



**CURRICULUM MAP (Long term plan)**

**SUBJECT : Computing**

**YEAR GROUP: 7**

	<b>Cycle 1 Autumn</b>	<b>Cycle 2 Spring</b>	<b>Cycle 3 Summer</b>
<b>Substantive knowledge –</b> Essential knowledge & conceptual understanding of the National Curriculum	<p><b>Google Drive</b> Networks Creating media Computing systems Data and Information Effective use of tools Safety and Security</p> <p><b>Clear Messaging in digital Media</b> Creating Media Design and Development Effective use of tools</p>	<p><b>Networks from semaphore to internet</b> Creating Media Computer Systems Design and development Effective use of technology Networks Safety and Security</p> <p><b>Modelling data using Spreadsheets</b> Data and Information Effective use of digital tools Programming</p>	<p><b>Programming essentials in Scratch I</b> Algorithms Programming</p> <p><b>Programming essentials in Scratch II</b> Algorithms Design and Development Programming</p>
<b>Disciplinary knowledge - what skills are practised?</b>	<p><b>Google Drive</b> How to navigate to, log in and use Google Drive efficiently.</p> <p>How to navigate to Google Mail and use Pix Brook Academy email</p> <p>Understand the difference, how and when to use CC and BCC, and reply and reply all on email</p> <p>Understand and demonstrate how to compose emails considering email etiquette</p>	<p><b>Networks from semaphore to internet</b> Define what a computer network is and explain how data is transmitted between computers across networks</p> <p>Define ‘protocol’ and provide examples of non-networking protocols</p> <p>List examples of the hardware necessary for connecting devices to networks</p> <p>Compare wired to wireless connections and list examples of</p>	<p><b>Programming essentials in Scratch I</b> Compare how humans and computers understand instructions (understand and carry out)</p> <p>Define a sequence as instructions performed in order, with each executed in turn Predict the outcome of a simple sequence</p> <p>Modify a sequence</p> <p>Define a variable as a name that refers to data being stored by the computer</p>

