

**Primary Computing Curriculum
Long Term Plan
For
St James' CE Primary School**



Computing Long Term Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Programming/Control/Instructions
Year 2	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Programming/Control/Instructions
Year 3	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Programming/Control/Instructions
Year 4	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Programming/Control/Instructions
Year 5	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Programming/Control/Instructions
Year 6	Safe and Responsible Use	Digital Literacy	Digital Society	Multimedia	Using Data	Transition project/Famous scientists

Year 1

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> • Know and follow the school's safer internet rules. • Make decisions about whether or not statements or images found on the internet are likely to be true. • Identify different devices that can go on the internet, and separate those that do not. • Identify what things count as personal information. • Identify when inappropriate content is accessed and know how to act appropriately • Use a password to access the secure network and know that it is important to keep this 'safe'. 	<p>Digital Literacy</p> <ul style="list-style-type: none"> • Understand, and begin to use, a range of different technology in and beyond school. • Become skilful in using different tools to control technology. • Begin to develop typing speed and accuracy, using a range of games and programs. • Use the spacebar, back space, enter, shift and arrow keys. • Use technology to combine text with photographs, graphics and drawings. • Add basic effects to sections of text. • Show ideas through mind mapping and storyboarding. • Collaborate on projects/ideas with others. 	<p>Digital Society</p> <ul style="list-style-type: none"> • Recognise uses of technology in their homes and in their community. • Understand that there are online tools that can help them create and communicate. • Be able to use key words search a specific resource for information, under adult supervision. • Understand there are a variety of sources of information and begin to recognise the differences. • Understand the different types of content on websites and that some things may not be true or accurate. • Know what to do with adverts and pop-ups. 	<p>Multimedia</p> <ul style="list-style-type: none"> • Know that multimedia includes sound, text and graphics. • Know that ICT can be used to communicate ideas in different ways. • Recognise that changes can be made to documents to add new ideas or delete unwanted ideas. • Understand the differences between a graphics package and paper based art activities. • Understand digital still or video cameras can capture an image. • Understand that some packages will enable images to be animated. 	<p>Using Data</p> <ul style="list-style-type: none"> • Use ICT to sort / organise objects into groups according to a given criteria; or criteria identified by the child themselves. (This will build on practical class based demonstrations). • Begin to use technology to create graphs and pictograms (Put data into a program) • Be able to interpret a pictogram. • Look at how data is representing digitally, recognising there is a link between data collected and the information presented on screen. • Be aware through a whole class demonstration (IWB) that data logging is a way of monitoring live data. Discuss how 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> • Name different objects that can be controlled – washing machine, microwave, T.V. etc • Know that some devices use a sensor/need a signal to activate them • Know I.T. devices are powered by mains or battery and observe basic safety rules • Play and create simple on screen games. • Give and follow commands (one at a time) to navigate other children () and programmable toys around a course or a familiar journey, including straight and turning movements. • Order and record each step/route referring to the term 'algorithm' (use card icons and templates) • Plan, generate and follow a sequence of commands (actual and

				<p>and when this could be useful.</p> <ul style="list-style-type: none">• With support save work.	<p>on-screen) to complete a given task or problem.</p> <ul style="list-style-type: none">• Explore and create a sequence of commands to reproduce a simple geometric shape or pattern on screen.• Read and predict what will happen from a set of instructions when controlling devices and describe the effects. Test. Make changes to improve Use the word 'debug' to correct any mistakes• Compare real life and virtual situations and make informed choices when exploring what will happen, e.g., colour in a shape, dress teddy. Talk about the rules found in simulations.• Explore and investigate imaginary and virtual worlds (simple simulations) and find out 'what happens if and be aware that different choices can produce different outcomes.• Begin to understand that computers can represent real or imaginary situations and these may not happen in everyday life.
