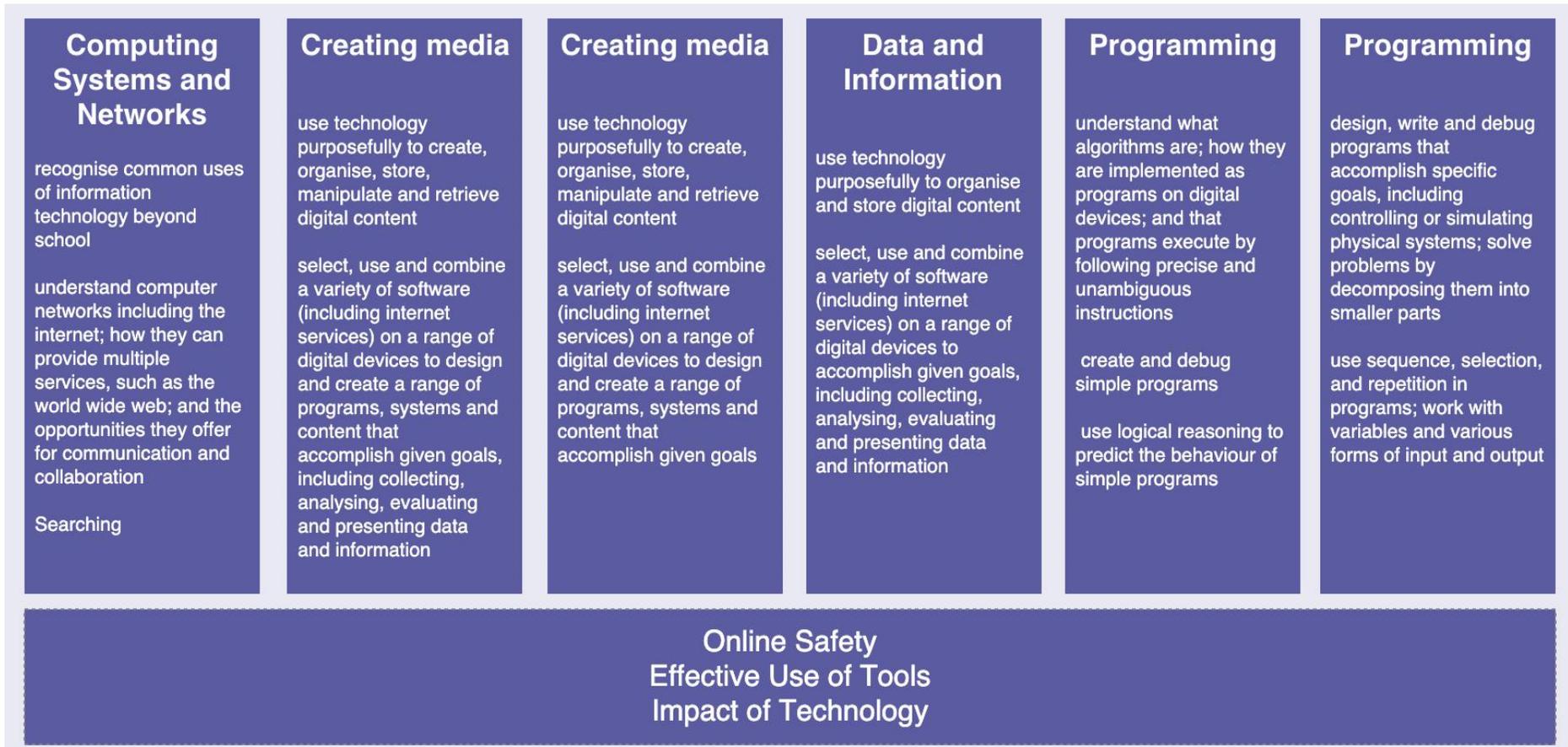




## Computing Statement of Intent

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 ensure that online safety learning outcomes are interpreted within contexts that are relevant to the learner’s experience and are achieved through learning that is matched to the readiness of the learner. We help our children to become creative at computing through the development of the Key Concepts in computing:





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- Algorithms — Be able to comprehend, design, create, and evaluate algorithms
- Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
- Creating media — Select and create a range of media including text, images, sounds, and video
- Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
- Effective use of tools — Use software tools to support computing work
- Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
- Programming — Create software to allow computers to solve problems
- Safety and security — Understand risks when using technology, and how to protect individuals and systems The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.





### **Computing KS1 National Curriculum**

Pupils should be taught:

- 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
- 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.



