**Computing Statement of Intent**

Advances in technology impacts on all our lives. Through teaching computing, we aim to equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information. With the knowledge that Computing will undoubtedly continue to form a major part of the children's lives at home, in further education and places of work, we ensure that the experiences and abilities that the children develop at Whinstone are effective and transferrable life skills. We help our children to become creative at computing through the development of the Key Concepts in computing: **programming**, **data handling, communication, online safety, Computer networks and research and multimedia.**

- **Programming** (Computational thinking) involves taking that complex problem and breaking it down into a series of small, more manageable problems (decomposition). Each of these smaller problems can then be looked at individually, considering how similar problems have been solved previously (pattern recognition) and focusing only on the important details, while ignoring irrelevant information (abstraction). Simple steps or rules to solve each of the smaller problems can be designed (algorithms).
- **Data Handling is** gathering and recording statistics and then presenting it in a way that is meaningful to others**.** It is important to understanding how to input data, access it and use the information results (sorting and questioning).
- **Communication** By connecting people around the world and passing on packets of data from sender to recipient, the internet has created many opportunities. These range from communication (such as email, video conferencing, blogs, forums, social networks) and collaboration, such as wikis (including Wikipedia), to real-time collaborative editing.
- **Online Safety** It is crucial that we teach children to develop effective strategies for staying safe in a discriminating and effective way, as well as knowing how to make a positive contribution online. Every class' first computing lesson every half term is a discrete online safety lesson.
- **Computer Networks and Research** Digital technology is a part of all our lives, with almost no sphere untouched by it. Children need to be aware that computers are all around us, ready to be programmed for it to work. Children need to appreciate how a computer works and how to use internet search engines effectively to get the results you want. It relies on specifying the right particular time frame, language, reading level or website.
- **Multimedia skills** which are major factors in enabling children to be confident, creative and independent learners. It is about solving problems and making useful things by the **use of** digital tools, such as spreadsheets, video editing applications and so on. It is our intention that children have every opportunity available to allow them to achieve this, within an ethos where computing impacts on all the subjects of the primary curriculum. Children need to know how to create information using word processing and presentations.
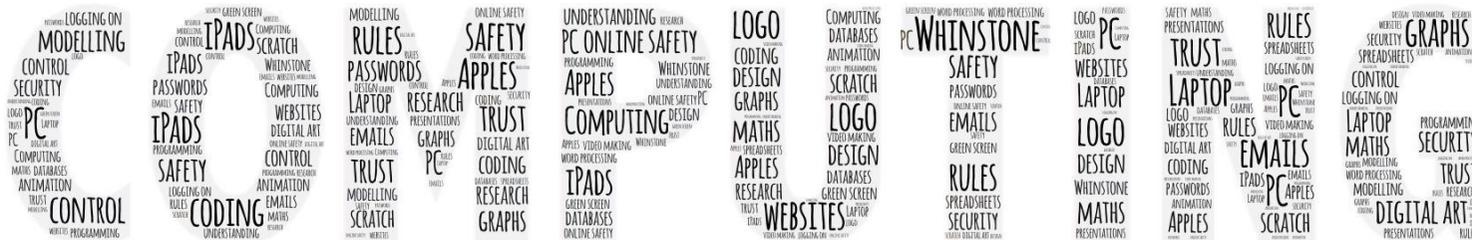
Computing KS2 National Curriculum

Pupils should be taught to:

- 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 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.

Computing Implementation

Computing is taught as an area of learning in its own right, as well as integrated with other curriculum areas where appropriate. There is also flexibility to seize opportunities to celebrate and acknowledge significant events.

Year 4 Computing Implementation – Key Concepts
The Key Concepts of Computing at Whinstone are: • Programming • Data handling • Communication • Computer networks and research • Multimedia • Online Safety

In Year 4 Computing is taught in discrete lessons under the following broad topic headings:					
There is a discrete lesson (first lesson of each half term) reinforcing and developing Online Safety					
Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Photo Stories and Online Safety	Animation Editing with iMovie/clips	Ms Logo/ Scratch/ programming toys	Email Office 365	Word Processing	Games Design