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Year 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> Identify obviously false information in a variety of contexts and begin to evaluate and know that everything on the internet is not true. Understand that websites sometimes include pop-ups that take them away from the main site and how to continue their research. Recognise that a variety of devices connect users with other people and some of the advantages and disadvantages of these. Identify personal information that should be kept private and know what to do and how to act when they feel 	<p>Digital Literacy</p> <ul style="list-style-type: none"> Work on developing typing speed and accuracy. Continue exposure to and increase independency using a range of technology, including cameras, tablets, microphones/recording devices and computers. Word process work-change the font, font size, colour, add images, use text boxes, word art, and cut, copy and paste ensuring they can save and load their work. Create basic presentation, changing the layout of slides and adding/combining images, sounds and animations. Use the skills and techniques learnt to organise, reorganise and communicate ideas for a specific 	<p>Digital Society</p> <ul style="list-style-type: none"> Identify the purposes for using technology in the classroom, at home and in the world around. Find information from a technology based resource such as the Internet, DVD or files on the public drive and talk about the differences and who the information belongs to. Understand that there are online tools that can help them create and communicate. Begin to understand what the Internet is and the purposes that it is used for. 	<p>Multimedia</p> <ul style="list-style-type: none"> Recognise that multimedia includes sound, text and graphics. Show how ICT can be used to communicate ideas in different ways, Know that text comes in different colours, sizes and styles. Recognise that changes can be made to documents to improve appearance and add new ideas. Learn the difference between/ when to use save and save as Talk about their use of text, graphics and sound including how the mood of a piece is changed. 	<p>Using Data</p> <ul style="list-style-type: none"> Use technology to create and amend graphs and pictograms, adding labels and amending the charts as appropriate. Begin to create their own branching database using ICT, identifying objects using yes or no questions. Discuss and use suitable searches.Be able to retrieve and pose questions from information recorded. Use save and save as knowing where the information is stored and how to navigate to the correct locations. Develop an awareness of data logging through the use of various peripheral devices, e.g. thermometers, microscopes, microphones and this can be captured for analysis. 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> Recognise that computers and devices need precise instructions in a program. Plan, generate and follow a sequence of commands to complete a task or problem. Make predictions when controlling devices and describe the outcome/effect. Make changes to improve the effectiveness of commands. Use right angle turns. Record their own sequence of instructions, test and change them (debug) referring to the term 'algorithm' Record a set of repeated sequences.

<p>something is inappropriate.</p> <ul style="list-style-type: none"> • Know it is important to consider other people's feelings on the internet. • Understand that there are different methods of communication and the differences between them. • Know that it is not always possible or correct to copy text and pictures from the internet. • Know how to bookmark and save sites as favourites. 	<p>purpose in different contexts.</p> <ul style="list-style-type: none"> • Use online creative tools such as Wordle to present ideas. • Recognise uses of technology in their homes and in their community and begin to understand that there are online tools that can help them create and communicate. 				<ul style="list-style-type: none"> • Write a simple program and test it. • Understand that there are different ways to create or produce a sequence of commands (algorithm). • Play, explore and create simple on screen games including platform games that has a purpose. • Understand that computer simulations allow the user to explore options and make choices, recognising that different decisions produce different outcomes. • Explore the effects of changing simple variables in models and simulations, asking 'What if?' questions. • Talk about rules found in simulations and how these affect choices
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Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> • Know and follow the school's safer internet rules. • Be able to question the "validity" of what they see on the internet that it may not be accurate or reliable and may be used for bias, manipulation or persuasion. • Use a browser address bar not just search box and shortcuts. • Understand the need for rules to keep them safe when exchanging learning and ideas online. • Recognise the difference between copying the work of others (plagiarism) and re-presenting materials which are new. 	