## Computing Implementation

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

<b>Year 2 Computing Implementation – Key Concepts</b>
<p><b>The Key Concepts of Computing at Whinstone are:</b></p> <ul style="list-style-type: none"> <li>- Computer Systems and Networks</li> <li>- Creating Media</li> <li>- Data and Information</li> <li>- Programming</li> <li>- Safety and Security (Whilst all strands are present at all phases, they are not always taught explicitly.)</li> </ul>

In Year 2 Computing is taught in discrete lessons under the following broad topic headings:					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Computer Systems and Networks</b> Information Technology Around Us	<b>Data and Information</b> Pictograms and Binary Trees	<b>Programming A</b> Quizzes	<b>Creating Media</b> Digital photographs	<b>Programming B</b> Robot algorithms	<b>Creating Media</b> Making Music



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Topic Specific Vocabulary					
Computer Systems and Networks Information Technology Around Us	Data and Information Pictograms and Binary Trees	Programming A Quizzes	Creating Media Digital photographs	Programming B Robot algorithms	Creating Media Making Music
Information technology (IT), computer, barcode, scanner/scan	Pictogram, yes/no questions, binary tree, avatar, Database Debugging, Non-binary Database	Sequence, command, program, outcome, predict, modify, change, debug, evaluate	camera, photograph, capture, Landscape, portrait, Framing, subject, compose, Light sources, flash, focus, background, Editing, filter, format	Instruction, sequence, clear, algorithm, program, order, command, prediction, route, debugging	quiet, loud, feelings, emotions, Pattern, rhythm, pulse, pitch, tempo, notes, instrument, edit

### Key Concepts

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.

*\*Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)*

Computer Systems and Networks Information Technology Around Us	Data and Information Pictograms and Binary Trees	Programming A Quizzes	Creating Media Digital photographs	Programming B Robot algorithms	Creating Media Making Music
To recognise the uses and features of information technology <b>Health, well-being and lifestyle</b>	To recognise that we can count and compare objects using tally charts <b>-Privacy and security</b>	To explain that a sequence of commands has a start	To know what devices can be used to take photographs <b>Self-image and identity</b>	To describe a series of instructions as a sequence	To say how music can make us feel <b>Copyright and ownership</b>
To identify information technology in the home	To recognise that objects can be represented as pictures	To explain that a sequence of commands has an outcome	To use a digital device to take a photograph	To explain what happens when we change the order of instructions	To identify that there are patterns in music



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To identify information technology beyond school	To create a pictogram	To create a program using a given design	To describe what makes a good photograph	To use logical reasoning to predict the outcome of a program (series of commands)	To describe how music can be used in different ways
To explain how information technology benefits us	To select objects by attribute and make comparisons	To change a given design	To decide how photographs can be improved	To explain that programming projects can have code and artwork	To show how music is made from a series of notes
To show how to use information technology safely	To recognise that people can be described by attributes	To create a program using my own design	To use tools to change an image	To design an algorithm	To create music for a purpose
To recognise that choices are made when using information technology	To explain that we can present information using a computer	To decide how my project can be improved	To recognise that images can be changed	To create and debug a program that I have written	To review and refine our computer work

### Computing Impact

At the end of each topic teachers will evaluate what knowledge and skills pupils have gained within the Key Concepts. [Please see the grid below this one for the 'Education for a Connected World' specific 'I can' statements for meeting expectations.](#) Links are shown here but all aspects of the 'Safety and Security' strand will be covered over the school year within assemblies, extra sessions and PHSE lessons.

SKILLS	Learning Objective	Meeting expectations	Education for a Connected World links
<b>Computer Systems and Networks</b> Information Technology Around Us	To recognise the uses and features of information technology	<ul style="list-style-type: none"> <li>- I can describe some uses of computers</li> <li>- I can identify examples of computers</li> <li>- I can identify that a computer is a part of information technology</li> </ul>	Health, well-being and lifestyle
	To identify information technology in the home	<ul style="list-style-type: none"> <li>- I can explain the purpose of information technology in the home</li> <li>- I can move and resize images</li> <li>- I can open a file</li> </ul>	
	To identify information technology beyond school	<ul style="list-style-type: none"> <li>- I can compare types of information technology</li> <li>- I can find examples of information technology</li> <li>- I can talk about uses of information technology</li> </ul>	