	<p>Understand and identify the functionality of Google Documents leading to creating a Google document</p> <p>Complete a Google Form</p> <p>Understand and identify the functionality of Google Slides</p> <p>Knowledge of what makes a good and bad presentation, with ability to format a presentation</p> <p><b>Clear Messaging in digital Media</b> Choose search terms relating to a particular issue</p> <p>Use tools to copy an image into another application</p> <p>Identify key features of a good poster</p> <p>Plan a poster to clearly convey a message</p> <p>Choose and download a suitable image</p> <p>Create a poster using a desktop publishing application</p>	<p>specific technologies currently used to implement such connections</p> <p>Define 'bandwidth', using the appropriate units for measuring the rate at which data is transmitted, and discuss familiar examples where bandwidth is important</p> <p>Define what the internet is</p> <p>Explain how data travels between computers across the internet</p> <p>Describe key words such as 'protocols', 'packets', and 'addressing'</p> <p>Explain the difference between the internet, its services, and the World Wide Web</p> <p>Describe how services are provided over the internet</p> <p>List some of these services and the context in which they are used</p> <p>Explain the term 'connectivity' as the capacity for connected devices ('Internet of Things') to collect and share information about me with or without my knowledge (including microphones, cameras, and geolocation)</p> <p>Describe how internet-connected devices can affect me</p> <p>Describe components (servers,</p>	<p>Recognise that computers follow the control flow of input/process/output</p> <p>Predict the outcome of a simple sequence that includes variables</p> <p>Trace the values of variables within a sequence</p> <p>Make a sequence that includes a variable</p> <p>Define a condition as an expression that will be evaluated as either true or false</p> <p>Identify that selection uses conditions to control the flow of a sequence</p> <p>Identify where selection statements can be used in a program</p> <p>Modify a program to include selection</p> <p>Create conditions that use comparison operators (&gt;,&lt;=)</p> <p>Create conditions that use logic operators (and/or/not)</p> <p>Identify where selection statements can be used in a program that include comparison and logical operators</p> <p>Define iteration as a group of instructions that are repeatedly executed</p> <p>Describe the need for iteration</p> <p>Identify where count-controlled iteration</p>
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	<p>Modify a logo using a graphic editing program</p> <p>Choose how to combine text and graphics in a slide</p> <p>Use digital tools to provide feedback on design choices</p> <p>Plan a consistent layout for a set of slides</p> <p>Modify a logo so that it fits in with the planned slide styles</p> <p>Create a styled set of slides based on a plan</p> <p>Search for suitable text for slides</p> <p>Search for and add a suitable image</p> <p>Plan how to deliver a presentation</p>	<p>browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together</p> <p><b>Modelling data using Spreadsheets</b> Identify columns, rows, cells, and cell references in spreadsheet software</p> <p>Use formatting techniques in a spreadsheet</p> <p>Use basic formulas with cell references to perform calculations in a spreadsheet (+, -, *, /)</p> <p>Use the autofill tool to replicate cell data Explain the difference between data and information</p> <p>Explain the difference between primary and secondary sources of data</p> <p>Collect data Analyse data Create appropriate charts in a spreadsheet</p> <p>Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet</p> <p>Analyse data</p> <p>Use a spreadsheet to sort and filter data</p> <p>Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet</p>	<p>can be used in a program</p> <p>Implement count-controlled iteration in a program Detect and correct errors in a program (debugging)</p> <p>Independently design and apply programming constructs to solve a problem (subroutine, selection, count-controlled iteration, operators, and variables)</p> <p><b>Programming essentials in Scratch II</b> Define a subroutine as a group of instructions that will run when called by the main program or other subroutines</p> <p>Define decomposition as breaking a problem down into smaller, more manageable subproblems</p> <p>Identify how subroutines can be used for decomposition Identify where condition-controlled iteration can be used in a program</p> <p>Implement condition-controlled iteration in a program Evaluate which type of iteration is required in a program</p> <p>Define a list as a collection of related elements that are referred to by a single name</p>
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		<p>Use conditional formatting in a spreadsheet</p>	<p>Describe the need for lists</p> <p>Identify when lists can be used in a program</p> <p>Use a list</p> <p>Decompose a larger problem into smaller subproblems</p> <p>Apply appropriate constructs to solve a problem</p>
<p><b>Key questions</b> (What is the learning about?)</p>	<p><b>Google Drive</b> What is a server? When using Google Drive, where is my work being saved?</p> <p>What is included in a good email? What are the email functions CC, BCC, Reply and Reply All</p> <p>What are the formatting features of Google Documents and Google Slides?</p> <p>What makes a bad presentation?</p> <p><b>Clear messaging in digital media</b> What are the search terms needed to find content on the web?</p> <p>What are the features of a good digital poster?</p>	<p><b>Networks - from semaphore to internet</b> What is a network? What are the components needed to make a network? What is network connectivity?</p> <p>What is the internet? Is it a protocol? What are packets?</p> <p>What is the difference between the internet and the world wide web?</p> <p>What services are available to us when using the WWW. How do these services all work together?</p> <p><b>Modelling Data - Spreadsheets</b> How can I analyse and evaluate data to become information</p> <p>Do I know that poor quality data leads to unreliable results, and</p>	<p><b>Programming essentials Scratch I</b> Can a computer do the job of a human? How do computers understand instructions?</p> <p>What are the three programming constructs; sequence, selection, iteration?</p> <p>What is a variable and subroutine? Can a variable change throughout a program?</p> <p>How does Input, Process, Output, Storage relate to programming and computers.</p> <p>How is a condition evaluated?</p> <p>What is the difference between logic and comparison operators?</p> <p>Describe a technique used to debug code.</p> <p><b>Programming essentials Scratch II</b> What is decomposition? How can subroutines be used to decompose code?</p>

