Computing Progression Document 21/22

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Computing Intent:

At Crockham Hill CE Primary School our computing curriculum is vital to ensuring that children are educated, informed and computational thinkers. The children study six units each year, these cover the three key elements of computing: digital literacy, computer science and information technology. Additionally, internet and computer safety will be embedded across all units. It is our priority to provide children with the core skills to use any software safely and what to do if they feel unsafe when using them. This will grant the children with the knowledge and experiences they need to become confident users of technology within the digital age.

Year 1- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To become skilful in using different tools to control technology. • To understand the purpose of and begin to use a range of different technology. • To begin to develop typing speed and accuracy to enable independent access to a computer.	• Continue to develop their familiarity with a computer and keyboards • Continue to develop their skills in using a mouse and/or trackpad to control a computer/laptop. • Begin to develop their typing speed, using a range of games and programs in school. Children should also be encouraged to play these games at home. • Continue exposure to a range of technology, including cameras, tablets, microphones/recording devices and computers.	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices
Using the Internet		
• To understand that information comes from different sources e.g., books, web sites, TV etc • To understand that ICT can give access quickly to a wide variety of resources • To talk about their use of ICT and the Internet and other methods to find information • To be able to explore a variety of electronic information as part of a given	• Select appropriate buttons to navigate web sites or stored information • Begin to understand that computers use icons, menus, hyperlinks to provide information and instructions e.g., Select a specific part of the CBeebies site to find an activity • Access different types of information from different sources e.g., using CD players, web sites, TV, video, DVD etc	Icon Menu Hyperlink Instructions Information Safe Search Internet

topic • To know buttons/icons can represent different functions e.g., record, pause, play	***These skills rely on the teacher directing children to specific content. It is not expected for children to do open searching at this stage.***	
Communicating and collaborating online		
• To start to understand that messages can be sent electronically over distances.	• Understand that there are a range of ways that people can communicate and collaborate online. • Contribute ideas to a **class** email and together respond to messages- this can be to real life of 'fictitious' characters.	Email Content Network Message Cyber-Bulling Private Information
Creating and Publishing		
• To use technology to combine text with photographs, graphics, and drawings. • To create their own text-based content, including adding basic effects to sections of text.	• Add text to photographs, graphics, drawings, and sound using a computer. • Use simple authoring tools to create their own content and begin to add basic effects to sections of text, changing the font size and colour.	Save Edit Create Publish Drawing Copy and Paste
Digital Media		
• To know they can explore sound and music using technology and that they can create sound using computer programs. • To know they can record sound using ICT that can be stored and played back • To take photographs for a range of	• Use a computer to compose and record basic rhythms. • Continue to take photographs for a range of different purposes. • Begin to record video • Begin to record sounds using a	Compose Photograph Images Media Videos Sounds

different purposes. • To understand that video can be recorded using technology and to begin to record video. • To understand that a range of different technology can be used to record sounds.	range of different tools.	
Using Data		
• To use ICT to begin to organise items. • To begin to use technology to create graphs and pictograms, recognising there is a link between data collected and the information presented on screen.	• Use ICT to sort objects into groups according to a give criteria, or criteria which the child identifies themselves. • Begin to use technology to create graphs and pictograms.	Data Graphs Pictogram
Programming and Control		
• To understand that devices respond to commands • To begin to understand how a computer processes instructions and commands (computational thinking) • To understand that they can programme a simple sequence of commands into a programmable robot or toy to send it on a route	• Explore a range of control toys and devices • Begin to develop computational thinking by following instructions to move around a course and creating a series of instructions to move their peers around a course • Explore outcomes when individual buttons are pressed on robots, such as floor turtles and combine these together to draw simple shapes or follow a route.	Algorithm Command Sequence Program Patterns Instructions

Modelling and Simulations		
• To understand computers can represent real or fantasy situations • To understand computer representations allows the user to make choices and that different decisions produce different outcomes	• Understand that computers and technology can be used to represent and model situations. • Use an art package or drag and drop software to create a representation of a real or a fantasy situation • Explore a simulation to support a given topic and talk about what happens and why.	Simulation Reality

