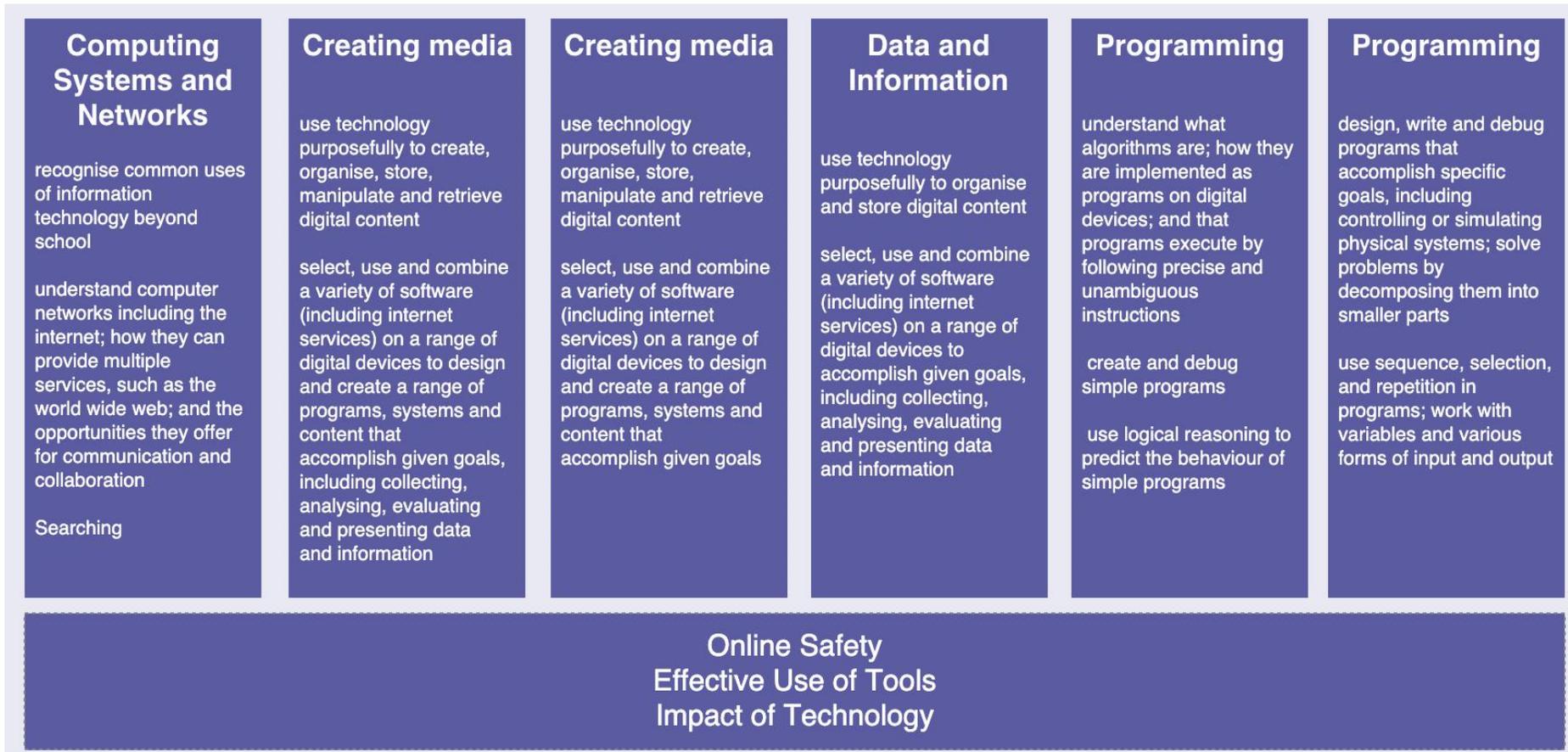




## Computing Statement of Intent

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:







### 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, 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:

- Computer Systems and Networks
- Creating Media
- Data and Information
- Programming
- Safety and Security (Whilst all strands are present at all phases, they are not always taught explicitly.)