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	To explain how information technology benefits us	<ul style="list-style-type: none"> <li>- I can demonstrate how information technology is used in a shop</li> <li>- I can explain how information technology helps people</li> <li>- I can recognise that information technology can be connected</li> </ul>	
	To show how to use information technology safely	<ul style="list-style-type: none"> <li>- I can list different uses of information technology</li> <li>- I can recognise how to use information technology responsibly</li> <li>- I can say how those rules/guides can help me</li> </ul>	
	To recognise that choices are made when using information technology	<ul style="list-style-type: none"> <li>- I can enjoy a variety of activities</li> <li>- I can explain simple guidance for using information technology in different environments and settings</li> <li>- I can identify the choices that I make when using information technology</li> </ul>	
<b>Data and Information</b>			- Privacy and security
Pictograms	To recognise that we can count and compare objects using tally charts	<ul style="list-style-type: none"> <li>- I can compare totals in a tally chart</li> <li>- I can record data in a tally chart</li> <li>- I can represent a tally count as a total</li> </ul>	
	To recognise that objects can be represented as pictures	<ul style="list-style-type: none"> <li>- I can enter data onto a computer</li> <li>- I can use a computer to view data in a different format</li> <li>- I can use pictograms to answer simple questions about objects</li> </ul>	
	To create a pictogram	<ul style="list-style-type: none"> <li>- I can explain what the pictogram shows</li> <li>- I can organise data in a tally chart</li> <li>- I can use a tally chart to create a pictogram</li> </ul>	
	To select objects by attribute and make comparisons	<ul style="list-style-type: none"> <li>- I can answer 'more than'/'less than' and 'most/least' questions about an attribute</li> <li>- I can create a pictogram to arrange objects by an attribute</li> <li>- I can tally objects using a common attribute</li> </ul>	
	To recognise that people can be described by attributes	<ul style="list-style-type: none"> <li>- I can choose a suitable attribute to compare people</li> <li>- I can collect the data I need</li> <li>- I can create a pictogram and draw conclusions from it</li> </ul>	
	To explain that we can present information using a computer	<ul style="list-style-type: none"> <li>- I can give simple examples of why information should not be shared</li> <li>- I can share what I have found out using a computer</li> <li>- I can use a computer program to present information in different ways</li> </ul>	
<b>Programming A</b>			
Quizzes	To explain that a sequence of commands has a start	<ul style="list-style-type: none"> <li>- I can identify that a program needs to be started</li> <li>- I can identify the start of a sequence</li> <li>- I can show how to run my program</li> </ul>	
	To explain that a sequence of commands has an outcome	<ul style="list-style-type: none"> <li>- I can change the outcome of a sequence of commands</li> <li>- I can match two sequences with the same outcome</li> <li>- I can predict the outcome of a sequence of commands</li> </ul>	



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	To create a program using a given design	<ul style="list-style-type: none"> <li>- I can build the sequences of blocks I need</li> <li>- I can decide which blocks to use to meet the design</li> <li>- I can tell the actions of a sprite in an algorithm</li> </ul>	
	To change a given design	<ul style="list-style-type: none"> <li>- I can choose backgrounds for the design</li> <li>- I can choose characters for the design</li> <li>- I can create a program based on the new design</li> </ul>	
	To create a program using my own design	<ul style="list-style-type: none"> <li>- I can build sequences of blocks to match my design</li> <li>- I can choose the images for my own design</li> <li>- I can create an algorithm</li> </ul>	
	To decide how my project can be improved	<ul style="list-style-type: none"> <li>- I can compare my project to my design</li> <li>- I can debug</li> <li>- I can improve my project by adding features</li> </ul>	
<b>Creating Media</b>			- Self-image and identity
Digital photographs	To know what devices can be used to take photographs	<ul style="list-style-type: none"> <li>- I can capture digital photos and talk about my experience</li> <li>- I can sort devices into old and new</li> <li>- I can talk about how to take a photograph</li> </ul>	
	To use a digital device to take a photograph	<ul style="list-style-type: none"> <li>- I can explain the process of taking a good photograph</li> <li>- I can explain why a photo looks better in portrait or landscape format</li> <li>- I can take photos in both landscape and portrait format</li> </ul>	
	To describe what makes a good photograph	<ul style="list-style-type: none"> <li>- I can discuss how to take a good photograph</li> <li>- I can identify what is wrong with a photograph</li> <li>- I can improve a photograph by retaking it</li> </ul>	
	To decide how photographs can be improved	<ul style="list-style-type: none"> <li>- I can experiment with different light sources</li> <li>- I can explore the effect that light has on a photo</li> <li>- I can focus on an object</li> </ul>	
	To use tools to change an image	<ul style="list-style-type: none"> <li>- I can explain my choices</li> <li>- I can recognise that images can be changed</li> <li>- I can use a tool to achieve a desired effect</li> </ul>	
	To recognise that images can be changed	<ul style="list-style-type: none"> <li>- I can apply a range of photography skills to capture a photo</li> <li>- I can identify which images are real and which have been changed</li> <li>- I can recognise which images have been changed</li> </ul>	
<b>Programming B</b>			
Robot algorithms	To describe a series of instructions as a sequence	<ul style="list-style-type: none"> <li>- I can choose a series of words that can be enacted as a sequence</li> <li>- I can follow instructions given by someone else</li> <li>- I can give clear and unambiguous instructions</li> </ul>	
	To explain what happens when we change the order of instructions	<ul style="list-style-type: none"> <li>- I can create different algorithms for a range of sequences (using the same commands)</li> <li>- I can show the difference in outcomes between two sequences that consist of the</li> </ul>	