Year 2- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To continue to develop typing speed and accuracy to enable independent and efficient access to a computer. • To understand the purpose of and begin to independently use a range of different technology.	• Work on developing typing speed, aiming for a minimum speed of 13wpm by the end of the year. • Continue exposure to and increasingly independently use a range of technology, including cameras, tablets, microphones/recording devices and computers	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices Software Hardware Microphone Cameras
Using the Internet		
• To talk about the different forms of information (text, images, sound, multimodal) and understand some are more useful than others • To understand and talk about how the information can be used to answer specific questions • To begin to develop key questions and find information to answer them • To recognise the layout of a web page, recognise web addresses, menu buttons and links	• Recognise that not all information is useful some information is more useful • Use web-based resources to find answers to questions • Develop questions about a specific topic and use information to answer those questions • Begin to navigate within a website using hyperlinks and menu buttons to locate information • Begin to manipulate information using	Icon Menu Hyperlink Instructions Information Safe Search Internet Retrieve Password

• To understand that the internet contains a large amount of information and recognise the need to use search tools and search engines to begin to find information	copy and paste for a specific purpose • Enter given text into a search engine to find specific given web sites • Understand that web sites have a specific address e.g. www.bbc.co.uk/ • Locate links to web sites from Favourites or saved hyperlinks, intranet or from the Learning Platform • Use basic information from the internet.	Personal Information Appropriate Inappropriate
Communicating and collaborating online		
• To start to understand that messages can be sent electronically over distances. • To understand that email can be used to send messages electronically and people can reply to emails	• Look at the different ways that messages can be sent, letters, telephone, email, text, instant messaging etc • Continue to contribute ideas to a **class or group** email and together respond to messages- this can be to real life of 'fictitious' characters.	Email Content Network Message Cyber-Bulling Private Information Texting Instant Messaging Password Digital Footprint
Creating and Publishing		
• To use technology to word process work, making a wide range of edits and using common features of word processing tools.	• Word process work, changing the font, font size, colour and adding images and using text boxes, word art, and cut, copy	Save Edit Create

• To use technology to create basic presentations giving consideration to the layout of slides and combining images and sound. • To use the skills and techniques learnt to organise, reorganise and communicate ideas for a specific purpose in different contexts	and paste ensuring they can save and load their work. • Create basic presentations (for example using Microsoft PowerPoint) changing the layout of slides and adding images and sound.	Publish Drawing Copy and Paste Graphics Digital content
Digital Media		
• To know they can explore sound and music in ICT using keyboards, and onscreen music software • To know they can record sound using ICT that can be stored and played back and independently using a **range of tools** to record sound. • To independently record video and sound using a range of tools. • To use the computer to create basic images. • To choose to take photographs for a range of different purposes.	• *Use a computer to compose and record basic rhythms. (only if not covered in Y1)* • Record video for a range of purposes. • Use a computer to create basic images. • Continue to take photographs for a range of different purposes, developing independence. • Independently record sounds using a range of different tools.	Compose Photograph Images Media Videos Sounds Paint effects Templates Photo Editing Purpose
Using Data		
• To use technology to create graphs and amend created graphs. • To begin to create their own branching databases using ICT, identifying objects and questions to classify data.	• Use technology to create 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.	Data Graphs Pictogram Database Input

		Organise Predict Data Collection Charts
Programming and Control		
• To continue to develop their understanding of how a computer processes instructions and commands. • To understand that devices or on-screen turtles are controlled by sequences of instructions or actions, and that these can be inputted using icons of by text. • To create, edit and refine sequences of instructions for a variety of programmable devices.	• Further develop their understanding of computational thinking. • Continue to explore floor turtles, combining sequences of instructions to follow a pattern or create a shape. • Explore an on-screen turtle navigate it around a course or grid and/or draw shapes by inputting a sequence of instructions. • Begin to understand that the on-screen turtle can be directed through the use of text.	Algorithm Command Sequence Program Patterns Instructions Debug Scripted Sprite Execute Blocks
Modelling and Simulations		
• To use a range of basic simulations to represent real life situations and explore the effects of changing variable and the benefits of using the simulations.	• Enter information into a basic computer simulation and explore the effects of changing the variables in simulations and discuss the benefits of using these simulations. • Discuss their use of simulations and compare with reality	Simulation Reality Variables

