



Progression of knowledge & skills in Computing

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	Computational Thinking	<p>Understand algorithms are sets of instructions Summer One</p> <p>Predict what a simple program eg beebot will do when you press buttons Summer One</p> <p>Understand how algorithms are implemented as programs on devices, eg beebots Summer One</p> <p>Write a simple program on a device eg by pressing buttons on beebot Summer One</p> <p>Understand a problem can be caused by your instructions Summer One</p> <p>Identify problems in an algorithm with support from an adult/peer. Summer One</p> <p>Fix problems with support from an adult/peer. Summer One</p>	<p>Understand the need for precise, unambiguous and ordered instructions. Summer One</p> <p>Understand computers need more precise instructions than humans. Summer One</p> <p>Understand that an algorithm is the written version of these instructions. Summer One</p> <p>Understand that a program is the computer version of these instructions. Summer One</p> <p>Create more precise programs including numbers for steps eg Daisy the Dinosaur or basic Logo Summer One</p> <p>Develop more effective ways to record algorithms. Summer One</p> <p>Identify problems in an algorithm by replaying and seeing where it went wrong. Summer One</p> <p>Correct these errors more independently. Summer One</p>	<p>Write simple program with specific goal in mind eg Logo to draw a shape/pattern Summer One</p> <p>Sequence instructions in a program Summer One</p> <p>Write own simple program and explain what it does Summer One</p> <p>Identify errors in the program independently as linked to the algorithm when it does not achieve the intended goal Summer One</p> <p>Identify linked inputs and outputs through a computer eg microphone → speakers, digital camera → graphics Summer One</p>	<p>Write simple programs which use the repeat function. Summer One</p> <p>Understand what variables are. Summer One</p> <p>Write simple programs which include variables – when if eg to add a score to a game Summer One</p> <p>Explain what the program does in your own words. Summer One</p> <p>Predict the outcome of a program based on a given algorithm Summer One</p> <p>Identify the errors in own program as linked to the algorithm, and correct with peer/adult support Summer One</p> <p>Understand how to decompose a real-life situation eg organising library alphabetically by identifying steps to solving that problem Summer One</p> <p>Understand how inputs and outputs communicate through digitised/analogue code Summer One</p>	<p>Use diagrams to help design and explain algorithms and programs Summer One</p> <p>Create a program to accomplish a specific goal that simulate physical systems eg Tynker, Flowol4 or Go Control Summer One</p> <p>Write programs that include selection if else Then ... Summer One</p> <p>Refine a program using repeat commands to improve the efficiency of a program Summer One</p> <p>Use decomposition by identifying what a program does not do/ does that it shouldn't and break down into the individual errors in own program and correct with increasing independence Summer One</p> <p>Understand the benefit of decomposing is re-using code. Summer One</p> <p>Use variety of inputs eg sensors Summer One</p>	<p>Write programs that include repetition and selection Summer One</p> <p>Write programs that use more than one variable Summer One</p> <p>Revise and improve programs to increase efficiency while programming Summer One</p> <p>Decompose errors into smaller parts and correct independently Summer One</p> <p>Use different inputs to control a device eg Probot, Lego Mindstorm Summer One</p> <p>Re-use code and modify to create a new program. Summer One</p>
	Knowledge of networks	<p>Understand that the school computers are linked together on a network. Spring One, Summer One</p> <p>Understand something that is saved on one computer can be accessed on a different computer on the same network. Spring One, Summer One</p>	<p>Understand the internet is a network which is why you can access the same website in different places and on different devices.</p>	<p>Understand computer networks, including the internet, are made up on computers/devices that are connected together. Summer One</p> <p>Understand the internet can be used to send data around the world. Summer One</p> <p>Identify ways internet can be used for communication eg blog, skype, social networks, emails, game chats Summer One</p>	<p>Understand that computers pass data around networks using radio or satellite signals that cannot be seen (wireless) or through copper/fibre-optic cables (wired) Summer One</p> <p>Understand and experience opportunities for collaboration, eg email, sharing attachments</p>	<p>Understand that data is broken down and sent in small packets and then stitched back together the other end, travelling at near light speed. Spring One</p> <p>Understand and experience opportunities for real-time collaboration eg twiddla, skype Spring One</p>	<p>Know how search engines rank results. Summer One</p> <p>Know how and why websites get their rankings on search engines improved. Summer One</p> <p>Understand and experience opportunities for real-time collaboration to achieve a set goal eg google drive Summer One</p>
Digital Literacy	Online Safety	<p>Understand the internet is good for finding out information and communicating.</p>	<p>Understand the importance of keeping personal information private.</p>	<p>Identify which websites are safe to use Spring One</p>	<p>Understand the risks of communicating with strangers online</p>	<p>Understand what behaviours constitute 'cyberbullying' and</p>	<p>Understand what is appropriate and suitable to say and do on social networking sites</p>