<p>Digital Literacy</p> <ul style="list-style-type: none"> • Understand the purpose of and use independently a range of different technology becoming familiar with a range of devices. • To continue to develop typing speed and accuracy to develop competency in typing. • Take opportunities to make sensible choices about when to use technology, which piece(s) of technology to use, which software/tools they are going to use on the technology and be able to explain their choices to others. • Recognise the key features of different layouts and consider how 	<p>Digital Society</p> <ul style="list-style-type: none"> • Use a range of child friendly search engines to locate different media. • Evaluate different search engines and explain their choices in using these for different purposes. • Know when they are using the Internet and when they are using resources that are stored on their school network or on their personal device. • Recognise where they can save work on the public drive in school and on the Internet. • Begin to identify appropriate places to collaborate and communicate on the Internet and the importance of 	<p>Multimedia</p> <ul style="list-style-type: none"> • Recognise the key features of different layouts and consider why the layouts help to meet the needs of the audience. • Begin to understand that evaluation and improvement is a vital part of a design process and that ICT allows changes to be made quickly and efficiently. • Recognise that ICT can support spelling and talk about the advantages and disadvantages of this. • Compare the different contributions of text from a variety of electronic sources. 	<p>Using Data</p> <ul style="list-style-type: none"> • Build on skills using technology to create graphs and charts, recognise which information is suitable for their topic. • Understand what a database is, and the need to structure information properly. • Understand the advantages of using ICT to sort, interrogate and classify information quickly • Create graphs from pre-made databases, and enter their own data into a database • Generate graphs using these and answer questions by constructing basic queries. 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> • Use the term 'algorithm' when referring to the instructions and component parts of commands and procedures. • Compare and discuss these recognising that algorithms are developed according to a plan and then tested. • Experiment with variables when controlling devices • Use 45, 90, 180 and 360 degree turns in procedures. On and off screen. • Plan, create, test and modify sequences of commands to solve open ended problems using an on screen floor robot, screen turtle or other programmable devices. • Use more advanced Logo programming, including pen up/pen down and repeat

<ul style="list-style-type: none"> • Think before sending and suggest consequences of sending/posting. • Recognise online behaviour that would be unfair and how to report this. 	<p>to meet the needs of the audience e.g. poster, newspaper, menu, instructions, presentations etc.</p> <ul style="list-style-type: none"> • Understand that evaluation and improvement is a vital part of a design process and that ICT allows changes to be made quickly and efficiently. Demonstrate through editing their work. • Work together to collaboratively produce a presentation using cloud /web2 based tools. • Begin to realise that the information they put online leaves a digital footprint or trail and this needs to be managed. • Understand the differences between a word processor and desktop publishing tools and use desktop publishing tools to create posters, leaflets and other documents which 	<p>doing so responsibly.</p> <ul style="list-style-type: none"> • Make safe choices when using the internet and know what to do if they see something inappropriate on the internet according to school's e-safety policy. 	<ul style="list-style-type: none"> • Begin to recognise the features of good page design and multimedia presentations. • Develop increasing sense of audience and purpose • Understand that a digital image can be captured from a number of different devices and that it can be enhanced. • Begin to understand how images from different sources are used to enhance a presentation or communicate an idea • Understand the importance of editing and improving designs. • Understand that film conveys meaning 	<ul style="list-style-type: none"> • Develop skills to know which data needs to be collected and design a questionnaire to aid its collection. • Collect appropriate information, enter it into a database and use the database to answer simple questions • With support create files and folders to store and retrieve data. • Know that data loggers can be used when connected to a computer and also remotely. • With support choose the appropriate sensors to capture and record data in the course of an investigation. 	<p>commands to create patterns. Test, modify and refine sequences, e.g., symmetric and repeating geometric patterns.</p> <ul style="list-style-type: none"> • Use repeat to achieve solutions to tasks • Use and edit a pre-written procedure • Create simple flow diagrams or pictorial sequences of commands using appropriate tools/software to explain and expand their ideas. • Begin to type logo commands to achieve outcomes • Write more complex programs and test them. • Introduce sensors (temperature, light, sound etc) which can be used to 'trigger' actions. • Explore and create simple platform games knowing the steps needed to create them. • Enter data into a simple computer simulation • Talk about when a simulation may be useful, the options and choices. • Make predictions about what will happen.
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	<p>require specific formatting.</p> <ul style="list-style-type: none">• Create a new eBook with a front cover and add or remove pages. Combine text and images within each page and embed sound clips.				