Year 3- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To continue to develop typing speed and accuracy to develop competency in typing • To understand the purpose of and use independently a range of different technology. • To make 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.	Throughout KS2 children should: - • Continue to become familiar with a range of devices, for example tablets, desktop computers, laptops, microphones, cameras etc and **increasingly develop their independence and confidence in using these devices.** • Continue to increase their typing speed and be encouraged to play games at home and school which help with this. Aim to reach the accepted competency rate for children of **20WPM** by the end of Year 4. • Be encouraged to increasingly make sensible **choices** about the technology they use to **help** them work, and to justify their choices- for example, why they have chosen to use a *tablet* rather than a laptop, or why they have chosen to use an *easi-speak* microphone rather than the computer to record sound.	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices Software Hardware Microphone Cameras Purpose Evaluating Justify Appropriate Inappropriate
Using the Internet		
• To follow a simple search to find specific information from a web site • To find and use appropriate	• Develop key questions to search for specific information with purpose to answer a problem e.g. to find out about	Icon Menu

information • To identify how different web pages are organised e.g. graphics, hyperlinks, text • To navigate a web page to locate specific information • To know that ICT enables access to a wider range of information and tools to help find specific information quickly • To understand a website has a unique address	different Roman Gods. • Understand how a search engine works and begin to create and enter appropriate search strings. • Save and retrieve accessed information through the use of Favourites, History, and Save As • Understand that some information found through searching is more relevant than others • Use the information purposefully to complete specific tasks e.g. copy, paste and edit relevant information (ref. creating and publishing unit) • Talk about and describe the process of finding specific information	Hyperlink Instructions Information Safe Search Internet Retrieve Password Personal Information Appropriate Inappropriate Intranet/ Internal Network Computer Parts Search Engine
Communicating and collaborating online		
• To understand that Cloud based tools can allow multiple people to contribute to shared documents and Google Sites	• Begin to use on-line tools, such as Google docs and sites to collaborate together- for example by working together to add ideas to a word bank, write a shared story	Email Content Network Message Cyber-Bulling Private Information Texting Instant Messaging Password Digital Footprint

		Evaluating Secure Passwords Report Gaming The Cloud Collaborative
Creating and Publishing		
• To continue to produce work using a computer, using more advanced features of programs and tools. • To work collaboratively together to create documents, including presentations. • To use desk top publishing tools effectively and understand the differences between a word processor and desk top publisher.	• Continue to word process a range of work in other curriculum areas, using more advanced word processing features such as columns and borders. • Work together to collaboratively produce a presentation using cloud based tools. • Understand the differences between a word processor and desktop publishing tools and use desk top publishing tools to create posters, leaflets and other documents which require specific formatting.	Save Edit Create Publish Drawing Copy and Paste Graphics Digital content Multimedia Alignment Repeats Green Screening
Digital Media		
• To understand they can compose music using icons to represent musical phrases • To understand ICT allows easy creation, manipulation and change	• Use a computer to sequence short pieces of music using a small selection of pre-record sounds. • Independently record video for a range of purpose, paying attention	Compose Photograph Images Media

• To know they can record sound using ICT that can be stored and played back and independently using a **range of tools** to record sound. • To independently record video using a range of devices and for a range of purposes. • To independently take photographs taking into account the audience and/or purpose for the image. • To create digital artefacts using photographs which they have taken or found. • To edit photographs using a range of basic tools.	to the quality of the video capture. • Take photographs for a specific reason or project and/or find appropriate images on-line. • Create a video out of still images. • Use the computer to preform photo edits and create a range of digital creations using photos.	Videos Sounds Paint effects Templates Photo Editing Purpose Multimedia Brush Size Pre-recorded Audience Still image
Using Data		
• To understand the basic structure of a database. • To be able to add data to a pre-made database. • To use the data in a pre-made database to generate graphs and charts. • To use technology to create graphs and charts.	• Continue to use technology to create graphs and charts. • Understand which a database is, and the basic structure of a database. • Create graphs from pre-made databases, and enter their own data into a database and generate graphs using these. Use other software to present these findings as appropriate.	Data Graphs Pictogram Database Input Organise Predict Data Collection Charts Questioning Construct

		Contribute Recording Data Data Logger
Programming and Control		
• To continue to develop their understanding of how computer and technology works and how computers process instructions and commands. • To create, edit and refine more complex sequences of instructions for a variety of programmable devices. • To use a computer to create basic applications, investigating how different variables can be changed and the effect this has..	• Continue to develop understanding of how a computer and technology works, focusing on computational thinking. • Begin to plan more complex sequences of instructions for on-screen and floor turtles test and amend these instructions. (e.g. using RoboMind) • Use software to make basic puzzles and quizzes, changing parameters (e.g., time allowed, points, number of pieces etc) to customise the puzzle or quiz (e.g. 2DIY)	Algorithm Command Sequence Program Patterns Instructions Debug Scripted Sprite Execute Blocks Loops Block coding Input Output Manipulate Repetition

Modelling and Simulations		
• To use a range of increasingly simulations to represent real life situations. • Use simulations to make and test predictions.	• Continue to explore simulations as appropriate and as link with other curriculum areas and discuss the benefits of using these simulations • Use simulations to make and test predictions.	Simulation Reality Variables Predictions Representation Appropriate Inappropriate Benefits