		<p>Spring One Know who to tell and what to do if they see something upsetting online.</p> <p>Spring One Communicate safely and respectfully online.</p> <p>Spring One Write positive comments on the school website/blog.</p> <p>Spring One</p>	<p>Spring One Create an appropriate avatar for use online.</p> <p>Spring One Understand why you should only make friends with people you know in real life.</p> <p>Spring One</p>	<p>Communicate safely and respectfully.</p> <p>Spring One Explain that being unkind to someone online is a form of bullying called 'cyberbullying'.</p> <p>Spring One Know that some things you publish are public and permanent.</p> <p>Choose a safe password.</p> <p>Spring One</p>	<p>and the possibility they may hide their true identity</p> <p>Spring One</p> <p>Protect personal information online, being aware of privacy settings on certain websites.</p> <p>Spring One Understand responsible use of the internet includes choosing age-appropriate websites and apps</p> <p>Spring One</p>	<p>understand the range of device this includes</p> <p>Spring One Understand how to prevent and respond to cyberbullying</p> <p>Spring One Understand the impact of online behaviour on your own and others' relationships</p> <p>Spring One Understand how to be constructive and positive when communicating with others online</p> <p>Spring One</p>	<p>Spring One Understand the impact of online behaviour on your own and others' self-image and reputation</p> <p>Spring One Understand how to be constructive and positive when collaborating with others online</p> <p>Spring One Know who to tell and where to report harmful content including extremist ideologies</p> <p>Spring One</p>
	Using information	<p>Recognise common uses of information technology in the home and school environment.</p> <p>Spring One</p>	<p>Recognise common uses of information technology beyond school</p> <p>Autumn Two</p>	<p>Understand that digital content is owned and you may need to get permission to use some things, eg photostock</p> <p>Autumn One Use keywords effectively on search engines</p> <p>Autumn One</p>	<p>Understand why you need permission to use some digital content eg music</p> <p>Autumn One Use key phrases as well as key words on search engines</p> <p>Autumn One Evaluate whether information found in a search engine is true, useful and relevant.</p> <p>Autumn One</p>	<p>Understand what copyright is.</p> <p>Spring One Use advanced search functions and filters.</p> <p>Spring One Create a bank of trustworthy online sources of information</p> <p>Spring One</p>	<p>Understand the difference between main results and sponsored results.</p> <p>Summer One Understand that search engines collect information about you and this informs pop ups and adverts</p> <p>Summer One</p>
Information Technology	Word Processing	<p>Use keyboard letters, space bar and full stops buttons to type simple sentences onto word processing document.</p> <p>Spring Two</p>	<p>Open and save a document.</p> <p>Summer Two Use caps lock/shift to make capital letters.</p> <p>Summer Two Use delete/backspace to delete.</p> <p>Summer Two Use arrows or mouse to move around document.</p> <p>Summer Two</p>	<p>Change text font, colour and size.</p> <p>Use underline, bold and italics functions.</p> <p>Use enter/return to move down lines.</p>	<p>Use shift plus numbers to add symbols.</p> <p>Summer Two Align text.</p> <p>Summer Two Create own folder.</p> <p>Summer Two Save document to folder.</p> <p>Summer Two</p>	<p>Use mouse to copy and paste. Use thesaurus and spell check features.</p> <p>Check document on print preview and print document for purpose.</p>	<p>Learn keyboard shortcuts and apply when typing a document.</p>
	Animation	<p>Animate a single or pair of characters using an app eg Chatterpix or Puppet Pals.</p> <p>Summer Two</p>	<p>Move a character as part of story. Take turns to record stop-motion animation as whole-class. Add sound supported by the teacher.</p>	<p>Plan, create and record silent animations in groups.</p> <p>Spring One</p>	<p>Add titles to animation. Add sound to animation using a microphone as an input.</p>	<p>Plan, create and record animations with sound and text in pairs.</p> <p>Autumn One</p>	<p>Add transitions and effects to animation.</p>
	Presentations	<p>Create a single slide in a group presentation in a pre-selected slide format.</p>	<p>Create a single slide in a group presentation, selecting slide format. Change font size and colour with audience in mind.</p>	<p>Create several slides in a group presentation.</p> <p>Autumn One Change background design on slide to suit purpose.</p> <p>Autumn One</p>	<p>Insert images and video clips into a presentation.</p> <p>Autumn One Create an individual multi-media presentation.</p> <p>Autumn One</p>	<p>Create an individual multi-media presentation with an audience in mind.</p> <p>Spring One Add transitions and timings between slides.</p> <p>Spring One</p>	<p>Duplicate slides to improve efficiency.</p> <p>Spring Two Add notes to the presentation for the presenter.</p> <p>Spring Two Print slide handouts/notes pages.</p> <p>Spring Two</p>



