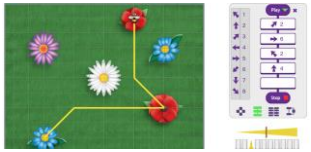
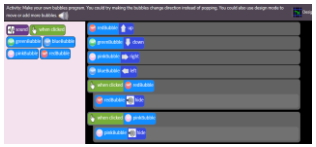
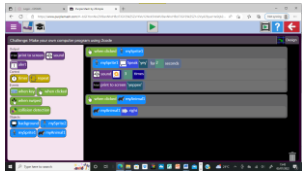
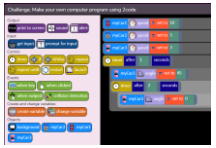
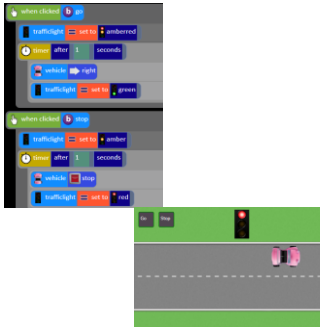
Campton Academy

Progression of Skills in Computing

Key Skills	EYFS	Year 1	Year 2	Year 3	Year 4
Algorithms and programming		Understand what algorithms are and how they are implemented as programs on digital devices. Understand that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	Understand what algorithms are and how they are implemented as programs on digital devices. Understand that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	To design and debug programs that accomplishes specific goals. To design and create programs that uses a sequence. To control physical systems. To use logical reasoning to detect and correct errors in programs. Understand computer networks, the internet and the World Wide Web.	To design and debug programs that accomplishes specific goals. To design and create programs that uses a sequence. To control physical systems. To use logical reasoning to detect and correct errors in programs. Understand computer networks, the internet and the World Wide Web.
Computer Science	Using programmable toys, such as Bee Bots. Using commands: forward, backward, right and left turn Begin with one step instructions. Develop skills and knowledge to program toy to move to a specific location, using multiple step instructions. Access Position and Direction activity – Maths City (Mini Mash) on the Chromebook	Revisit programmable toys. Directing and following instructions, peer to peer. Use program 2Go, similar to Bee Bot, building to multiple step algorithms.  Use 2Code to write simple programmes to enable objects to **move, stop** and **hide**. 	Begin to use more actions in their coding: **repeat, timer, collision detection.** Begin to compare the properties of objects. Select objects to complete a specific purpose. Begin to read and predict the behaviour of simple programs. Begin to identify and correct errors. Use their knowledge to create a more complex program that tells a story. 	Continue to build on knowledge and skills, using more complex actions: **increasing the size and speed of an object, using repeat commands** and **print to screen.** Start to design and code a program that follows a simple sequence. Read code with more steps and predict outcomes more accurately. Begin to use flowcharts to design and create code. Create a program that simulates a physical system: eg vehicles travelling at different speeds and changing direction. 	Improve knowledge and skills using an increasing number of actions: **Variables, If/Else statements, repeat until, user inputs and outputs eg. Print to screen.** Become more intuitive about recognising and debugging their own programs. Design and create code that simulates more real life situations, eg. Traffic lights 

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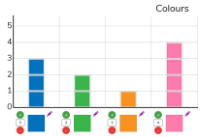
Data **Computer Science** **Information Technology**		Understand what algorithms are and how they are implemented as programs on digital devices.	Understand what algorithms are and how they are implemented as programs on digital devices.	Select, use and combine a variety of software (including internet 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, 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.
	Maths City on Mini Mash to: • Sorting activities • Labelling • Comparing objects • Basic pictorgrams   	**Grouping Data** Exploring object labels, then using them to sort and group objects by properties. • Labelling objects • Identifying objects that can be counted • Describing objects in different ways. • Counting objects with the same properties. • Comparing groups of objects. • Answering questions about groups of objects.	**Questioning/Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer. • Recognising we can count and compare objects using tally charts. • Recognising objects can be represented using pictures. • Creating pictograms. • Select objects by attribute and make comparisons. • Recognise that people can be described as attributes. • Can present information using a computer.	**Branching Databases** Building and using branching databases to group objects using yes/no questions. • To create questions using yes/no answers • To identify the attributes needed to collect data about objects. • Create a branching database. • Explain why it is helpful for a database to be well structured. • To plan the structure of a branching database. • Create a branching database, suggesting real world use.	**Spreadsheets** Answering questions by using spreadsheets to organise and calculate data. • Add data to a spreadsheet. • Explain formulas can be used to produce calculated data. • Apply formulas to data. • Create spreadsheets. • Choose suitable ways to present data.

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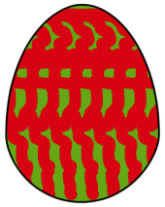
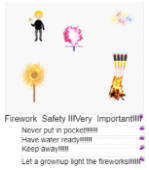
Digital Artefacts **Information Technology** **Digital Literacy**		Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private, identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private, identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly, recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact.	Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly, recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact.
	Digital Art/Imputing Text Begin to choose appropriate tools in program to create art. • Making marks on a screen. • Drawing lines. • Choosing different colours. • Changing the size of the brush/pen. • Recognise letters on a keyboard. • Begin to use the keyboard to input words/labels 	**Using Images/Designing Greeting Cards/E-Book** Choosing appropriate tools in a program to create different media. • Know different paint tools do different jobs. • Choose appropriate paint tools and colours to create art. • Select and input appropriate images. • Understand the difference between clipart and photographic images. • Enter text into a computer. • Use backspace to remove text. • Use the toolbar and capital letters. • Use bold, underline and italics. • Change the style and size of the font. 	**PowerPoint/Leaflets/ Spreadsheets/Photography** Choosing appropriate tools in a program to create different media. • Know how to use the basic functions on desktop publisher software. • Understand cut/copy/paste. • Use desktop publishing software to present ideas. • Know how to take a good photograph. • Take photographs in both landscape and portrait format. • Add photographs to media. 	**I-Movie/Posters/ Animation/PowerPoint** Creating documents by modifying text, images and page layouts for a specific purpose. • Know that text and images can communicate messages clearly. • Editing text. • Use transitions and animations in PowerPoint. • Choosing the best location for content/suitable layout. • Use an i-pad to record short video clips. • Use i-movie software to create short movie, adding captions and photographs.  	**Digital Music/Blogs Spreadsheets/PowerPoint** Use software to create digital music. Designing and creating blog pages. Using desktop publishing to present ideas. • Experiment with rhythm, pitch and tempo. • Create a piece of digital music for a specific purpose. • Create a blog or blog • post with a specific purpose. • understand that the way • in which information is presented has an impact upon the audience. • Awareness of the issues surrounding inappropriate posts and cyberbullying.  