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Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> Recognise social networking sites and social networking features built into other things. Be able to make judgments in order to stay safe, whilst communicating with others online. Know how to respond, if asked for personal information or feel unsafe about content of a message. Identify dangers when presented with scenarios, social networking profiles, etc. Articulate examples of 'acceptable' and 'unacceptable' behaviour online. Recognise that cyber bullying is unacceptable and 	<p>Digital Literacy</p> <ul style="list-style-type: none"> Work together to create a document either on a network and or web based on a topic, area of interest or event which incorporates hyperlinks, images and embedded media/documents to produce a non-linear, interactive presentation. Develop increasing sense of audience, talking about their choices and decisions. Learning to be 'good' digital citizens. Understand there are other methods of communication and begin to know when each of these would be used. Recognise and use key features of layout and use design features such as text boxes, 	<p>Digital Society</p> <ul style="list-style-type: none"> Recognise the different storage areas we use to store our work, images, video and programs on individual devices and on the school network. Use appropriate tools to save and retrieve accessed information, e.g. favourites, history, copy/paste and save as. Understand the lack of anonymity online, everything can be traced (digital footprint.) Develop key questions and key words to search for specific information to answer a problem. Consider effectiveness of key questions on search results and 	<p>Multimedia</p> <ul style="list-style-type: none"> Use the key features of different layouts and apply this knowledge to meet the needs of the audience. Understand that evaluation and improvement is a vital part of a design process and that ICT allows changes to be made quickly and efficiently. Recognise that ICT can automate manual processes (eg. thesaurus, find and replace). Understand the advantages and disadvantages of this Compare the different contributions of sounds, words and images from a 	<p>Using Data</p> <ul style="list-style-type: none"> Plan and create own database, creating fields and applying simple data validation. Determine the data needed to solve a specific problem; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts, using ICT where appropriate. Begin to make choices about how to present data to solve a specific problem - how I.T. can help create graphs for different purposes and some are easier to read than others. Understand how to translate questions into queries to find information e.g. to 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> Plan, create, test and modify sequences of commands to solve open ended problems using an on screen floor robot, screen turtle or other programmable devices. Compare and discuss these recognising that algorithms are developed according to a plan and then tested. Understand it can be easier to plan, test and correct parts of an algorithm separately. Refer to debugging. Use and edit a pre-written procedure in order to debug.

<p>the possible consequence i.e. sanctions in line with the school's policy and wider society.</p> <ul style="list-style-type: none"> • Understand that the internet contains fact, fiction and opinion and begin to distinguish between them. • Understand the need for caution when using an internet search for images and what to do if they find an unsuitable image. (Use different search engines) • Understand the need to keep personal information and passwords private and secure. 	<p>columns and borders etc.</p> <ul style="list-style-type: none"> • Continue to word process using layout, format, graphics and illustrations for different purposes or audiences. • Use I.T. to create a finished product or set of linked products. • Understand that evaluation and improvement is a vital part of a design process and I.T. allows changes to be made quickly and efficiently. • Use appropriate editing tools to ensure their work is clear and error free. • Understand that copying the work of others and presenting it as one's own is called plagiarism. 	<p>refine where necessary.</p> <ul style="list-style-type: none"> • Begin to recognise how information may not be accurate and may be used for bias, manipulation or persuasion. • Identify whether a file has copyright restrictions and can be legally downloaded from the internet and used in their own work. 	<p>variety of electronic sources.</p> <ul style="list-style-type: none"> • Recognise the features of good page design and multimedia presentations apply to own work. • Develop increasing sense of audience and purpose and talk about their choices and decisions. • Demonstrate how a digital image can be captured from a number of different devices and that it can be stored, developed and enhanced • Understand how images from different sources are used to enhance a presentation or communicate an idea • Understand that evaluation and improvement is a vital part of a design processes and ICT allows for to make changes quickly and efficiently • Understand that film conveys meaning and begin 	<p>find the most common etc.</p> <ul style="list-style-type: none"> • Use other software to present these findings as appropriate. • Generate and compare different charts and graphs (using graphing software, database or spreadsheet) and understand that different graphs are used for different purposes. • Begin to use a spread sheet to enter data and create graphs. • Understand that data can be collected more efficiently by data logging devices • Identify opportunities for logging data and follow through simple investigations. 	<ul style="list-style-type: none"> • Use more advanced Logo programming. • Create, test, modify and refine sequences, e.g., more complex symmetric and repeating geometric patterns. • Write a list of commands to produce a pre-drawn shape and amend instructions as required. • Explain commands and procedures including the degrees of turn and direction of their model. • Create simple flow diagrams or pictorial sequences of commands using appropriate tools/software. • Make accurate predictions about the outcome of their program. • Experience a variety of resources to extend understanding and knowledge of programming. • Experiment with variables to control models and simulations.