Topic Specific Vocabulary					
Programming	**Data Handling**	**Communication**	**Computer Networks & Research**	**Multimedia**	**Online Safety**
MS LOGO Basic Commands Forward, Back, Right, Left , Pen Up, PenDown, HideTurtle, ShowTurtle Pen erase, Pen Paint, HideTurtle Abbreviated commands for the list above (these can be typed into the command window) FD 200 BK 100 RT 90 LT 90 PU PD HT ST PE PPT CS *Scratch* Scratch, blocks, stage, scripts, sprite, algorithm, backdrop, costumes, coordinates, drawing,		*Email 365* Email address, to, from, cc (carbon copy), subject, spam, email header, email body, email client, attachment, block, deliver, accept, domain name, download, email bouncers, email header, forward, internet, open, subject line		*Photo Comics and Online Safety* Comic, images, fonts, templates, panels, balloons, captions, lettering art, style, photos, script editor, panel description, drag and drop, story, storyboard, storytelling, filter effects, customisable, colour, graphics, text, pictures, writing, draw, create, digital graphic writing, visual graphic dialogue, sequencing *Photo Stories* Comic strip, photo, import, edit, enhance photos, style, effect, titles, backgrounds, presentation, *Animation* Animator, Animation, 2D Animation, 3D Animation, flip book, aspect ratio,	Sharing information, in-app purchases, fake news, reputation, persuasion, monitoring, plagiarism, chat

repeat blocks, cloning, speech bubble, thought bubble, tempo, volume, projects, turn, spin, red flag, motion, loops, Repeat, forever loops, repeat x times loops, forever if loops, If, else, simple variable *Games Design* 2DIY, 3DIY, baddies, treasure, maze, game, player, levels, play, ground, walls, ceiling, sky, scenery, fire, lava, water, background image, movement, spin, character, random, hunt, effects, clip art, screen, Simple Game, My Game Mode, brightness, background music, multi level, painting tools, draw, design, default, built in sounds				background, cell, frame, script, draw, stop motion, sequence, order, storyboard, pixilation *Editing iMovie/Clips Garageband* Import, timeline, title, ending credits Clips, transitions, effects, play full screen, delete clip viewer, video editing, media file, cut, frames, crop marker, audio, video, drag, start, end, screen, frames per second, play head, jpeg, rendering, splitting, toolbar, loops *Word Processing* Type, right hand, left hand, shift, capital letter, undo, redo, backspace, delete, space bar, full stop, number keys, question mark, save, open Enter Key, Open a new page, Print, Cursor,	

				Mouse and Arrow Keys Select a piece of text by Clicking and Dragging, Font Colour, Size, Style Bold, Italic, Underline, caps lock Horizontal Alignment, Vertical Alignment, Bullet Points, Bold, Italics, Word Processing, Read only, Document, Clipboard Clip Art, Drag and drop, Sort, Highlight, Drag-and-drop, Sort, Character, Portrait, Landscape, Spell check, Save, Save as, Text, Underline	

These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone.

Programming	Data Handling	Communication	Computer Networks & Research	Multimedia	Online Safety*
Can debug an algorithm to create a procedure Can create a more complicated set of instructions (algorithm) Can use shortened instructions to create drawn images and text Can use sequence, repetition and variables Can create a game for an intended audience to be shared online		Can use email effectively and safely to communicate with others Understands how to attach documents and send to various recipients (including CC and BCC)		Can manipulate digital images using a range of tools to convey a specific idea Record and present information integrating a range of appropriate media combining text, and image Begin to show an awareness of intended audience and seek feedback online Make short films/ animations that they have sourced, captured or created Create track compositions that contain a variety of sounds Can use and include hyperlinks in creations	Is beginning to understand how information created by others can be copied and shared by others Understands the importance of being kind to people online, and what effect being unkind can have on others feelings and reputation Can recognise persuasive techniques used online (people, adverts, apps) Understands how technology can have an impact on concentration levels and can be a negative distraction Knows how to create a strong password Is beginning to understand that someone may pretend to be someone else online, and suggest reasons why they may do this Knows that the internet is monitored Understands what 'plagiarism' is

*Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (Feb, 2018)

Computing Impact

At the end of each topic teachers will evaluate what knowledge and skills pupils have gained within the Key Concepts.

Online Safety	Discrete lesson (first lesson of each half term)
Self-image and identity	I can explain how my online identity can be different to the identity I present in 'real life'.
	Knowing this, I can describe the right decisions about how I interact with others and how others perceive me.
Online Relationships	I can describe strategies for safe and fun experiences in a range of online social environments.
	I can give examples of how to be respectful to others online.
Online Reputation	I can describe how others can find out information about me by looking online.
	I can explain ways that some of the information about me online could have been created, copied or shared by others.
Online bullying	I can identify some online technologies where bullying might take place.
	I can describe ways people can be bullied through a range of media (e.g. image, video, text, **chat**).
	I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).
Managing online information	I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'.
	I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites).
	I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; **in-app purchases**, pop-ups) and can recognise some of these when they appear online.
	I can explain that some people I 'meet online' (e.g. through social media) may be computer programs pretending to be real people.
	I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.
Health, wellbeing and lifestyle	I can explain how using technology can distract me from other things I might do or should be doing.