Year 4- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To continue to develop typing speed and accuracy to develop competency in typing • To understand the purpose of and use independently a range of different technology. • To make 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.	Throughout KS2 children should:- • Continue to become familiar with a range of devices, for example tablets, desktop computers, laptops, microphones, cameras etc and **increasingly develop their independence and confidence in using these devices.** • Continue to increase their typing speed, and be encouraged to play games at home and school which help with this. Aim to reach the accepted competency rate for children of **20WPM** by the end of Year 4. • Be encouraged to increasingly make sensible **choices** about the technology they use to **help** them work, and to justify their choices- for example, why they have chosen to use a *tablet* rather than a laptop, or why they have chosen to use an *easy-speak* microphone rather than the computer to record sound.	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices Software Hardware Microphone Cameras Purpose Evaluating Justify Appropriate Inappropriate Reliability Information Collection

Using the Internet		
• To draw information from a question to develop keywords to find relevant information e.g. What did Romans eat? • To understand the dynamics of a search engine and know that there are different search engines (some within specific sites e.g. BBC, and some the whole of the Internet e.g. Google, Yahooligans, Ask Jeeves) • To be able to skim read and sift information to check its relevance and modify their search strategies if necessary • To understand that the information they use needs to be appropriate for the audience they are writing for e.g. copying and pasting difficult language • To evaluate different search engines and explain their choices for using these for different purposes • To begin to recognise that anyone can author on the Internet and sometimes authors on the Internet can produce content which is offensive, rude and upsetting and to follow school rules if anything is found	• Know that they can use search engine tools for different types of media e.g. Google Image Search, video, sound but understand that the results are not always what you expect • Be aware that web sites are not always accurate and that information should be checked before it is used. • Develop keywords and enter them into a chosen search engine, using more advanced search engine features. • Present their findings using a word processing or multimedia/publishing package for a specific audience	Icon Menu Hyperlink Instructions Information Safe Search Internet Purpose Retrieve Password Personal Information Appropriate Inappropriate Intranet/ Internal Network Computer Parts Search Engine Different Networks Collection Reliability

Communicating and collaborating online		
To understand a small range of web 2.0 tools that can help them work together and collaborate; forums, shared documents etc • To use the web 2.0 tools to work collaboratively on a project (e.g. sharing comparative data, creating a story) • To understand how e-mails work and be able to send an e-mail, including choosing a suitable subject and entering addresses in the 'to', 'cc' and 'bcc' fields. • To share and exchange their ideas using e-mail and electronic communication- inside the school environment.	• Understand how e-mails work, and send e-mails between people within the Crockham Hill primary domain, including using the 'cc' and 'bcc' fields. • Use e-mail to e-mail work completed in school to their teachers and peers. • Collaborate with peers on a project to produce a finished piece to support topic work- using google documents within the Crockham Hill primary domain. • Contribute/edit/refine contributions to a shared document and understand that all changes are visible	Email Content Network Message Cyber-Bulling Private Information Texting Instant Messaging Password Digital Footprint Evaluating Secure Passwords Report Gaming The Cloud Collaborative CC BCC Domain Comparative Data Subject Exchange

Creating and Publishing		
• To create a website, giving thought to it's audience and including links, images and embedded media and documents. • To understand that evaluation and improvement is a vital part of a design process and ICT allows changes to be made quickly and efficiently	• Work together to create a website based on a topic, area of interest or event (for example using goggle sites) which incorporates hyperlinks, images and embedded media/documents. • Use ICT to create a finished product or set of linked products, making revisions to their work.	Save Edit Create Publish Drawing Copy and Paste Graphics Digital content Multimedia Alignment Repeats Green Screening Creating Modifying Keyboard Shortcuts Bullet Points Spell Check
Digital Media		
• To know they can record sound using ICT that can be stored and played back and independently using a **range of tools** to record sound, choosing appropriate tools for the situation and	• Create simple stop motion animations. • Use a range of devices to create extended pieces of music using a	Compose Photograph Images Media