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			<p>to understand the "language of film"</p> <ul style="list-style-type: none">• Talk about software which allows easy manipulation and creation of sound and music and explain their preferences.• Understand that copyright exists on most recorded music. DRM – Digitally Rights Managed• Know that sound files may have different extension names which only allows them be played on certain devices.• Understand that evaluation and improvement is a vital part of a creative process and ICT allows changes to be made quickly and efficiently.• Know that sound files can be uploaded onto the learning platform and shared across a wider audience.		<ul style="list-style-type: none">• Attach and use sensors to take accurate measurements and record results.• Use sensors to 'trigger' an action such as turning lights on.• Use knowledge of on screen games to plan and create their own showing sequence of steps to create. Include objects to collect, enemies to avoid and animation effects within the game.
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Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> Abide by the school's safer internet rules. Judge what sort of privacy settings might be relevant to reducing different risks. Understand that if they make personal information available online it may be seen and used by others. – Digital footprint. Be aware of the potential risk of providing personal information online. Be able to state the positive and negative impacts of the use of ICT in their own lives and those of their peers and family. Judge when to answer a question online and when not to. 	<p>Digital Literacy</p> <ul style="list-style-type: none"> Use an alternative presentation tool (for example Prezi, Ahead, Keynote) to create a presentation linking into a topic, area of interest or event. Continue to create non-traditional presentations, including story boarding, web based work based on topics, area of interest or events, increasing the complexity of these sites. Continue to regularly use word processing and desktop publishing to present their work. Continue to use ICT to create a finished product or set of linked products, developing 	<p>Digital Society</p> <ul style="list-style-type: none"> Recognise the World Wide Web as part of the Internet and the ways they can connect to the Internet. Use appropriate strategies for finding, critically evaluating, validating and verifying information. Understand that content online should not be downloaded or adapted without permission and acknowledgement. Be able to choose to use the internet when appropriate as a tool for independent research, e.g. gathering text, images, videos and sound as resources to use in their own work. 	<p>Multimedia</p> <ul style="list-style-type: none"> Show an increasing awareness of the intended audience and purpose Begin to understand the potential of multimedia to inform or persuade and know how to integrate words, images and sounds imaginatively for different audiences and purposes. Recognise some of the features of good design in different printed and electronic texts. With support, select the most appropriate ICT tools for their intended purpose and audience. Understand the importance of evaluation and adaptation of 	<p>Using Data</p> <ul style="list-style-type: none"> Continue to use the computer and spreadsheets to create and alter graphs and charts. Continue to use, query and create own databases as appropriate, linking into work across the curriculum. Create data collection forms and enter data from these accurately. Begin to explore spreadsheets entering basic formulae. Use appropriate cross curricular links to present these opportunities. Know which formulas to use when changing spreadsheet models. 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> Create and refine sequences of commands using Logo programming, including the use of procedures. Compare and discuss these identifying that algorithms are developed according to a plan and then tested. Make predictions regarding the consequences of decisions when creating sequences of commands. Talk about procedures as parts of a program and refine then to improve efficiency. Combine procedures to form a new procedure. Write programs that include wait and repeat commands, sequences and repetitions.