	I can identify times or situations when I might need to limit the amount of time I use technology.
	I can suggest strategies to help me limit this time.
Privacy and Security	I can explain what a strong password is.
	I can describe strategies for keeping my personal information private, depending on context.
	I can explain that others online can pretend to be me or other people, including my friends.
	I can suggest reasons why they might do this.
	I can explain how internet use can be monitored.
Copyright and Ownership	When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to use it
	I can give some simple examples.

SKILLS	Meeting expectations
Multimedia Online Safety	**PHOTO COMICS AND ONLINE SAFETY *Link with Autumn Term's Comic Life**
	I can identify how a message can hurt someone's feelings
	I can say how I should respond to a hurtful message online
	I can use a search engine accurately
	I understand the term 'plagiarism' and how to avoid it
	To create a safe online profile
	To explain how to be a responsible digital citizen
	To create an online safety superhero character
Multimedia	**PHOTO STORIES 'Online Safety' comic**
	I can create a comic strip layout using photos in a desktop publisher
	I can edit and enhance photos and text for presentation
	I can arrange and layer objects, including titles and backgrounds

	I can add and arrange photos to a movie presentation, with animated effects
	I can add an audio soundtrack and text captions to a photo sequence
	I can use beginning and ending enhancements to turn a movie maker project into a finished movie file
Multimedia	**ANIMATION *Use I Can Animate on the ipads**
	I can describe early forms of animation before computers and how computers have made a difference
	I can create a short computer animation using one or more moving stick figures
	I can create a recorded animation involving a number of moving characters on a background
	I can structure specific timing of animations using a time slider
	I can use a camera to create a short stop-motion animation film
	I can analyse and evaluate software
Multimedia	**EDITING iMOVIE/CLIPS/GARAGEBAND**
	I can import my digital video footage with one click, and it automatically separates the scenes for you into clips.
	I can pick out the good parts, snip out the slow or boring parts and shuffle scenes around
	I can organise and edit my clips, and trim unwanted parts at the beginnings and endings
	I can edit the scenes in the timeline viewer and synchronise the audio to the video
	I can add haunting visual effects, such as fog and ghost trails, to my movies
	I can arrange the video clips in a sequence using a timeline, adding transitions between scenes.
	I can edit the sound. Video includes sound, and i can add even more sound to a movie
	I can add titles and credits. When I'm done editing, i can add text as end credits, rolling commentary, or opening titles. I can choose from several styles and customise the text colour and font.
	I can save the final version and make copies. I can copy the movie to DVD or save it as a QuickTime file for publishing on the Web
	I can compose my own song in Garageband, using loops
	I can add my own voice in Garageband
Programming	**MS LOGO UNIT MSLOGO Planning**
	I can create and debug an algorithm to create a procedure
	I can create and debug an algorithm that uses setpos to draw shapes
	I can create and debug an algorithm with different colours
	I can create and debug an algorithm to fill areas with colour
	I can create and debug an algorithm to produce text
	I can create and debug an algorithm to draw arcs

Programming	**Learn to Code 1' Book, Lessons 1-4 on Scratch + ipads ALEX APP and children make their own games on Sketch Nation APP SCRATCH QUESTIONS AND ANSWERS**
	I can compare quizzes and decompose a problem into smaller parts
	I can write and debug a program
	I can use sequence and selection
	I can write and debug a program which uses sequence and repetition
	I can work with variables
	I can design, write and debug my own program by selecting appropriate visual block commands to create a sequence
Communication	**EMAIL 365 Planning**
	I can compose an email
	I can open a blank email window
	I can type in the 'To' box, the email address of the recipient
	I can 'cc' send a copy of my email to anyone else
	I can type a message in the main body field of the email
	I can change the font style, colour and size using the formatting icons. I can also create bullet points and check the spelling of my email.
	I can click the Send button at the bottom of the compose window.
Multimedia	**WORD PROCESSING Africa Publisher and Powerpoint Planning**
	I can format images for a purpose
	I can use formatting tools to create an effective layout
	I can use spellcheck tool
	I can insert and format a table in a word processing document
	I can change a page layout for a purpose
	I can create hyperlinks within a word documents
Programming	**Games Design Purple Mash 2DIY 3D Planning**
	I can create a themed maze with 'treasure' and 'baddies' that affect the player's success
	I can add instructions for the game and can choose various customisation options.
	I can make up to 8 baddies and treasure per level of the game. The aim of the game is to avoid the baddies and collect the the treasure.
	I can draw a baddie using the paint tools or use the clipart picker to select some clipart or upload an image from my device.

	I can select a sound effect for the baddie; sometimes it might be better without a sound, especially if you have background music. Clicking will open the sound picker.
	I can decide from the choices, what should happen if the player collides with the baddie.
	I can save Games that I have made and share as 2Dos like any other resource. They can also be shared to display boards and other links