective debugging -understand computer networks including the internet; how they can provide multiple services, such as the world wide web -appreciate how search results are selected and ranked Be aware that some search engines may provide misleading information • Know how to effectively use a search engine, • Know that to ensure information is valid and accurate, cross referencing of different sources is necessary • Know and understand the need to critically evaluate information	Broadcast messages Generic code Critically evaluate HTML Sources Cross reference Critically evaluate	Children could critically evaluate a programme created showing people how to pray/do hajj commenting on its accuracy and suggesting improvements as well as debugging any errors. Discuss: if broadcast messaging were an option at the time of the prophet what message do you think would have been broadcast? Do you think this would have altered how Islam spread? How? Teaching children how to use main search engines as well as search engines on Islamic websites (e.g. https://www.alislam.org/) and how to ensure that the Islamic information is valid and accurate by cross referencing and checking the sources.
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Year group	Key skills and knowledge Digital Literacy	Key vocabulary	SHINE & Links to faith
Year 1	-Recognise common uses of information technology beyond school Talk about some of the IT uses in their own home • Know a range of uses for information technology beyond school, e.g. a library -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 Use technology safely Keep personal information private Use a website safely • Know, discuss and understand the individual elements of SMART rules acronym: Safe, Meet, Accepting, Reliable, Tell • Know that there are people online who could make you feel sad, embarrassed or upset, and give examples of when and how to speak to a trusted adult • Know how to use the internet, with adult support, to communicate with known people and use key words in search engines • Know that information posted online can be copied, and begin to know what personal information should be kept offline • Know and explain that work created digitally belongs to them; it's their idea, or has their name on • Know how to safely log out of websites and equipment when tasks are finished	SMART rules Safe, Meet, Accepting, Tell Information technology Online Trusted adult Internet Offline Digitally Log out	Safer Internet Day
Year 2	-Recognise common uses of information technology beyond school Know how technology is used in school and outside of school Know more ways in which information technology is used beyond school, e.g. how a supermarket works Know how technology can be connected and help people Know that the internet is a source of information e.g. books, newspapers, tv programmes Know which devices at home are connected to the internet -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	Source of information Connected Appropriate Permission Identity Search engine	Safer Internet Day Discuss questions linking content to faith, such as: - How do you think the prophet Muhammad would have used technology? - Do you think that technology helps to connect the ummah? - Is the internet a good source of Islamic information?

Year 3	Know where to go for help if concerned. Know that some websites are more child friendly and appropriate than others. Know which search engines are acceptable to use to stay safe. Know which websites are safe to use in school, and at home, with permission. Know how people's identity online can be different to their identity in real life, and what these differences could be. Know examples of ways to communicate online. Know examples of bullying behaviour, and what this might look like online, and what can be done about this. Know and explain rules and guidance for using technology. Know how to report unsafe things online. Lise technology safely , respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact -be discerning in evaluating digital content. Use technology respectfully and responsibly Know different ways they can get help if concerned. Know what is meant by the term identity, how you can represent yourself online and ways in which you can change your identity e.g. using an avatar. Know and understand the term digital footprint, being able to give positive and negative examples. Know the need to be careful before sharing things online, and the consequences of this. Know and understand the term privacy settings, and how these can be applied. Know simple strategies for creating and keeping passwords private, and why they are important. Know that websites/games implement age restrictions to keep users safe. Know different examples of technology specific forms of communication e.g. emojis, text speech. Know and explain the risks of communicating online with people you don't know well. Know the difference between knowing someone online, and knowing someone in real life. Know what bullying is, and explain how this may happen online, explaining strategies to stop this from happening.	Digital footprint Privacy settings Devices Implement Technology specific Emoji Strategies	Safer Internet Day Link content with faith by discussing questions, such as: - How do you represent your Islamic identity online? - Should I share where I go to mosque or what quran class I go to online? -
Year 4	 -use technology safely ,respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact -be discerning in evaluating digital content Recognise acceptable and unacceptable behaviour using technology • Know how online identities can be different to real life identities • Know the importance of reflecting on their online behaviour, and the impact this can have on their digital footprint, thinking carefully about how content posted online might affect how others feel about them (their reputation) • Know and understand that the same friendship values apply online as to face to face • Know strategies for safe and fun experiences in a range of online social environments, giving examples of how to be respectful to others online. • Know a range of online technologies where bullying might take place, and the ways in which this might happen • Know that some information on the internet is protected by copyright, consider who has the right to use it, with examples 	Reputation Online social environments Online technologies Reliable Accurate Copyright Opinion Belief Fact Password Passcode	Safer Internet Day Link content with faith by discussing questions, such as: - If someone says they are a muslim, does that mean they are safe to talk to/meet? (link to how online identities are sometimes different to real life and being safe on the internet) Does technology