<ul style="list-style-type: none"> • Know how to be good online citizen and friend, not a 'digital bystander'. Know how to report an incident of cyber bullying. • Articulate what constitutes good and unacceptable behaviour online. • Find and cite the web address for any information or resource found online. • Use different sources to check information found. Recognise why people may publish content that is not accurate. • Know how to create strong passwords and manage them to keep safe. 	<p>consistency in style across linked products.</p> <ul style="list-style-type: none"> • Create using a range of tools, for a specific purpose. • Create websites for a specific purpose and improve these sites. • Use technology to help them present their work, showing an increasing degree of skill and using advanced features of software and tools. • Be able to select tools which they can use to help them achieve a specific aim and justify these choices to others. • Start to independently select ways to communicate their own ideas making sure they adhere to rules of safe and responsible use. • Understand the importance of citing all sources when they do research learning how to add bibliographical citations for online sources. 	<ul style="list-style-type: none"> • Begin to develop more advanced search techniques, e.g. searching for a phrase using quotation marks to locate precise information. • Use their knowledge of domain names and common website extensions, e.g. co.uk, com, ac, sch, org, gov, net, to support validation process. 	<p>individual features to enhance the overall presentation.</p> <ul style="list-style-type: none"> • Know that images (still and moving) are used to enhance presentations or communicate ideas. • Begin to understand the concept of copyright and apply this to their work. • Evaluate and improve as part of a design process • Children discuss and evaluate their own and others' movies and discuss their suitability for the given audience/task. • Continue to develop an understanding of issues relating to copyright of music. • Be aware of different sound file formats (eg MP3, WAV) and understand where they are used. • Identify situations when podcasting has been used as a means of 	<ul style="list-style-type: none"> • Know how to check for and spot inaccurate data. • Develop skills of file and folder management to store own data. • Use a data logger to "snap shot" a series of readings in the course of an appropriate investigation • Investigate changes in the environment using a data logging device to capture measurements (sound, temperature, light) continuously over time. 	<ul style="list-style-type: none"> • Explain what input and output are by showing examples. • Use sensors to measure sound, light or temperature. • Control simple devices by giving direct instructions and combine a series of instructions and procedures. • Change inputs on a model to achieve different outputs. • Refine sequences of commands to control outputs only, e.g., lighting sequences, buzzers and motors. • Create own platform games and apps, beginning to edit existing code. • Explore 3D modelling program to create a virtual environment or representation of an idea. • Explore 'What If, simulations. • Create and use own bar or QR codes to add to posters to link information. • Discuss what 'apps' are and how they are created to fulfil a specific purpose. Begin to design own app identifying need.
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Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Safe and Responsible Use</p> <ul style="list-style-type: none"> Find report and flag buttons in commonly used sites and name sources of help. Know how to report any suspicions. 'Click-CEOP' button and explain to parents what it is for. Discuss scenarios involving online risk and what to do if they discover something malicious or inappropriate. State the source of information found on the internet. Use strategies to verify information, e.g. cross-checking. Understand that the outcome of internet searches at home may be different than at school. 	<p>Digital Literacy</p> <ul style="list-style-type: none"> Continue to create non-traditional presentations, web based work based on topics, area of interest or events, increasing the complexity of these sites, using tools to help them design and create a web based application for smart phones/tablets, giving consideration to the market/audience for their application. Create websites/Life Cloud pages for a specific purpose and improve these sites. Talk through the difference between the Internet and the World Wide Web Continue to use technology to 	<p>Digital Society</p> <ul style="list-style-type: none"> Recognise the different services that are part of the Internet. Be able to choose the most appropriate search engine for a task, e.g. image search, search within a specific site or searching the wider internet. Recognise that search results are selected and ranked. Distinguish between fact and opinion and make informed choices about the sources of information online information used to inform their work. Recognise their responsibility to check copyright and acknowledge where content comes from. 	<p>Multimedia</p> <ul style="list-style-type: none"> Show an increasing awareness of the intended audience and give logical explanations for their choices and decisions. Understand the potential of multimedia to inform or persuade and explain how to integrate words, images, animations and sounds imaginatively for different audiences and purposes. Recognise the features of good design in different printed and electronic texts. Talk about design in context of their own work Independently select the most appropriate tools for their intended purpose and audience. 	