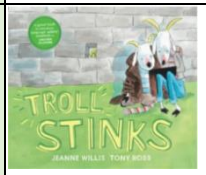
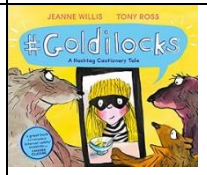
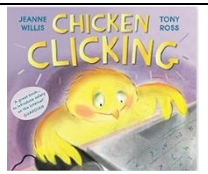
DCAT DIOCESE OF CHICHESTER ACADEMY TRUST	**Long term subject Overview** **Computing**			
National Curriculum expectations	Knowledge	Early Years	Year 1	Year 2
understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions create and debug simple programs use logical reasoning to predict the behaviour of simple programs use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school	**Computer science** Algorithms and programming Data Systems- knowledge of input, process and output	**Personal, Social and Emotional Development** Show resilience and perseverance in the face of a challenge **Garlands galore/ Scarves for snowmen:** Continue, copy and create repeating patterns. Make patterns with varying rules and objects and invite others to continue the pattern **Leaf labyrinth:** Talk about the position of objects to create a challenge **Leaf Labyrinth/Feed the birds/Springtime Seed sequencing:** To produce a sequence from pictures that makes sense.	**Programming Toys** say what an algorithm is • say why it is important to be precise when writing an algorithm; • check their work for mistakes (debug); • program a Bee-Bot (or similar programmable toy) using the arrow buttons; • start their programming sequence again if they need to; • check their work for mistakes to debug a program; • plan and check an algorithm **Programming with Scratch Jnr** open the ScratchJr app and start a new project; • add new characters and backgrounds; • use blocks for movement in different direction.	**Preparing for Turtle Logo** Turn accurately 90° (a quarter turn). • Walk squares and rectangles. • Give and follow instructions. **Programming Turtle, Logo and Scratch** Draw lines of different lengths using the fd command. • Move blocks into the Scripts Area. • Snap blocks together to combine commands Turn the turtle using rt 90 and lt 90. • Draw squares and rectangles. • Create simple algorithms using a number of different blocks. • Use the repeat and green flag blocks to control algorithms.

use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies		**Rabbit Run/Space Chase:** To create an algorithm to send one animal to a fixed destination. **Parts of our body/What is a boat/Colour Collections** : Recognising similarities and differences to identify a pattern. **Build a rocket/amazing aliens/Junk Scarecrows/Colour collections**: To be able to test and debug designs **Make a body:** Refining ideas and developing their ability to represent them. **Look how we grow**: Sorting information provided into groups to spot patterns. **Movement/Build a boat:** Follow an algorithm for a set of movements, adapt and change it and test it to see if it works. **Is this a good boat**: Use logical reasoning to predict whether something will work or not. Explain what they observed to others. Test out a theory to prove/disprove	• create short sets of sequenced instructions • use different end blocks, including repeat forever; • change the size of characters to grow or shrink • hide and show characters with an instruction block • program two or more characters with instructions at the same time.	

		Onboard: To work out how to decompose a task and work collaboratively **Journeys**: think about the concept of sequencing when ordering what they see on their journey. They can consider where objects are in relation to each other within the sequence. **Seaside tangrams:** Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.		
	Information Technology <u>Digital artefacts</u> *anything created digitally such as photographs, films, word docs, presentations, film making & game design* Computing Contexts- how computers can be used purposefully both locally and globally.	**Physical development** Develop their small motor skills so that they can use a range of tools competently, safely and confidently **Expressive Arts and Design** Explore, use and refine a variety of artistic effects to express their ideas and feelings. **Expressive Arts and design**	**Painting** • Paint with different colours. • Paint with different brushes. • Create shapes • Save their paintings in their folder. • Fill an area with a colour. • Undo and redo. • Add text. **Using and Applying** turn on a computer and open an application; • type letters and symbols, including use of the shift key;	**Computer Art** • switch between program tools to produce different techniques; • alter the formatting of a tool to adjust the colour or size recreate a piece of art using a computer program; • manipulate shapes and objects to recreate an art style. **Presentation Skills** Insert slides, add and type in a text box. Create folders.

		Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. **Build a rocket/Amazing Aliens/Junk Scarecrows:** To be able to test and debug designs **Make a body:** Refining ideas and developing their ability to represent them.	• format text in different ways (bold, italic, underline); • draw different shapes using paint software; • use a brush in a paint application and change the size and colour. click, double-click and drag objects; • save and open files; • make shapes [in Paint software] the size they desire; • position shapes correctly; • select and compare different brush types. **Word Processing Skills** Type with two hands. • Use shift, space and enter correctly. • Use undo and redo. • Make text bold, italic or underline • Save their work in their folder. • Edit text using backspace, delete and the arrow keys. • Format the font. • Select single words	• Print files. • Add images. • Format text and text boxes **Using and Applying** find and open software for creating computer art; • add text and images to a presentation; • retrieve/open a file from a saved location; • select a relevant backdrop and character within Scratch; • add a second character and position on the backdrop within Scratch. control the mouse to produce different effects (dots/lines); • use computer paint skills in a new context; • add new slides to a presentation with a main idea on each slide; • insert and reorder slides; • make a character move within Scratch.
	Digital Literacy Mechanics - the knowledge pupils	**Personal, Social and Emotional Development** Know and talk about the different factors that support	**Computer Skills** Click and drag with a mouse or trackpad. • Switch on and shutdown a computer	**Using the Internet** search using the words "for kids"; • follow a weblink; • locate their own blog; • understand how to blog safely and

	need to use devices effectively Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?	their overall health and wellbeing Sensible amounts of 'screen time'. **Managing Self** Explain the reasons for rules, know right from wrong and try to behave accordingly. **Let's make an igloo/Parts of our body/What is a boat**: To refine understanding based on new information given – prediction and explaining	independently. • Launch an application by double clicking it. • Log on and log off on a computer independently. • Manipulate an application window by moving and resizing it. Save their work in their folder	responsibly. identify search results that will give some useful information; • know where to find the address of a link; • log in and post a blog or comments.
	E-safety	• To be able to identify what to do if something online is upsetting or scary. • To understand the importance of not naming yourself online/gaming. • To be able to identify safe places to use screens/devices out of school. • To be able to identify kind and unkind behaviour is the same online as it is offline. • To understand the difference between a	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Use technology safely and respectfully in the context of searching for appropriate images online. • Use technology safely and respectfully in the context of learning about the SMART rules for Internet safety. • Use technology safely and respectfully in the context of keeping personal information safe. • Recognise common uses of information technology	• To understand that the information I put online leaves a digital footprint. • Use technology safely and respectfully in the context of finding relevant information about a destination using keywords. • identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. • To rate and review informative websites. • To be able to identify kind and unkind behaviour online. • To apply knowledge of safe and sensible online activities to different

		secret and a surprise • To be able to understand that we must always be able to share everything we do online with our trusted adults. (voluntarily and when asked)	beyond school in the context of sending an email. • Use technology safely and respectfully in the context of guiding others to make the right choices online.	situations.
	Vocabulary	username, password, stranger danger, online, offline, screen time mouse, keyboard, control	online safety, screen time, offline, website, filename, digital, toolbar, filter, reliable, email program, formatting, manipulate, tool, effects, file, debug	online safety, digital footprint, website, online search, keywords, search engine, content, public, safe, appropriate program, formatting, manipulate, tool, effects, file, debug
	Texts			 
Exceeding the National Curriculum	Enhancements How the curriculum is enriched.		Touch Typing Clicker Widgit	Touch typing

DCAT DIOCESE OF CHICHESTER ACADEMY TRUST	**Long term subject Overview** **Computing**				
National Curriculum expectations	Knowledge	Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use search technologies effectively, appreciate how	**Computer science** Algorithms and programming Data Systems- knowledge of input, process and output Digital Literacy: Mechanics - the knowledge pupils need to use devices effectively	**Programming Turtle, Logo and Scratch** • Create and debug algorithms to draw regular polygons using the repeat command/ block Draw shapes with spaces between using penup and pendown • Change and alter the pen settings	**Pivot Animator** Control and adjust a time slider to locate a different point in a film clip. • Insert images to create a simple stop motion animation short film clip. • Evaluate the advantages and disadvantages of some animation software. Describe one or more traditional methods of animation. • Make slight changes to an image using onion skinning, understanding the term. • Use a time slider to find a specific point in	**Scratch 3.0 Developing Games** Design a set of instructions on paper for a character game, to convert into Scratch algorithm. Design an original character or backdrop for a specific purpose within a computer game. Improve an existing game by adding additional features such as sound, movement or speech bubbles Use forms of animation to create a new computer game, with a specific purpose or goal. Make an object move automatically and change its appearance. Improve the effect of the game by add further costumes and programming costume changes to sprites as a consequence to an event. Complete game playability by adding scoring and levels.	**Kodu Programming** Open Kodu and navigate the programming environment using keyboard or mouse. • Add objects to a world and program them using When and Do instructions. • Plan and design the features of an original virtual environment. • Program a character to move around a track. • Create a path for a character to follow. Follow instructions given in the Kodu programming environment. • Describe the actions of a sequence of Kodu commands.