	<p>What are appropriate images to be used (free of copyright)?</p> <p>What is a logo? What is a brand colour?</p> <p>What makes a good presentation? Has it conveyed the message / main focus?</p> <p>Can I describe the following: Web browser, Desktop publisher Image editor, Presentation software.</p>	<p>inaccurate conclusions for individuals and organisations.</p>	<p>What are the two types of iteration and where can they be used?</p> <p>What is a list in programming? Why and where can lists be used in programming?</p>
<p><b>Assessment</b></p> <p>Live marking is conducted throughout lessons with verbal feedback and feedback cards given out to students.</p>	<p><b>Google Drive</b> Evidence throughout the unit of work in the logbook.</p> <p><b>Clear messaging in digital media</b> End of unit practical assessment End of unit presentation</p>	<p><b>Networks - from semaphore to internet</b> End of unit test</p> <p><b>Modelling data - Spreadsheets</b> End of unit practical assessment</p>	<p><b>Programming essentials Scratch I</b> End of unit test End of unit practical assessment</p> <p><b>Programming essential Scratch II</b> End of unit test End of unit practical assessment</p>
<p><b>Literacy (L), Numeracy (N), Oracy (O) opportunities</b></p>	<p>Writing and presenting information suitable for audience and purpose (L, O)</p> <p>Timekeeping skills with timed presentations (O)</p>	<p>Understanding Networking and related terminologies (L)</p> <p>Using Microsoft Excel for mathematical calculations (N)</p>	<p>Problem solving and algorithmic thinking (N)</p> <p>Using Microsoft Excel for mathematical calculations (N)</p>
<p><b>Cross Curricular Opportunities</b></p>	<p>Citizenship - recognising e-safety, - learning about creative commons law</p> <p>Geography - review and creation of environmental posters and charities.</p>	<p>History - communication methods over time</p> <p>Geography - spreadsheets showing the size of worldwide cities and flag creation</p>	<p>Music - looking at song and dance through Scratch animations.</p> <p>PE - understanding commands and communication through climber and belayer example</p>



			PE - viewing league tables of sports
SMSC / Character/Careers ( C ) (personal development)	Resilience, initiative, aspiration.	Peer support and experimentation. Confidence. Resilience. Initiative. Video Game responsibility	Integrity. Aspiration, Creativity. Resilience, Initiative, Confidence.
Equality and Diversity	Names and characters used in presentations represent people with disabilities and different ethnicities.	Names and characters used in presentations represent people with disabilities and different ethnicities.	Names and characters used in presentations represent people with disabilities and different ethnicities.
Super Curriculum (personal development)	<p>KS3 IT &amp; Computing club</p> <p>Map of Computer Science: A fantastic short video summarising the field of computer science. <a href="https://www.youtube.com/watch?v=SzJ46YA_RaA">https://www.youtube.com/watch?v=SzJ46YA_RaA</a></p> <p>BBC Click: Weekly BBC television programme covering news and recent developments in the world of consumer technology and innovations. <a href="http://www.bbc.co.uk/programmes/b006m9ry/episodes/player">http://www.bbc.co.uk/programmes/b006m9ry/episodes/player</a></p> <p>Where it all started: Watch TedTalk on The birth of the computer.   George Dyson <a href="https://www.ted.com/talks/george_dyson_the_birth_of_the_computer?language=en">https://www.ted.com/talks/george_dyson_the_birth_of_the_computer?language=en</a></p> <p>Visit: The National Museum of Computing at Bletchley Park</p> <p>The Centre for Computing History in Cambridge</p>		
Careers	<p><b>Google Drive</b> Whole topic is relevant to all careers requiring basic IT skills. <a href="#">Business administration</a> (Lesson 1 and logbook)</p> <p><b>Clear messaging in digital media</b> <a href="#">Marketing and Communication</a> (Lesson 1 and logbook)</p>	<p><b>Networks from semaphore to internet</b> <a href="#">Network Engineer</a></p> <p><b>Data modelling for spreadsheets</b> <a href="#">Data analysis in football</a> <a href="#">Data scientist</a></p>	<p><b>Programming Essentials - Scratch 1</b> <a href="#">Programmer / Coder</a></p> <p><b>Programming Essentials -Scratch 2</b> <a href="#">Programmer / Coder</a></p>
<b>Equality and Diversity</b> Gender Disability Religion Race Sexuality	'I Belong Display' shows a variety computer scientists of different genders and from different race	'I Belong Display' shows a variety computer scientists of different genders and from different ethnicity  Learners will watch a video from one of the "fathers of the internet", Vinton Gray Cerf, who explains the	'I Belong Display' shows a variety computer scientists of different genders and from different ethnicity