<p>Using Data</p> <ul style="list-style-type: none"> Continue to use, search, query and create their own databases as appropriate, linking into work across the curriculum. Linked into a theme, or real life application, create a spreadsheet, enter basic formulae, copy cells and use simple formatting in a spreadsheet (simple calculations and SUM) and change data in a spreadsheet to model situations and answer 'What if...' questions. Know which formulas to use to change spreadsheet models. Understand that ICT allows quick and easy changes to be made to different variables 	<p>Programming/ Control/ Instructions</p> <ul style="list-style-type: none"> Locate errors in commands, procedures and programs and correct them, (debug) showing how knowledge of algorithms helps in this process. Record in some detail the steps (the algorithm) that are required to achieve an outcome and refer to this when programming. Predict the outputs for the steps in an algorithm. Group commands as a procedure to achieve a specific outcome within a program. Alter the program set-up for a particular sensor e.g. time span of recording. Use inputs from sensors to trigger events. Write procedures to switch (control) a

<ul style="list-style-type: none"> • Know that content put online is extremely difficult to remove. • Understand that copyright exists on most digital images, video and recorded music and may not be copied or downloaded <p>Recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing)</p>	<p>present their work which link into a topic, area of interest or event, showing an increasing degree of skill and using appropriate advanced features of software and tools.</p> <ul style="list-style-type: none"> • Create a web based application for a smart phone or tablet with consideration for the audience-containing information about a topic, trip, the school or to support work in other areas of the curriculum. • Continue to regularly use word processing and desktop publishing to present their work, combing formatted text with other media and making choices about programs and features to use and justifying these choices to others. • Understand the importance of evaluation and adaptation of individual features 	<ul style="list-style-type: none"> • Develop skills to question where web content might originate from and understand that this gives clues to its authenticity and reliability, e.g. by looking at web addresses, author, contact us sections, linked pages. • Be able to create and use folders within lists of book marks or favourites to organise content. • Understand appropriate and responsible communication online. 	<ul style="list-style-type: none"> • Explain the importance of evaluation and adaptation of individual features to enhance the overall presentation. • Recognise the concept of copyright and apply this to their work. • Routinely evaluate and improve as part of a design process • Understand the difference between object based graphic packages and paint packages. • Begin to be aware when it is more appropriate to use an object based drawing package than a paint program. • Children discuss and evaluate their own and others' movies and refine for given audience/task • Understand that computers save digital image and graphics as many different file types and that some are better suited to 	<p>once a spreadsheet is set up.</p> <ul style="list-style-type: none"> • Understand that changing the numerical data effects a calculation. • Be able to sort and filter information drawing specific graphs to show data. • Know how to check for and spot inaccurate data. • Talk about how the spreadsheet helps them to manipulate a model easily. • Design an investigation which requires the use of dataloggers recognising what measurements will be needed and the most appropriate means of recording and presenting the data. 	<p>series of devices at the same time.</p> <ul style="list-style-type: none"> • Control on screen mimics and physical devices using one or more input and predict the outputs. • Explore 'What if..?' questions by devising different scenarios for controlled devices. • Plan, create, test, modify and refine control sequences which use inputs and outputs, e.g., using if ... then ... commands to control events taking account of purpose and needs. • Understand how sensors can be used to measure input in order to activate a procedure or sequence and talk about applications in society. • Recognise and explain how different monitoring systems work. • Devise, test and refine more effective control sequences incorporating conditional statements, procedures and sub-routines, taking account of purpose and needs. • Devise, create and develop own games. Use and amend examples of code
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	<p>to enhance the overall product</p> <ul style="list-style-type: none"> • Continue to use I.T. to create a finished product or set of linked products, developing consistency in style across linked products. • Start to independently select ways to communicate their own ideas paying heed to safe and responsible use. 		<p>certain purposes than others.</p> <ul style="list-style-type: none"> • Understand issues relating to copyright of music. • Be aware of different sound file formats (eg MP3, WAV) and save and use appropriately. • Judge when it is appropriate to use podcasting as a means of communication. • Explain reasons behind choices and decisions made. 		<p>from other sources to alter made game.</p> <ul style="list-style-type: none"> • Use 3D modelling program to create a virtual environment or representation of an idea i.e. Google Sketch up. • Create an app to fulfil a specific purpose.
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