results are selected and ranked, and be discerning in evaluating digital content select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact			a film clip to insert or edit an object. • Edit and refine images in a stop motion animation short film clip. • Compare different animation software by looking at its advantages and disadvantages. Programming Turtle Logo **Scratch:Questions & Quizzes** Use repetition and selection. • Work with variables and adjust these depending on the effect they wish to create. • Understand and use the duplicate function. • Demonstrate that they understand how to combine a range of different effects to	**Controlling Devices** Follow written instructions to draw a simple flowchart. • Insert symbols into a flowchart. • Add inputs into a flowchart. • Identify conventional symbols, understanding the process of each stage. Create a program to control a simple sequence. • Modify symbols in a flowchart for effect. • Create flowcharts for multiple inputs and outputs. • Use decisions and subroutines. • Program inputs and outputs.	• Use tools to change the size of the ground and raise or lower the landscape. • Decompose code into smaller parts and explain it in their own words. • Create a race track with an end goal for a game. • Program a character to follow a path. **Scratch: Animated Stories** Select appropriate characters to match a scene. • Animate characters with movement and speech in a story scene. • Use broadcast and receive blocks correctly in code. • Use show and hide blocks correctly in code. Create a sequence of story scenes with added audio.

			create their own quiz. Debug a program they have written		• Structure and sequence the animation of characters in each scene. • Use the repeat command to create animation effect. • Make a character visible or invisible at the correct times
	Information Technology <u>Digital artefacts</u> *anything created digitally such as photographs, films, word docs, presentations, film making & game design* Computing Contexts- how computers can be used purposefully both locally and globally. Digital Literacy: Mechanics - the knowledge pupils need to use devices effectively	**Drawing & Desktop Publishing** Draw objects. • Insert text boxes and images. • Order and group objects. • Move, resize and arrange text boxes and images effectively **Presentation Skills** create a simple presentation • create shapes create a hyperlink to another slide • use slide transitions • insert audio and video	**Word Processing** insert an image into a document; • format an image; • use formatting tools to improve the layout; • use the spellcheck tool; • insert a simple table; • change the size of the page. • change the orientation of the page; • copy the URL that they need. use some of the main keyboard shortcuts; • suggest ways to improve a layout; • apply specific effects to an image; • add a spelling to the spelling dictionary; • add or delete rows or	**3D modelling: Sketch Up** Draw 2D shapes or lines. • Draw simple 3D models. • Manipulate 2D shapes into 3D shapes. • Import 3D models from the 3D warehouse. • Use a range of SketchUp tools including: shape, push, pull, orbit, pan, zoom, erase and fill. Draw and manipulate 3D models independently. • Use inference points to draw lines and shapes. • Use a wide range of SketchUp tools and concepts including: the dimensions toolbar and guides, tape measure, zoom extents	**Film making** plan and write a script using appropriate software; • search for relevant information using appropriate websites; • use a digital video camera (or similar device) to record; • plan suitable questions to ask an interviewee; • import video files into video editing software. plan additional elements for film-making such as locations and props; • evaluate whether information is reliable or not; • speak clearly into the

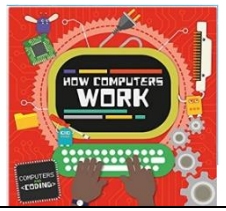
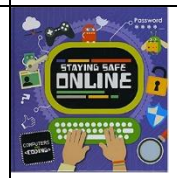
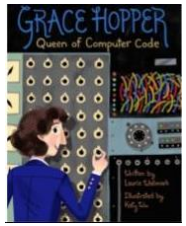
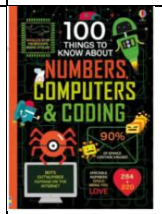
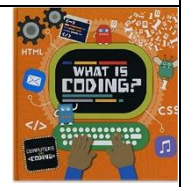
		files (where possible) • record audio onto a slide • plan a branching story • create simple slide templates • copy and organise slides as required **Word Processing** Use undo and redo. • Select text in different ways. • Change case. • Align text. Select single words. • Cut, copy and paste text. • Format the font. • Insert images. • Copy a screenshot into another application. • Use a secure password. • Use <ctrl> keyboard shortcuts **Using & Applying**	columns in a table; • suggest ways to change a table; • type at an appropriate speed; • choose a relevant website to link a document to; • create a hyperlink. **Using and Applying** I can design and create an original character using appropriate software. I can use appropriate software to tell a story involving my new cartoon character. I can use other software to create an additional description or other materials linked to my character. I can combine software to present information about my character	and the 3D warehouse. **Audacity** Record and play their own sounds in recording software • Import an existing sound file into recording software to play • Choose appropriate software for sound recording • Plan and record a radio advert Listen to and improve on their own recordings by re-recording • Locate and download existing sound files to be imported into recording software • Combine two or more tracks to make a new, original recording • Plan and record appropriate audio content for a podcast • Evaluate what features makes good quality audio content	camera when being recorded; • frame an appropriate filming shot when interviewing; • arrange video files to form a complete film. **Spreadsheet** • Enter text and numbers into a spreadsheet. • Identify and refer to cells by row and column. • Begin to enter formulae with the SUM function . • Be able to enter formulae into cells. • Edit data and discuss the effect on results. • Use further functions including AVERAGE, MIN and MAX. • Create graphs. • Design their own spreadsheet for a specific purpose **Using and Applying** I can design a new game, using appropriate software to present information and advertise