purpose. • To use a range of technology to sequence sound samples, giving consideration to the audience and purpose. • To create basic stop motion animations using technology. • To independently record video using a range of devices and for a range of purposes. • To use technology to create images and apply effects to these images. • To use technology to edit video, applying basic effects and transitions. • To independently take photographs taking into account the audience and/or purpose for the image.	wide range of pre-recorded samples. • Independently choose to record video for a range of purposes, paying attention to the quality of video capture. • Use a range of tools to create more complex images using a computer (no layering) • Edit video using a range of basic video editing applications. • Continue to take photographs for a specific reason or project and/or find appropriate images on-line.	Videos Sounds Paint effects Templates Photo Editing Purpose Multimedia Brush Size Pre-recorded Audience Still image Stop Motion Animation Modifying
Using Data		
• To continue to use technology, including spreadsheets to create graphs and present data in different ways. • To be able to design and create a basic database, including using basic data validation. • To use a database to answer questions by constructing queries.	• Plan and create their own database, creating fields and applying simple data validation. • Use pre-made databases and those which they have created themselves to answer questions by constructing basic queries. Understand how to translate questions into queries to find information e.g., to find the most	Data Graphs Pictogram Database Input Organise Predict

	common etc. Use other software to present these findings as appropriate • *Begin to use a spread sheet to enter data and create graphs. (2013-14 onwards)*	Data Collection Charts Questioning Construct Contribute Recording Data Data Logger Database creation Database searches Inaccurate Data
Programming and Control		
• To continue to develop their understanding of how computer and technology works and how computers process instructions and commands. • *To create, edit and refine more complex sequences of instructions for a variety of programmable devices* • Use templates on a computer to create a game, which can be controlled by external inputs, changing parameters and algorithms and investigating the effect this has on the response.	• *Begin to plan more complex sequences of instructions for on-screen and floor turtles, test and amend these instructions. (e.g. using RoboMind) (2012-13 only)* • Use computer game design software to plan, design and make their own, multi-level game, controllable by external inputs, changing parameters and responses. (e.gf using 2DIY)	Algorithm Command Sequence Program Patterns Instructions Debug Scripted Sprite Execute Blocks Loops Block coding

		Input Output Manipulate Repetition Sensors Software Reverse engineer Open-ended Complex
Modelling and Simulations		
• To understand that ICT allows for situations to be modelled, or those which it would be impractical to try out in real life and investigate the effect of changing variables in these simulations. • TO use software to model 3D objects made up of cuboids.	• Begin to use software to represent 3D objects or items. • Continue to explore simulations as appropriate and as link with other curriculum areas.	Simulation Reality Variables Predictions Representation Appropriate Inappropriate Benefits Avatar Animation

Year 5- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To continue to develop typing speed and accuracy to develop competency in typing • To understand the purpose of and use independently a range of different technology. • To make 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.	Throughout KS2 children should:- • Continue to become familiar with a range of devices, for example tablets, desktop computers, laptops, microphones, cameras etc and **increasingly develop their independence and confidence in using these devices.** • Continue to increase their typing speed, and be encouraged to play games at home and school which help with this. • Be encouraged to increasingly make sensible **choices** about the technology they use to **help** them work, and to justify their choices- for example, why they have chosen to use a *tablet* rather than a laptop, or why they have chosen to use an *easi-speak* microphone rather than the computer to record sound.	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices Software Hardware Microphone Cameras Purpose Evaluating Justify Appropriate Inappropriate Reliability Update

Using the Internet		
• To use a range of sources to check validity and recognise different viewpoints and the impact of incorrect data • To save and use pictures, text and sound and be able to import into a document for presentation (ref. multimedia presentation) • To recognise that the Internet may contain material that is irrelevant, bias, implausible and inappropriate • To understand the issues of copyright and how they apply to their own work	• Discuss different strategies for finding relevant information e.g. using different keywords to find information on a given enquiry • Use a range of keywords to find different sources of information and enter them into a chosen search engine • Modify searches further to find relevant information for a report • Select and combine information from a range of different sources and present their findings using a word processing or multimedia/publishing package for a specific audience • Be aware that web sites are not always accurate and that information should be checked before it is used. • Discuss issues of copyright and downloading material e.g. mp3s, images, videos etc. Find images which are creative common licenced and understand the importance of stating their sources.	Icon Menu Hyperlink Instructions Information Safe Search Internet Purpose Retrieve Password Personal Information Appropriate Inappropriate Intranet/ Internal Network Computer Parts Search Engine Different Networks Collection Reliability Computing devices Searching Strategies Keywords