	 Know that not all sources of information on the internet are reliable/ accurate, knowing the difference between opinion, belief and fact Know how technology can distract from other things, identifying times or situations where limiting the amount of time of technology might be of use, and strategies to support this Know what a strong password is, and explain strategies for keeping personal information private in a range of contexts 		distract you from faith? What strategies could you use to help you stop it distracting you from your faith? How could you ensure you pray on time even if you have technology? Talk about common passwords in the Islamic community and whether it is safe to use these well known numbers (E.g. 786110).
Year 5	-use technology safely ,respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact -be discerning in evaluating digital content -understand the opportunities they (computer networks, incl. internet) offer for communication and collaboration Understand that children have to make choices when using technology and that not everything is true and/or safe • Know and explain how online identities can be copied, modified or altered • Know, and be familiar with scenarios associated with online risk and danger, and what to do about them • Know that all online activity can be traced • Know when someone is upset, hurt or angry online, and know strategies to support • Know when someone is upset, hurt or angry online, and know strategies to support • Know how to block and report abusive content/users on a range of platforms • Know and describe helpline services that are there to support, and how they can be contacted e.g. Childline • Know the difference between online mis-information (accidental) and disinformation (deliberate) • Know what it means to be sceptical, and understand the term hoax • Know that not all information found online is honest, accurate or legal, and can explain why and how this might happen • Know ways in which technology can affect sleep and describe some of the issues, knowing strategies, tips or advice to overcome these, to promote healthy sleep • Know how to create and use strong and secure passwords • Know and explain how many free apps or services may read and share private information from devices • Know when it is acceptable to use the work of others, giving examples	Modified Scenario Risk/danger Online communities Traced Positive contributions Platforms Abusive content/users Mis-information Dis-information Sceptical Hoax Blog Collaboratively	Safer Internet Day Link content with faith by discussing questions, such as: - How do you think the prophet would have used an online community to make a positive impact/contribution?

Year 6

-use technology safely ,respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact -be discerning in evaluating digital content

-understand the opportunities they (computer networks, incl. internet) offer for communication and collaboration

Be increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable

- Know that not all online information can be trusted
- Know how to check and identify the reliability of websites
- Know and understand different ways to collaborate on projects online
- Know and understand the need to critically evaluate information found online
- Know how and why some people may present opinions as facts, being able to define the terms 'influence', 'manipulation' and 'persuasion', and how these might be encountered online (advertising, ad targeting)
- Know how to identify, and flag inappropriate content
- Know and be aware of the terms: plagiarism, copyright and data protection in relation to their own work
- Know and be able to describe issues online that might make others feel sad, worried, uncomfortable, or frightened, giving examples of ways to help both online and offline
- Know why you should keep asking for help until you get the help you need
- Know how impulsive content and communication online may cause problems
- Know ways to support others online, demonstrating ways of reporting problems, understanding responsibilities for the well being of others
- Know how to capture bullying content as evidence (screen grabs, profile links)
- Know how to develop an online reputation which will allow others to form a
 positive opinion
- Know, assess and action different strategies to limit the impact of technology on health (nightshift mode, regular breaks, correct posture, sleep, diet and exercise) and explain the importance of self-regulation of the use of technology, with strategies
- Know to use different passwords for a range of online services, and know what to do if passwords are lost or stolen
- Know and explain simple ways to increase privacy on apps, and explain ways in which some online content targets people to gain money or information, describing strategies to help identify content
- Work collaboratively to create a piece of work (Google docs/Teams/Vlog)

Reliability
Collaborate
Vlog
Critically evaluate
Influence
Manipulation
Persuasion
Inappropriate content
Plagiarism
Copyright
Data protection
Impulsive content
Screen grabs
Self regulation

Health and Well Being Safer Internet Day

When talking about sources of information discuss double checking and critically evaluating Islamic sources of information to help you know it is reliable and accurate to what you believe. You may wish to also discuss why people may present their opinions as facts about Islam.

Linking how plagiarism is wrong with the values of our school (e.g. integrity, respect, excellence) as well as the virtues of God that we should try to eminate and are taught in the quran (E.g. Al-Haqq – The truth; Quranic verse 2:43)

Discuss: Why does your online reputation matter? Do your actions online influence the ummah? Do your actions online influence how others view Islam?

Talk about common passwords in the Islamic community and whether it is safe to use these well known numbers (E.g. 786110).