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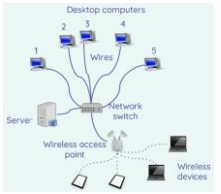
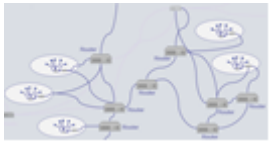
Systems **Computer Science** **Information Technology** **Digital Literacy**		Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private, identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private, identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Use sequence, selection and repetition in programs, work with variables and various forms of input and output Understand computer networks, including the internet, how they can provide multiple services, such as the WWW and the opportunities they offer for communication and collaboration. 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 sequence, selection and repetition in programs, work with variables and various forms of input and output Understand computer networks, including the internet, how they can provide multiple services, such as the WWW and the opportunities they offer for communication and collaboration. 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.
	• Know how to access the software on a Chromebook. • Begin to use touch screen and track pad with more accuracy. • Begin to use the keyboard to input text.	**Technology Around Us** Recognising technology in school and using it responsibly. • Identifying technology • Identifying a computer and its main parts. • Use a mouse in different ways. • Use a keyboard to type on a computer. • Use a keyboard to edit text. • Create rules for using technology responsibly. 	**Information Technology Around Us** Identifying IT and how its responsible use improves our world in school and beyond. • Recognising the uses and features of IT. • Identifying the uses of IT in school. • Identifying IT beyond school. • Explain how IT helps us. • Explain how to use IT safely. • Recognising choices are made when using IT. 	**Connecting Computers** Identifying that digital devices have inputs, processes and outputs, and how devices can be connected to make networks. • Explain how digital devices function. • Identify input and output devices. • Recognise how digital devices can change the way we work. • Explain how a digital network can be used to share information. • Explore how digital devices can be connected. • Recognise the physical components of a network. 	**The Internet** Recognising the internet as a network of networks including the WWW and why we should evaluate online content. • Describe how networks physically connect to other networks. • Recognise of networked devices make up the internet. • How websites can be shared via the WWW. • Describe how content can be added and accessed on the WWW. • Recognise how the content on the WWW is created by people. • Evaluate the consequences of unreliable content. 

Key Skills	EYFS	Year 1	Year 2	Year 3	Year 4
E-Safety		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 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, respectfully and responsibly, recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact.	Use technology safely, respectfully and responsibly, recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact.
Digital Literacy	**ThinkUKnow - Jessie & Friends Watching Videos** Know what to do if they see or hear anything that makes them feel worried scared or sad.  **Childnet - Smartie the Penguin** Covering: • Pop ups and app purchasing • Inappropriate websites for older children. • Cyberbullying  **Childnet - Digiduck - The Big Decision** **Looking at how to be a good friend online.**  **Purple Mash Online Safety** • Use own password and understand need to keep it private. • Create an avatar and understand its use.	**Purple Mash Online Safety** • To save work to the My Work area and understand it is their private space.  **ThinkUKnow - Jessie & Friends Sharing Pictures** Understand how pictures can be widely shared online and the importance of gaining consent before sharing.  **Childnet - Digiduck - Famous Friend** Understanding not everyone online tells the truth, people can pretend to be someone else. 	**ThinkUKnow - Jessie & Friends Playing Games** When playing online games: • Keep personal information private. • Only talk to people they know in real life. • Tell an adult if something happens that makes them feel worried.  **Purple Mash Online Safety** **Passwords** • Understand what makes a good password • Begin to realise the outcomes of not keeping passwords safe. **Email** • Understand how to stay safe when communicating digitally. • Only opening emails from people they know. • Be cautious when opening attachments. **Digital Footprint** • Understand information put online leaves a digital footprint. • Identify the steps that can be taken to keep personal data and hardware secure.	**ThinkUKnow - Play Like Share** Play - playing games online Like - being kind to others online Share - sharing videos and photos online Chat - talking to others online Lock - keeping information private Explore - exploring the internet  **Purple Mash Online Safety** Fact or Fiction • Is what we read on a website always true? • How to check if information is correct. Appropriate Content & Rating • The meaning of age restrictions symbols on digital media and devices. • Why PEGI restrictions exist	**Purple Mash Online Safety** Going Phishing • How children can protect themselves from online identity theft. • To understand that information put online leaves a digital footprint or trail and that this can aid identity theft. Beware Malware • Identifying the risks and benefits of installing software including apps. Plagiarism • Understanding that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • Identifying appropriate behaviour when participating or contributing to collaborative online projects for learning. Healthy Screen-Time • Identifying the positive and negative influences of technology on health and the environment. • To understand the importance of balancing game and screen time with other parts of their lives.