		Cached Server Encryption
Communicating and collaborating online		
• To share and exchange their ideas using e-mail and electronic communication- inside the school environment. • To use collaboration tools to work together to produce a joint piece of work	• Continue to use e-mail to e-mail within Crockham Hill primary and to e-mail work completed in and out of school to their teachers and peers. • Collaborate on a project using a range of web 2.0 tools to support their work- including, but not limited to goggle documents and sites (within the Crockham Hill primary domain) • Begin to collaborate with other children outside of Crockham Hill primary (e-safety paramount) • Upload files to an online area e.g. video, photo story, sounds, images	Email Content Network Message Cyber-Bulling Private Information Texting Instant Messaging Password Digital Footprint Evaluating Secure Passwords Report Gaming The Cloud Collaborative CC BCC Domain Comparative Data

		Subject Exchange Responsibility Online Communication Informed Choices Virus Anti-Virus Scam Hacking
Creating and Publishing		
• To create non-traditional presentations using a range of tools, for a specific purpose • To create websites for a specific purpose and improve these sites. • To use technology to help them present their work, showing an increasing degree of skill and using advanced features of software and tools. • To select tools which they can use to help them achieve a specific aim and justify these choices to others.	• Use an alternative presentation tool (for example *Prezi* or *Ahead*) to create a presentation linking into a topic, area of interest or event. • Continue to create websites 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, combing formatted text with other media and making choices about programs and features to use and justifying these choices to others. • Continue to use ICT to create a finished product or set of linked products, developing consistency in style across linked products.	Save Edit Create Publish Drawing Copy and Paste Graphics Digital content Multimedia Alignment Repeats Green Screening Creating

		Modifying Keyboard Shortcuts Bullet Points Spell Check Online sharing Transitions
Digital Media		
• To use technology to electronically compose music or sounds including creating melodies and save these as audio files. • To use technology to capture and edit video, applying a range of different effects and incorporating numerous video clips. • To use technology to create images including using layers. • To understand the difference between an image and a vector drawing. • To independently take photographs and record video taking into account the audience and/or purpose for the image/video.	• Use a range of devices to create music samples and sequence these. • Create and plan film trailers incorporating a range of different scenes and effects. • Use image creation tools to create more complex images, including using layers. Understand the differences between an image and a vector drawing. • Continue to choose to independently record video for a range of purposes. • Continue to take photographs for a specific reason or project and/or find appropriate images on-line.	Compose Photograph Images Media Videos Sounds Paint effects Templates Photo Editing Purpose Multimedia Brush Size Pre-recorded Audience Still image Stop Motion Animation

		Modifying Multimedia effects Complex images Layers Vector .JPEG .PNG .GIF
Using Data		
• To continue to use, search, enter data into and create their own databases • To continue to use technology, including spreadsheets to create graphs and present data in different ways.	• Continue to use the computer and spreadsheets to create and alter graphs and charts. • Continue to use, query and create their own databases as appropriate, linking into work across the curriculum. • If appropriate and cross curricular links present the opportunity, begin to explore spreadsheets entering basic formulae.	Data Graphs Pictogram Database Input Organise Predict Data Collection Charts Questioning Construct Contribute Recording Data Data Logger

		Database creation Database searches Inaccurate Data Spreadsheets Complex Searches Problem Solving Analyse Information Question Data Interpret
Programming and Control		
• To continue to develop their understanding of how computer and technology works and how computers process instructions and commands, including the use of coding languages. • To explore ways in which software can be planned. • To use assisted programing software to create basic software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations.	• Continue to develop an understanding of how technology works, with a focus on developing computational thinking. • Understand that software relies on codes to run and that a range of different coding languages exist. • Explore different ways in which computer software can be planned. • Use a range of assisted programing software (e.g Scratch and/or Kodu) to plan, design and create basic software (for example a simple game), which interact with external controllers (e.g. keyboard and/or mouse). Using the software control the movement and responses of different elements on screen. • Use visual programing based software to	Algorithm Command Sequence Program Patterns Instructions Debug Scripted Sprite Execute Blocks Loops Block coding Input

	plan, design and create basic non-game software which use logic, algorithms and calculations. *(e.g. use scratch to create an interactive maths quiz for a KS1 child)*	Output Manipulate Repetition Sensors Software Reverse engineer Open-ended Complex Explore procedures Refine procedures Variables Hardware Control Software Control
Modelling and Simulations		
• To understand that ICT allows for situations to be modelled, or those which it would be impractical to try out in real life and investigate the effect of changing variables in these simulations. • Know that simulations are often guided by hidden rules • To use software to model 3D objects.	• Use software to create models of 3D objects, landscapes, or items. • Explore a range of increasingly complex simulations, exploring the effect of changing variables and recording the results.	Simulation Reality Variables Predictions Representation Appropriate Inappropriate Benefits

		Avatar Animation 3D model 2D model Landscape Investigate Hidden Rules Modelling

Year 6- Computing Curriculum.