In Year 4 Computing is taught in discrete lessons under the following broad unit headings:

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computer Systems and Networks	Data and Information	Programming A	Creating Media	Programming B	Creating Media
The Internet	Data Logging	Repetition in Shapes	Audio editing	Repetition in games	Photo Editing



## Whinstone Primary School Year 4 Computing



Topic Specific Vocabulary					
Computer Systems and Networks	Data and Information	Programming A	Creating Media	Programming B	Creating Media
The Internet	Data Logging	Repetition in Shapes	Audio editing	Repetition in games	Photo Editing
Internet, network, router, security, server, web address, browser, world wide web, links, download, permission, accurate, sharing,	Data, table, input device, data logger, sensor, data set, import, export, logged, analyse, conclusion	Program, commands, code snippet, algorithm, design, debug, count-controlled loop, value, procedure	record, input, output, audio, podcast, playback, selection, mixing time shift, mp3, audio, evaluate	Scratch, programming, sprite, repeat, value repeat, forever, infinite loop, count-controlled loop, algorithm, debug,	edit, arrange, select, crop, copyright, composition, pixels,, rotate, flip, hue/saturation, sepia, vignette, sharpen, brighten, fake, background, foreground, layer

### 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	Data and Information	Programming A	Creating Media	Programming B	Creating Media
The Internet	Data Logging	Repetition in Shapes	Audio editing	Repetition in games	Photo Editing
To describe how networks physically connect to other networks	To explain that data gathered over time can be used to answer questions	To identify that accuracy in programming is important	To identify that sound can be digitally recorded  <b>Copyright and ownership</b>	To develop the use of count-controlled loops in a different programming environment	To explain that digital images can be changed  <b>Copyright and ownership</b> <b>Self-image and identity</b>



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To recognise how networked devices make up the internet	To use a digital device to collect data automatically	To create a program in a text-based language	To use a digital device to record sound	To explain that in programming there are infinite loops and count controlled loops	To change the composition of an image
To outline how websites can be shared via the World Wide Web	To explain that a data logger collects 'data points' from sensors over time	To explain what 'repeat' means	To explain that a digital recording is stored as a file	To develop a design which includes two or more loops which run at the same time	To describe how images can be changed for different uses
To describe how content can be added and accessed on the World Wide Web	To use data collected over a long duration to find information	To modify a count-controlled loop to produce a given outcome	To explain that audio can be changed through editing	To modify an infinite loop in a given program	To make good choices when selecting different tools
To recognise how the content of the WWW is created by people	To identify the data needed to answer questions	To decompose a program into parts	To show that different types of audio can be combined and played together	To design a project that includes repetition	To recognise that not all images are real
To evaluate the consequences of unreliable content	To use collected data to answer questions	To create a program that uses count-controlled loops to produce a given outcome	To evaluate editing choices made	To create a project that includes repetition	To evaluate how changes can improve an image

### 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
Computer Systems and Networks	To describe how networks physically connect to other networks	- I can demonstrate how information is shared across the internet - I can describe the internet as a network of networks - I can discuss why a network needs protecting	
The Internet	To recognise how networked devices make up the internet	- I can describe the different networked devices and how they connect - I can explain how the internet allows us to view the World Wide Web - I can recognise that the World Wide Web is the part of the internet that contains websites and web pages	



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	To outline how websites can be shared via the World Wide Web	<ul style="list-style-type: none"> <li>- I can describe how to access websites on the WWW</li> <li>- I can describe where websites are stored when uploaded to the WWW</li> <li>- I can explain the types of media that can be shared on the World Wide Web (WWW)</li> </ul>	
	To describe how content can be added and accessed on the World Wide Web	<ul style="list-style-type: none"> <li>- I can create media which can be found on websites</li> <li>- I can explain that new content can be created online</li> <li>- I can recognise that I can add content to the WWW</li> </ul>	
	To recognise how the content of the WWW is created by people	<ul style="list-style-type: none"> <li>- I can explain that there are rules to protect content</li> <li>- I can explain that websites and their content are created by people</li> <li>- I can suggest who owns the content on websites</li> </ul>	
	To evaluate the consequences of unreliable content	<ul style="list-style-type: none"> <li>- I can explain that not everything on the World Wide Web is true.</li> <li>- I can explain why I need to think carefully before I share or reshare content</li> <li>- I can explain why some information I find online may not be honest, accurate, or legal.</li> </ul>	
<b>Data and Information</b>	To explain that data gathered over time can be used to answer questions	<ul style="list-style-type: none"> <li>- I can choose a data set to answer a given question</li> <li>- I can identify data that can be gathered over time</li> <li>- I can suggest questions that can be answered using a given data set</li> </ul>	
Data Logging	To use a digital device to collect data automatically	<ul style="list-style-type: none"> <li>- I can explain that sensors are input devices</li> <li>- I can identify that data from sensors can be recorded</li> <li>- I can use data from a sensor to answer a given question</li> </ul>	
	To explain that a data logger collects 'data points' from sensors over time	<ul style="list-style-type: none"> <li>- I can identify a suitable place to collect data</li> <li>- I can identify the intervals used to collect data</li> <li>- I can talk about the data that I have captured</li> </ul>	
	To use data collected over a long duration to find information	<ul style="list-style-type: none"> <li>- I can import a data set</li> <li>- I can use a computer program to sort data</li> <li>- I can use a computer to view data in different ways</li> </ul>	
	To identify the data needed to answer questions	<ul style="list-style-type: none"> <li>- I can plan how to collect data using a data logger</li> <li>- I can propose a question that can be answered using logged data</li> <li>- I can use a data logger to collect data</li> </ul>	
	To use collected data to answer questions	<ul style="list-style-type: none"> <li>- I can draw conclusions from the data that I have collected</li> <li>- I can explain the benefits of using a data logger</li> <li>- I can interpret data that has been collected using a data logger</li> </ul>	
<b>Programming A</b>	To identify that accuracy in programming is important	<ul style="list-style-type: none"> <li>- I can create a code snippet for a given purpose</li> <li>- I can explain the effect of changing a value of a command</li> <li>- I can program a computer by typing commands</li> </ul>	
Repetition in Shapes	To create a program in a text-based language	<ul style="list-style-type: none"> <li>- I can test my algorithm in a text-based language</li> <li>- I can use a template to create a design for my program</li> <li>- I can write an algorithm to produce a given outcome</li> </ul>	



