Computing Progression Document

Statement of Intent, Implementation & Impact

Intent

We recognise the value and importance that computing has for developing our children as 'Young Superheroes', specifically developing their powers of resilience, teamwork, discovery and challenge throughout a range of technology. A high-quality computing education gives children the tools to use the online world safely, confidently and creatively. We recognise that e-safety is a highly relevant issue to our children so our curriculum is intended to teach children the knowledge and behaviours they need to be safe online. Our approach is rooted in respect, vigilance and kindness. We recognise, too, the potential for computing to develop children's problem solving and creative attributes that will, we think, help our children become lifelong learners in an ever changing world. We want computing at Oakworth to be a cross-curricular, safe, engaging subject that engages and challenges every child.

Implementation

Teaching

Our computing curriculum is based upon the NCCE and Project Evolve and is organised into the 5 key areas of computing: eSafety, Computing systems & Networks, Creating Media, Data Information and Programming. Children's needs are front and centre when it comes to implementing our vision for computing. Class teachers, who know their children's needs best, are free to deliver the curriculum content in a way that best meets their classes' needs. Teachers have access to a range of hardware – such as iPads, laptops, Bee-Bots and Log-Boxes – through which their objectives can to be taught in a creative way designed to engage children. There are, of course, many organic links with the subject to Maths, English and Science and teachers are encouraged to use technology in these areas. Children tell us that they enjoy using technology in these subjects and, through regular use, their computing skills become more proficient. While computing is a discrete subject at Oakworth, we expect that children will grow to recognise when technology can best enhance their learning across the curriculum. Digital leaders from year 5 and 6 will model best practice for their younger peers and, where appropriate, support teachers in delivering the curriculum.

Online safety

Online safety lies at the heart of our approach to computing. E-safety is not only taught during lesson time, but is also discussed whenever technology is used by children throughout the year and that adults model best practice themselves. We recognise that keeping children safe when online is a whole-school responsibility and that it is incumbent on us to teach children how to assess a situation and to think through consequences before acting. We further recognise that some children may be especially vulnerable. Teachers have identified these pupils and will be alive to their increased susceptibility when teaching computing and more widely. As part of our commitment to e-safety, a local PCSO visits the school on an annual basis to deliver sessions that helps to keep the issue uppermost in children's minds. We communicate regularly with parents as we recognise their pivotal role in keeping children safe online.

Impact

Children will be safe, knowledgeable online citizens. They will be aware of online dangers and will have the confidence to assess the risks and make considered decisions. We want children to be enthused by the online world but not consumed by it. Children will become adept at computational thinking – the ability to solve

problems in a creative, logical and collaborative way – because these skills will be developed through repeated programming opportunities and opportunities to build understanding and apply the concepts of computer science.

Computing progression at Oakworth Primary School

	Across whole year	Termly Focus	Termly Focus	Termly Focus	Termly Focus
	Online Safety	**Computing systems and networks**	**Creating media**	**Programming**	**Data and information**
EYFS	<u>Online reputation</u> -I can identify ways that I can put information on the internet. <u>Managing online information</u> -I can talk about how I can use the internet to find things out. -I can identify devices I could use to access information on the internet. -I can give simple examples of how to find information (e.g. search engine, voice activated searching). <u>Health, well-being and lifestyle</u> - I can identify rules that help keep us safe and healthy in and beyond the home when using tech'. - I can give some simple examples. <u>Privacy and security</u> -I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). -I can describe the people I can trust and can share this with; I can explain why I can trust them. <u>Copyright and ownership</u> - I know that work I create belongs to me. - I can name my work so that others know it belongs to	- to operate simple equipment. - To recognise purposes for using technology in school and at home. - To recognise that they can use the Internet to play and learn.	- To move objects on a screen - To can create shapes on a screen. - To recognise text, images and sound when using technology. - To use a camera or sound recorder to collect photos or sound. - To begin to use a keyboard - To develop an interest in ICT by using age appropriate websites or programs.	-To give simple instructions to make an outcome. - Help adults operate equipment around the school. - Use simple software to make things happen - Explore options and make choices with toys, software and websites	To tell you about different kinds of information such as pictures, text, video and sound. - To collect information as photos or sound files.
		Throughout the year EYFS will focus on computational thinking skills throughout provision ready for KS1			
		Concepts		Approaches	

	me.	Logical reasoning Abstraction Pattern Algorithms Decomposition	Tinkering Creating Collaboration Persevering

	Online safety Year 1				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership
- I can recognise that information can stay online and could be copied. - I can describe what information I should not put online without asking a trusted adult first.	-I can use the internet to find things out. -I can use simple keywords in search engines. -I can describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable worried or frightened.	- I can explain rules to keep us safe when we are using technology both in and beyond the home. - I can give examples of some of these rules.	- I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school). -I can explain why I should always ask a trusted adult before I share any information about myself online. -I can explain how passwords can be used to protect information and devices.	- I can describe how to behave online in ways that do not upset others and can give examples.	-I can explain why work I create using technology belongs to me. -I can say why it belongs to me (e.g. 'it is my idea' or 'I designed it'). -I can save my work so that others know it belongs to me (e.g. filename, name on content).