Year group	Key skills and knowledge Information Technology	Key vocabulary	SHINE & Links to faith
Year 1	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Record sound and video and play back using an ipad Create, store and retrieve digital content • Know how to safely turn on and off a laptop, computer or other device. • Know the different parts of a computer/laptop e.g mouse, keyboard • Know where numbers, letters and symbols are located on the keyboard (use of Shift key for symbols). • Know and input username and password to log onto the device (laptop/computer). • Know the use of the Enter key. • Know how to locate a specific program (Word, PowerPoint, Internet). • Know how to save a document into the correct folder on the server. • Know how to open a saved document. • Use at least 2 different types of software to present information, e.g. a booklet using 'Book Creator' app on ipad, inserting images from camera roll and text.	Curser Mouse Keys Keyboard Upper/lower case Username Password Program Word processor Document File Save Retrieve	Health and Wellbeing – learning about ways technology can be used to communicate with people we don't live with.
Year 2	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Organise, retrieve and manipulate digital content • Know how and when to use caps lock vs shift key for capital letters. • Know how to locate the 'Home' Tab in Microsoft Office programs. • Know how to change the size, font and colour of text. • Know how to copy and paste images from the internet. • Know how to insert images from a file. • Know how to insert a text box. • Know how to input information/data to achieve an output – pictogram, bar chart, table. • Use at least two different types of software to present information.	Tab Insert Font Text box Output Data Copy Paste Data	
Year 3	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	Layout Orientation Portrait	

	accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Landscape Format	When presenting information it could be around a topic you have learnt
	Discern when it is best to use technology and where it adds little or no value Use a range of software for similar purposes Collect and present information	Rotate Manipulate Evaluate	about in R.E. or a topic that is relevant to the time in the Islamic Calendar (e.g. Ramadhan, Hajj) or
	 Know how to use the 'Layout' tab in Microsoft Word to change the orientation of a document. Know how to add, remove and format a slide in Microsoft PowerPoint. Know how to insert pictures alongside text. Know how to manipulate pictures using the 'Format' tab to rotate, bring forwards and backwards. Know how to copy and paste texts and images Know how to evaluate own and peers work by commenting on its effectiveness against given criteria. Know how to input information to create a chosen output - e.g. graph, and insert to a document. Use at least two different types of software to present information. Know that information can be imported and exported via external drives e.g. USB Use search technologies effectively Navigate the web to complete simple searches Know that the internet contains fact, fiction and opinions, and how this can affect their reliability. Know a range of safe search options. Know that URL (Uniform Resource Locator) stands for the address of a world wide web page Know how to reach a desired web page. 	Effectiveness Imported Exported USB Input Output URL Reliability	an Islamic Story.
	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 Select and use software to accomplish given goals, e.g. produce and upload a podcast, create a PowerPoint and export as a video • Know and understand how and why 'Transitions' are used when combining multiple slides in a PowerPoint presentation.	Transitions Animations Appropriate Published Edit Improve Manipulate	Talk about when the Prophet shared the Quran with others, why they were in awe of it. In today's time what would people be in awe off? How do you think the prophet may have presented the religion if he lived today?
Year 4	 Know where to locate the 'Transitions' menu in Microsoft PowerPoint. Know how to choose an appropriate transition for purpose and effect. Know and understand how and why 'Animations' are used to manipulate text and images within a slide presentation. Know where to locate the 'Animations' menu in Microsoft PowerPoint. Know how to choose an appropriate animation for purpose and effect. Know how to evaluate, edit and improve own, peers and published work by commenting on its effectiveness against given criteria. Use at least two different types of software to present information. 		When presenting information it could be around a topic you have learnt about in R.E. or a topic that is relevant to the time in the Islamic Calendar (e.g. Ramadhan, Hajj) or an Islamic Story.
Year 5	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	Presentation Diverse Green screen	When presenting information it could be around a topic you have learnt

	 the project. Know how to create more diverse projects e.g. using green screen and animation. 	Cell	Story.
	 Know how to upload a video/image from one location to another. Know how to work collaboratively to create a blog, sharing information and 	Highlight Menu	
	personal views.		
	 Know the difference between a column and a row in a spreadsheet, and understand these are made up of cells. 		
	 Know how to identify and write within a cell Know how to input data by inserting into columns and cells Know how to highlight specific cells to be used to create a chart/graph Know where the 'Insert' – 'Charts' menu is located and how to create the most appropriate chart/graph. 		
	 Use at least two different types of software to present information. Use search technologies effectively 		
	Understand that not all search results are reliable Know that search results vary in reliability, and to be objective when reviewing results.		
Year 6	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 Present data collected in a variety of ways that makes it easy for others to understand	Hyperlink Software Justification Vlog HTML	WW2 PowerPoint Ensure any 'music' added to PowerPoints is either sound effects, nasheeds, quran or voice clips.
	 Know how to add: music, hyperlinks and use slideshow tab edit timings to create powerful presentations. 		
	 Choose the most appropriate software for given tasks, with justification. Know what HTML (Hypertext Markup Language) is and recognise HTML tags Know how to create a webpage using HTML 		
	Work collaboratively to create a piece of work (Google docs/Teams)		
	Use at least two different types of software to present information.		