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	To explain what 'repeat' means	<ul style="list-style-type: none"> <li>- I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves</li> <li>- I can identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step'</li> <li>- I can use a count-controlled loop to produce a given outcome</li> </ul>	
	To modify a count-controlled loop to produce a given outcome	<ul style="list-style-type: none"> <li>- I can choose which values to change in a loop</li> <li>- I can identify the effect of changing the number of times a task is repeated</li> <li>- I can predict the outcome of a program containing a count-controlled loop</li> </ul>	
	To decompose a program into parts	<ul style="list-style-type: none"> <li>- I can explain that a computer can repeatedly call a procedure</li> <li>- I can identify 'chunks' of actions in the real world</li> <li>- I can use a procedure in a program</li> </ul>	
	To create a program that uses count-controlled loops to produce a given outcome	<ul style="list-style-type: none"> <li>- I can design a program that includes count-controlled loops</li> <li>- I can develop my program by debugging it</li> <li>- I can make use of my design to write a program</li> </ul>	
<b>Creating Media</b>	To identify that sound can be digitally recorded	<ul style="list-style-type: none"> <li>- I can identify digital devices that can record sound and play it back</li> <li>- I can identify the inputs and outputs required to play audio or record sound</li> <li>- I can recognise the range of sounds that can be recorded</li> </ul>	- Copyright and ownership
Audio editing	To use a digital device to record sound	<ul style="list-style-type: none"> <li>- I can discuss what other people include when recording sound for a podcast</li> <li>- I can suggest how to improve my recording</li> <li>- I can use a device to record audio and play back sound</li> </ul>	
	To explain that a digital recording is stored as a file	<ul style="list-style-type: none"> <li>- I can discuss why it is useful to be able to save digital recordings</li> <li>- I can plan and write the content for a podcast</li> <li>- I can save a digital recording as a file</li> </ul>	
	To explain that audio can be changed through editing	<ul style="list-style-type: none"> <li>- I can discuss ways in which audio recordings can be altered</li> <li>- I can edit sections of of an audio recording</li> <li>- I can open a digital recording from a file</li> </ul>	
	To show that different types of audio can be combined and played together	<ul style="list-style-type: none"> <li>- I can choose suitable sounds to include in a podcast</li> <li>- I can discuss sounds that other people combine</li> <li>- I can use editing tools to arrange sections of audio</li> </ul>	
	To evaluate editing choices made	<ul style="list-style-type: none"> <li>- I can discuss the features of a digital recording I like</li> <li>- I can explain that digital recordings need to be exported to share them</li> <li>- I can suggest improvements to a digital recording</li> </ul>	
<b>Programming B</b>	To develop the use of count-controlled loops in a different programming environment	<ul style="list-style-type: none"> <li>- I can list an everyday task as a set of instructions including repetition</li> <li>- I can modify a snippet of code to create a given outcome</li> <li>- I can predict the outcome of a snippet of code</li> </ul>	