		<p>internet and its history alongside opinions from a range of genders and races.</p> <p>Learners will be introduced to protocols for greetings from a range of cultures.</p>	
<p><b>Local Community Links</b></p>			
<p><b>British Values</b>  Democracy  The rule of Law  Individual Liberty  Mutual Respect and Tolerance of others  SMSC  Character Education</p>	<p>Students are taught to understand a range of ways to use technology safely, respectfully, responsibly, and securely, including protecting their online identity and privacy; recognise inappropriate content, contact, and conduct and know how to report concerns  Students can give examples of how to make positive contributions to online debates and discussions  Students can explain how internet use is often monitored (e.g. by my school or internet service provider)  Students are aware of the context of online bullying, online relationships and online privacy and security.  Students develop awareness of copyright laws.  Within lessons children have the opportunity to contribute to discussions, have their opinions heard, view other children’s work and give them feedback.  Students are encouraged to allow everyone to have their say on particular topics and also how</p>	<p>Students can explain the term ‘connectivity’ as the capacity for connected devices (‘internet of things’) to collect and share information about them with or without their knowledge (including microphones, cameras and geolocation).  Students are aware of the context of online bullying, online relationships and online privacy and security.  Within lessons children have the opportunity to contribute to discussions, have their opinions heard, view other children’s work and give them feedback. Students are encouraged to allow everyone to have their say on particular topics and also how to present different pieces of work.  Students are encouraged to allow everyone to have their say on particular topics and also how to present different pieces of work.  Children are taught about the implications of posting negative comments on social media and also the implications of cyber bullying.  Children are taught how to use the</p>	<p>Students learn to create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability.</p> <p>Within lessons children have the opportunity to contribute to discussions, have their opinions heard, view other children’s work and give them feedback. Students are encouraged to allow everyone to have their say on particular topics and also how to present different pieces of work.</p> <p>Students are encouraged to allow everyone to have their say on particular topics and also how to present different pieces of work.</p> <p>Students are taught about the implications of posting negative comments on social media and also the implications of cyber bullying. Children are taught how to use the Internet safely, at school and at home, and how to report any images/messages deemed to be inappropriate. Children are taught about how to leave a positive digital footprint and how this may affect them in later life.</p>

	<p>to present different pieces of work.</p> <p>Children are taught about the implications of posting negative comments on social media and also the implications of cyber bullying. Children are taught how to use the Internet safely, at school and at home, and how to report any images/messages deemed to be inappropriate. Children are taught about how to leave a positive digital footprint and how this may affect them in later life.</p> <p>Children are encouraged to make choices, safe in the knowledge they are in a safe and supportive environment. The school provides boundaries for the children to make choices safely.</p>	<p>Internet safely, at school and at home, and how to report any images/messages deemed to be inappropriate. Children are taught about how to leave a positive digital footprint and how this may affect them in later life.</p> <p>Children are encouraged to make choices, safe in the knowledge they are in a safe and supportive environment. The school provides boundaries for the children to make choices safely.</p> <p>When using the Internet to research different faiths and beliefs, children are encouraged to show levels of respect. Students are taught about their etiquette online and how to engage in an online community positively.</p>	<p>Children are encouraged to make choices, safe in the knowledge they are in a safe and supportive environment. The school provides boundaries for the children to make choices safely.</p> <p>When using the Internet to research different faiths and beliefs, children are encouraged to show levels of respect. Students are</p>
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