Audio	Record sound using hardware eg easi-speak mic, talking photo albums. Spring One Replay sound. Spring One	Add sound to an existing project eg film/animation/presentation, supported to speak slowly and audibly into the microphone.	Add sound to short sequences, eg Scratch Junior	Record and edit sound files by adding different effects for a purpose eg adding sound to stop-motion animation. Add sound files to project with support.	Record and edit sound files by adding different effects for a purpose eg adding sound to stop-motion animation. Autumn One Add sound files to project independently. Autumn One	Record and edit sound files by adding different effects and splitting clips for a purpose.
Photography	Use ipad to take photo of still object. Autumn One, Spring One Press record button to take photo. Autumn One, Spring One Look at photo afterwards. Autumn One, Spring One	Use ipad to take photo of moving object/person. Autumn One Understand effect of movement. Autumn One Understand difference between landscape/portrait orientation. Autumn One	Select photos based on success criteria. Delete rejected photos. Upload photos with support. Spring Two Use a printer as an output to print photos for a purpose eg create a display. Spring Two	Upload photographs onto a computer, creating and editing an album. Summer One Name album. Summer One Look at album through thumbnails. Summer One	Plan and take photos in different settings, understanding the effects of lighting and composition. Autumn One	Explore editing photos eg through filters. Summer Two
Film	Use ipad to record short film. Press record button to start and stop filming. Replay the film.	Understand the importance of holding a recording device still when moving during filming. Autumn Two Pan around a scene slowly. Autumn Two Delete video clips on the ipad. Autumn Two	Create a class film, planning and recording the film in turns. Summer One Upload the film into editing software eg Windows Movie Maker. Summer One Edit film clips with support. Summer One	Plan, record and edit a film with a purpose and chosen audience in mind. Split clips during editing. Add titles and text to films.	Understand different types of shots. Duplicate clips during editing eg to repeat a section to allow enough time for sound clip.	Plan and use different types of shots in film. Summer Two Add transitions and effects to films. Summer Two
Data Handling	Use simple graph-making software, eg www.j2e.com to create simple pictogram to answer a question. Summer One, Summer Two Drag labels. Summer One, Summer Two Use + and - buttons to represent number chosen. Summer One, Summer Two	Use simple graph-making software, eg www.j2e.com to create simple bar chart to answer a question. Type data into table to create bar chart. Print bar chart for purpose.	Use simple graph-making software, eg www.j2e.com to create a simple branching diagram to sort pictures. Spring One Type questions. Spring One Drag pictures to sort them. Spring One Play back the branching diagram as a game. Spring One	Collect data, eg sound, light, temperature, using a simple data logger as an input.	Upload data to computer to view recordings from data logger. Spring One Choose how data is displayed eg bar chart/table/graph. Spring One	Use data logger to collect and present data for a purpose, eg to find sunniest place to put plants in classroom.

*With thanks to Crown Lane Primary School