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Repetition in games	To explain that in programming there are infinite loops and count controlled loops	<ul style="list-style-type: none"> <li>- I can choose when to use a count-controlled and an infinite loop</li> <li>- I can modify loops to produce a given outcome</li> <li>- I can recognise that some programming languages enable more than one process to be run at once</li> </ul>	
	To develop a design which includes two or more loops which run at the same time	<ul style="list-style-type: none"> <li>- I can choose which action will be repeated for each object</li> <li>- I can evaluate the effectiveness of the repeated sequences used in my program</li> <li>- I can explain what the outcome of the repeated action should be</li> </ul>	
	To modify an infinite loop in a given program	<ul style="list-style-type: none"> <li>- I can explain the effect of my changes</li> <li>- I can identify which parts of a loop can be changed</li> <li>- I can re-use existing code snippets on new sprites</li> </ul>	
	To design a project that includes repetition	<ul style="list-style-type: none"> <li>- I can develop my own design explaining what my project will do</li> <li>- I can evaluate the use of repetition in a project</li> <li>- I can select key parts of a given project to use in my own design</li> </ul>	
	To create a project that includes repetition	<ul style="list-style-type: none"> <li>- I can build a program that follows my design</li> <li>- I can evaluate the steps I followed when building my project</li> <li>- I can refine the algorithm in my design</li> </ul>	
<b>Creating Media</b>	To explain that digital images can be changed	<ul style="list-style-type: none"> <li>- I can explain the effect that editing can have on an image</li> <li>- I can explore how images can be changed in real life</li> <li>- I can identify changes that we can make to an image</li> </ul>	<ul style="list-style-type: none"> <li>- Copyright and ownership</li> <li>- Self-image and identity</li> </ul>
Photo Editing	To change the composition of an image	<ul style="list-style-type: none"> <li>- I can change the composition of an image by selecting parts of it</li> <li>- I can consider why someone might want to change the composition of an image</li> <li>- I can explain what has changed in an edited image</li> </ul>	
	To describe how images can be changed for different uses	<ul style="list-style-type: none"> <li>- I can choose effects to make my image fit a scenario</li> <li>- I can explain why my choices fit a scenario</li> <li>- I can talk about changes made to images</li> </ul>	
	To make good choices when selecting different tools	<ul style="list-style-type: none"> <li>- I can choose appropriate tools to retouch an image</li> <li>- I can give examples of positive and negative effects that retouching can have on an image</li> <li>- I can identify how an image has been retouched</li> </ul>	
	To recognise that not all images are real	<ul style="list-style-type: none"> <li>- I can combine parts of images to create new images</li> <li>- I can sort images into 'fake' or 'real' and explain my choices</li> <li>- I can talk about fake images around me</li> </ul>	
	To evaluate how changes can improve an image	<ul style="list-style-type: none"> <li>- I can compare the original image with my completed publication</li> <li>- I can consider the effect of adding other elements to my work</li> <li>- I can evaluate the impact of my publication on others through feedback</li> </ul>	



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

SKILLS	Learning Objective	Meeting expectations
<b>Online safety and security</b>	Self-image and identity	<p>I can explain how my online identity can be different to my offline identity.</p> <p>I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.</p> <p>I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.</p>
	Online relationships	<p>I can describe strategies for safe and fun experiences in a range of online social environments (e.g. <b>livestreaming</b>, gaming platforms).</p> <p>I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.</p> <p>I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.</p>
	Online reputation	<p>I can describe how to find out information about others by searching online.</p> <p>I can explain ways that some of the information about anyone online could have been created, copied or shared by others.</p>
	Online bullying	<p>I can recognise when someone is upset, hurt or angry online.</p> <p>I can describe ways people can be bullied through a range of media (e.g. image, video, text, <b>chat</b>).</p> <p>I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).</p>
	Managing online information	<p>I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.</p> <p>I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites).</p> <p>I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; <b>in-app purchases</b>, <b>pop-ups</b>) and can recognise some of these when they appear online.</p> <p>I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.</p> <p>I can explain that technology can be designed to act like or impersonate living things (e.g. <b>bots</b>) and describe what the benefits and the risks might be.</p> <p>I can explain what is meant by <b>fake news</b> e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p>
	Health, well-being and lifestyle	<p>I can explain how using technology can be a distraction from other things, in both a positive and negative way.</p> <p>I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.</p>



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	Privacy and security	<p>I can describe strategies for keeping personal information private, depending on context.</p> <p>I can explain that internet use is never fully private and is monitored, e.g. adult supervision.</p> <p>I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.</p> <p>I know what the <b>digital age of consent</b> is and the impact this has on online services asking for consent.</p>
	Copyright and ownership	<p>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 reuse it.</p> <p>I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.</p>