Learning Objectives	Key Skills	Vocabulary
Using technology		
• To continue to develop typing speed and accuracy to develop competency in typing • To understand the purpose of and use independently a range of different technology. • To make 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.	Throughout KS2 children should:- • Continue to become familiar with a range of devices, for example tablets, desktop computers, laptops, microphones, cameras etc and **increasingly develop their independence and confidence in using these devices.** • Continue to increase their typing speed, and be encouraged to play games at home and school which help with this. • Be encouraged to increasingly make sensible **choices** about the technology they use to **help** them work, and to justify their choices- for example, why they have chosen to use a *tablet* rather than a laptop, or why they have chosen to use an *easi-speak* microphone rather than the computer to record sound.	Computer Laptop Keyboard Monitor iPad/ tablet Space Bar Delete Devices Software Hardware Microphone Cameras Purpose Evaluating Justify Appropriate Inappropriate Reliability Update

Using the Internet		
• To check plausibility of information from a variety of sources on the same topic • To use a range of sources to check validity and recognise different viewpoints and the impact of incorrect data • To understand plagiarism and the importance of acknowledging sources	• Understand the dynamics of different search engines and know that there are different search engines which may focus on different media • Modify searches further to find relevant information for a report • Talk about where web content might originate from by looking at web address, author, other linked pages • Talk about validity and plausibility of information by checking other sources • Recognise the impact of using incorrect information in their work • Skim and select information checking for bias and different viewpoints	Icon Menu Hyperlink Instructions Information Safe Search Internet Purpose Retrieve Password Personal Information Appropriate Inappropriate Intranet/ Internal Network Computer Parts Search Engine Different Networks Collection Reliability Computing devices Searching Strategies Keywords

		Cached Server Encryption Information Movement Connecting Devices Different Audiences Research Acknowledge Search Results Resources
Communicating and collaborating online		
• To use appropriate forms of communication to, share information or ideas • To use collaboration tools to work together to produce a joint piece of work with children both inside Crockham Hill primary and in other schools.	• Continue to collaborate on a project using a range of web 2.0 tools to support their work- including, but not limited to, goggle documents and sites- both with children in their class, other classes and children from other schools. • Respond to e-mails sent from outside the Crockham Hill primary domain using their Crockham Hill primary e-mail account. (e-safety paramount) • Talk about the different forms of electronic communication and web 2.0 tools, discuss appropriateness of using different tools in different contexts and the advantages and disadvantages	Email Content Network Message Cyber-Bulling Private Information Texting Instant Messaging Password Digital Footprint Evaluating Secure Passwords Report

		Gaming The Cloud Collaborative CC BCC Domain Comparative Data Subject Exchange Responsibility Online Communication Informed Choices Virus Anti-Virus Scam Hacking
Creating and Publishing		
• To use tools to help them design and create a web based application for smart phones/tablets, giving consideration to the market/audience for their application. • To create websites for a specific purpose and improve these sites. • To use technology to help them present their work, showing an increasing	• Continue to create websites based on topics, area of interest or events, increasing the complexity of these sites. • Continue to create presentations which link into a topic, area of interest or event, choosing an appropriate tool or service • Create a web based application for a smart phone or tablet with consideration for the audience- containing information about a topic,	Save Edit Create Publish Drawing Copy and Paste Graphics

degree of skill and using advanced features of software and tools. • To select tools which they can use to help them achieve a specific aim and justify these choices to others., • Understand the importance of evaluation and adaptation of individual features to enhance the overall product.	trip, the school or to support work in other areas of the curriculum. • *Create a non-linear presentation. (2013-14 onwards)* • 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. • Continue to use ICT to create a finished product or set of linked products, developing consistency in style across linked products.	Digital content Multimedia Alignment Repeats Green Screening Creating Modifying Keyboard Shortcuts Bullet Points Spell Check Online sharing Transitions Audience Atmosphere Structure Copyright