		I can draw or design images and import them into other software. I can research and use appropriate information and images using the Internet. I can use effective design and layout in a presentation. I can present information on a particular subject, including accompanying materials **Internet Research & Communication** To know and understand how word order affects the results returned. • They will know how to bookmark or favourite a page and name different types of online communication. • Children will know what to do if they feel uncomfortable when communicating online.		**Using and Applying** I can use search engines safely and effectively to research ideas. I can use and combine appropriate software to draw and design plans and other features. I can use and combine software to present information in different ways.	a product launch. I can present research on game types to inform planning. I can use Scratch or Kodu to create a simple game. I can design appropriate advertising materials to launch or promote a product.

		• They will be able to identify how they should behave online Identify which word order gives the better results when searching online and be able to support this with examples. • They will be able to share a webpage with others. • Children will be able to research the different types of online communication used by their peers.			
	E-safety and Digital Literacy Searching/ selecting information- knowledge of how to search for information effectively. What is	• To know what cyberbullying is and how to address it. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content in the context of	• identify a range of ways to report concerns about content and contact in the context of thinking about how online messages can be hurtful. • I can use a search engine	• identify a range of ways to report concerns about content and contact in the context of identifying and avoiding spam emails. • identify a range of ways to report concerns about content and contact in the context of citing the work of others.	• identify a range of ways to report concerns about content and contact in the context of comparing cyberbullying to bullying in person and developing strategies for dealing with online bullying.

	reliable?	identifying advertisements online. • identify a range of ways to report concerns about content and contact in the context of creating passwords and using privacy settings. To create strong passwords and understand privacy settings. • identify a range of ways to report concerns about content and contact in the context of sending and receiving emails safely. To safely send and receive emails. • identify a range of ways to report concerns about content and contact in the context of exploring the different ways we communicate online. • To use knowledge about online safety	accurately. • identify a range of ways to report concerns about content and contact in the context of finding out about online plagiarism. • identify a range of ways to report concerns about content and contact in the context of creating their own sample online game account, highlighting information which is acceptable to include. • identify a range of ways to report concerns about content and contact in the context of giving	• identify a range of ways to report concerns about content and contact in the context of following rules to help create strong passwords. • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content in the context of finding out how photos can be altered and presented as reality online. • identify a range of ways to report concerns about content and contact in the context of planning a story about the consequences of not following online safety rules. • To apply online safety rules to real-life scenarios.	• identify a range of ways to report concerns about content and contact in the context of identifying secure and unsecure websites. • identify a range of ways to report concerns about content and contact in the context of identifying information that is safe and unsafe to share with online friends. • I can identify how the media play a powerful role in shaping ideas about girls and boys. • identify a range of ways to report concerns about content and contact in the context of

		to plan a party online.	examples of how to be a good digital citizen. • identify a range of ways to report concerns about content and contact in the context of creating an online safety character.		identifying how to behave in a range of online scenarios. • identify a range of ways to report concerns about content and contact in the context of creating an online safety quiz.
Exceeding the National Curriculum	Vocabulary	targeted cyberbullying email address subject privacy settings report block real world virtual world Term 2 branching audio template transition animation slide hyperlink action settings	plagiarism digital citizenship cyberbullying citation online profile password safe/unsafe online digital behaviour real world virtual world	spam citation platforms digital content online behaviour safe/unsafe online reality handle virus filter	secure website (gender) stereotype online friend lock symbol privacy policy SMARTbots handle spam privacy attachments

		embed file format	Term 2 select manipulate layout orientation URL shortcuts hyperlink format image tools	**Term 2** blocks algorithm sequence features design	**Term 2** function row column data results formula(e) enter text edit
	Texts	  	 	  	 

	Enhancements How the curriculum is enriched.				