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		<ul style="list-style-type: none"> <li>same commands</li> <li>- I can use an algorithm to program a sequence on a floor robot</li> </ul>	
	To use logical reasoning to predict the outcome of a program (series of commands)	<ul style="list-style-type: none"> <li>- I can compare my prediction to the program outcome</li> <li>- I can follow a sequence</li> <li>- I can predict the outcome of a sequence</li> </ul>	
	To explain that programming projects can have code and artwork	<ul style="list-style-type: none"> <li>- I can explain the choices I made for my mat design</li> <li>- I can identify different routes around my mat</li> <li>- I can test my mat to make sure that it is usable</li> </ul>	
	To design an algorithm	<ul style="list-style-type: none"> <li>- I can create an algorithm to meet my goal</li> <li>- I can explain what my algorithm should achieve</li> <li>- I can use my algorithm to create a program</li> </ul>	
	To create and debug a program that I have written	<ul style="list-style-type: none"> <li>- I can plan algorithms for different parts of a task</li> <li>- I can put together the different parts of my program</li> <li>- I can test and debug each part of the program</li> </ul>	
<b>Creating Media</b>			Copyright and ownership
Making Music	To say how music can make us feel	<ul style="list-style-type: none"> <li>- I can describe how music makes me feel, e.g. happy or sad</li> <li>- I can identify simple differences in pieces of music</li> <li>- I can listen with concentration to a range of music (links to the Music curriculum)</li> </ul>	
	To identify that there are patterns in music	<ul style="list-style-type: none"> <li>- I can create a rhythm pattern</li> <li>- I can explain that music is created and played by humans</li> <li>- I can play an instrument following a rhythm pattern</li> </ul>	
	To describe how music can be used in different ways	<ul style="list-style-type: none"> <li>- I can connect images with sounds</li> <li>- I can relate an idea to a piece of music</li> <li>- I can use a computer to experiment with pitch and duration</li> </ul>	
	To show how music is made from a series of notes	<ul style="list-style-type: none"> <li>- I can identify that music is a sequence of notes</li> <li>- I can refine my musical pattern on a computer</li> <li>- I can use a computer to create a musical pattern using three notes</li> </ul>	
	To create music for a purpose	<ul style="list-style-type: none"> <li>- I can describe an animal using sounds</li> <li>- I can explain my choices</li> <li>- I can save my work</li> </ul>	
	To review and refine our computer work	<ul style="list-style-type: none"> <li>- I can explain how I made my work better</li> <li>- I can listen to music and describe how it makes me feel</li> <li>- I can reopen my work</li> </ul>	

Online Safety and Security Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)



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SKILLS	Learning Objective	Meeting expectations
<b>Online Safety and Security</b>	Self-image and identity Online relationships	-I can explain how other people may look and act differently online and offline. can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.
	Online reputation Online bullying	-I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). -I can explain who I should ask before sharing things about myself or others online. -I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. -I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. -I can identify who can help me if something happens online without my consent. -I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. -I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.
	Managing online information Health, well-being and lifestyle	-I can explain how information put online about someone can last for a long time. -I can describe how anyone's online information could be seen by others. -I know who to talk to if something has been put online without consent or if it is incorrect.
	Privacy and security	-I can explain what bullying is, how people may bully others and how bullying can make someone feel. -I can explain why anyone who experiences bullying is not to blame. -I can talk about how anyone experiencing bullying can get help.
	Copyright and ownership Self-image and identity Online relationships	-I can use simple keywords in <b>search engines</b> . -I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). -I can explain what <b>voice activated searching</b> is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). -I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. -I can explain why some information I find online may not be real or true.
	Online reputation Online bullying	-I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. -I can say how those rules / guides can help anyone accessing online technologies.
	Managing online information Health, well-being and lifestyle Privacy and security	-I can explain how passwords can be used to protect information, accounts and devices. -I can explain and give examples of what is meant by 'private' and 'keeping things private'.



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		<ul style="list-style-type: none"><li>-I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).</li><li>-I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).</li></ul>
	Copyright and ownership	<ul style="list-style-type: none"><li>-I can recognise that content on the internet may belong to other people.</li><li>-I can describe why other people's work belongs to them.</li></ul>