Digital Media		
• *To use technology to electronically compose music or sounds including creating melodies and save these as audio files. (2012-13 only)* • *To begin to recognise the different layers of sound in a professional broadcast and use technology to record and manipulate music/sound refining for a given audience or project (2013-14 onwards)* • To use technology to create a stop motion animations and add audio and video effects to these animations. • To use a computer to add complex effects to photographs and to preform common photograph edits (e.g. red eye removal) • To compare different image creation and editing tools and select the most appropriate tool to use, justifying their choices. • To independently take photographs and record video taking into account the audience and/or purpose for the image/video.	• Use a range of devices to create music samples and sequence these. (*2012-13 only)* • Independently choose and use an appropriate device to record sounds in order to create a sound file and use software manipulate sounds using computer software – e.g. remove unwanted silences/trimming start and end (*2013-14 onwards)*- combine to make a podcast or similar broadcast. • Create stop motion animations and combine with video and audio effects. • Apply more complex effects to photographs using a computer. • Compare and contrast different image creation and editing tools across a range of platforms. • Continue to choose to independently record video for a range of purposes. • Continue to take photographs for a specific reason or project and/or find appropriate images on-line.	Compose Photograph Images Media Videos Sounds Paint effects Templates Photo Editing Purpose Multimedia Brush Size Pre-recorded Audience Still image Stop Motion Animation Modifying Multimedia effects Complex images Layers Vector .JPEG

		.PNG .GIF .RAW Atmosphere Copyright Structure Appropriate tools
Using Data		
• To continue to use, search, enter data into and create their own databases.. • To continue to use technology, including spreadsheets to create graphs and present data in different ways. To be able to design, construct, evaluate and modify simple models i.e. enter data, enter formulae, copy cells and use simple formatting in a spreadsheet. • To use a spreadsheet to draw a graph to show data • To understand that ICT allows quick and easy changes to be made to different variables once a spreadsheet is set up. Talk about how the spreadsheet helps them to manipulate a model easily	• Continue to use, query and create their own databases as appropriate, linking into work across the curriculum • Understand what a spreadsheet is and the basic features of a spreadsheet and how these may be used in real life applications. • Linked into a theme, or real life application, create a spreadsheet, enter basic formulae (simple calculations and SUM) and change data in a spreadsheet to model situations and answer 'What if…' questions.	Data Graphs Pictogram Database Input Organise Predict Data Collection Charts Questioning Construct Contribute Recording Data Data Logger Database creation

		Database searches Inaccurate Data Spreadsheets Complex Searches Problem Solving Analyse Information Question Data Interpret Generate Process Plausibility Interrogate Investigate
Programming and Control		
• To continue to develop their understanding of how computer and technology works and how computers process instructions and commands, including the use of coding languages. • To use assisted programing software to more complex software which interacts with external controllers, and elements on screen, creating algorithms and using logic and calculations. • To control an on-screen icon using	• Continue to explore different ways in which computer software can be planned. • Continue to develop an understanding of how technology works, with a focus on developing computational thinking • *Use a range of visual based programming software (e.g Scratch and Kodu) to plan and design basic software (for example a simple game), controlling the movement and responses of different elements on screen.* • Use a range of visual programing software to plan and design more complex software (for	Algorithm Command Sequence Program Patterns Instructions Debug Scripted Sprite

text based programing, including writing complex written algorithms which involve sensors. • TO begin to write simple scripts in an international recognised coding language	example a multi-level game) • Control an on-screen icon using text-based controls, including responding to sensors and repeating written algorithms (e.g. Robomind) • *Begin to explore text based programing languages and create basic scripts (for example writing a python script to identify if a number is odd or even) (2013-14 onwards)*	Execute Blocks Loops Block coding Input Output Manipulate Repetition Sensors Software Reverse engineer Open-ended Complex Explore procedures Refine procedures Variables Hardware Control Software Control Measure input Created Variables Link Errors Java Binary

Modelling and Simulations		
• To understand that ICT allows for complex situations to be modelled, or those which it would be impractical to try out in real life investigate the effect of changing variables in these simulations. • Know that simulations are often guided by hidden rules • To use software to model 3D objects, working to a scale.	• Use software to create models of 3D objects, landscapes, or items, including creating to scale • Use a range of more complex simulations, exploring the link to 'real life' and the impact of changing variables. Link the work exploring simulations to creating their own basic simulations in excel (see Using Data strand).	Simulation Reality Variables Predictions Representation Appropriate Inappropriate Benefits Avatar Animation 3D model 2D model Landscape Investigate Hidden Rules Modelling Complex Simulation Basic Simulation Software Debug

Internet Safety Links:

https://www.ceop.police.uk/Safety-Centre/

https://saferinternet.org.uk/

https://www.childnet.com/

https://www.internetmatters.org/

https://www.thinkuknow.co.uk/

https://www.childline.org.uk/

Useful Links for Computing:

https://www.purplemash.com/sch/crockham
https://www.cybersmile.org/

www.bbc.com/ownit

https://www.letterjoin.co.uk/log-in.html

https://web.seesaw.me/

https://www.bbc.co.uk/cbbc

https://teachcomputing.org/