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	COMPUTING SYSTEMS AND NETWORKS Technology around us	PROGRAMMING A Moving a robot	CREATING MEDIA Digital Painting	DATA AND INFORMATION Grouping data	CREATING MEDIA Digital writing	PROGRAMMING B Introduction to animation
Year 1:	- To identify technology - To identify a computer and its main parts - To use a mouse in different ways - To use a keyboard to type on a computer - To use the keyboard to edit text - To create rules for using technology responsibly	- To explain what a given command will do - To act out a given word - To combine forwards and backwards commands to make a sequence - To combine four direction commands to make sequences - To plan a simple program - To find more than one solution to a problem -	- To describe what different freehand tools do - To use the shape tool and the line tools - To make careful choices when painting a digital picture - To explain why I chose the tools I used - To use a computer on my own to paint a picture - To compare painting a picture on a computer and on paper -	- To label objects - To identify that objects can be counted - To describe objects in different ways - To count objects with the same properties - To compare groups of objects - To answer questions about groups of objects	- To use a computer to write - To add and remove text on a computer - To identify that the look of text can be changed on a computer - To make careful choices when changing text - To explain why I used the tools that I chose To compare typing on a computer to writing on paper	- To choose a command for a given purpose - To show that a series of commands can be joined together - To identify the effect of changing a value - To explain that each sprite has its own instructions - To design the parts of a project - To use my algorithm to create a program

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	Online safety - Year 2				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership
- I can explain how information put online about me 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 I think someone has made a mistake about putting something online.	-I can use keywords in search engines. -I can demonstrate how to navigate a simple webpage (e.g. home, forward, back buttons; links, tabs, etc.) -I can explain what voice activated searching is and how it might be used (e.g. Alexa, 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 info' I find online may not be true.	- I can explain simple guidance for using technology in different environments and settings. -I can say how those rules/guides can help me.	-I can describe how online info' about me could be seen by others. -I can describe and explain some rules for keeping my information private. -I can explain what passwords are and can use passwords for my accounts and devices. -I can explain how many devices in my home could be connected to the internet and can list some of those devices.	- 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.	-I can describe why other people's work belongs to them. - I can recognise that content on the internet may belong to other people.

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Year 2	COMPUTING SYSTEMS AND NETWORKS Information technology around us	PROGRAMMING A Robot algorithms	CREATING MEDIA Digital photography	DATA AND INFORMATION Pictograms	CREATING MEDIA Making music	PROGRAMMING B Introduction to quizzes
	IT around us: - To recognise the uses and features of information technology - To identify the uses of information technology in the school - To identify information technology beyond school - To explain how information technology helps us - To explain how to use information technology safely - To recognise that choices are made when using	**Robot algorithms:** - To describe a series of instructions as a sequence - To explain what happens when we change the order of instructions - To use logical reasoning to predict the outcome of a program (series of commands) - To explain that programming projects can have code and artwork - To design an algorithm - To create and debug a program that I have written	**Digital photography:** - To use a digital device to take a photograph - To make choices when taking a photograph - To describe what makes a good photograph - To decide how photographs can be improved - To use tools to change an image - To recognise that photos can be changed -	**Pictograms:** - To recognise that we can count and compare objects using tally charts - To recognise that objects can be represented as pictures - To create a pictogram - To select objects by attribute and make comparisons - To recognise that people can be described by attributes - To explain that we can present information using a computer	**Making music:** - To say how music can make us feel - To identify that there are patterns in music - To show how music is made from a series of notes - To show how music is made from a series of notes - To create music for a purpose To review and refine our computer work	**Introduction to quizzes:** - To explain that a sequence of commands has a start - To explain that a sequence of commands has an outcome - To create a program using a given design - To change a given design - To create a program using my own design To decide how my project can be improved

	information technology	-				

	Online safety – Year 3				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership
- I can search for information about myself online. - I can recognise I need to be careful find before I share anything about myself or others online. - I know who I should ask if I am not sure if I should put something online.	-I can use key phrases in search engines. - I can explain what autocomplete is and how to choose the best suggestion. -I can explain how the internet can be used to sell and buy things. -I can explain the difference between a 'belief', an 'opinion' and a 'fact'.	- I can explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games/videos).	-I can give reasons why I should only share info' with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. -I understand and can give reasons why passwords are important. -I can describe simple strategies for creating and keeping passwords private. -I can describe how connected devices can	- I can describe appropriate ways to behave towards other people online and why this is important. - I can give examples of how bullying behaviour could appear online and how someone can get support.	-I can explain why copying someone else's work from the internet without permission can cause problems. -I can give examples of what those problems might be.

			collect and share my information with others.		

Year 3	COMPUTING SYSTEMS AND NETWORKS Connecting Computers	PROGRAMMING A Sequence in music	CREATING MEDIA Stop frame animation	DATA AND INFORMATION Branching databases	CREATING MEDIA Desktop publishing	PROGRAMMING B Events and actions
	Connecting computers: - To explain how digital devices function - To identify input and output devices	**Sequencing music:** - To explore a new programming environment - To identify that commands have an	**Animation:** - To explain that animation is a sequence of drawings or photographs	**Branching databases:** - To create questions with yes/no answers - To identify the object attributes needed to collect relevant data	**Desktop publishing:** - To recognise how text and images convey information - To recognise that text and layout can be	**Events and actions:** - To explain how a sprite moves in an existing project - To create a program to move a sprite in four

	- To recognise how digital devices can change the way we work - To explain how a computer network can be used to share information - To explore how digital devices can be connected To recognise the physical components of a network	outcome - To explain that a program has a start - To recognise that a sequence of commands can have an order - To change the appearance of my project - To create a project from a task description -	- To relate animated movement with a sequence of images - To plan an animation - To identify the need to work consistently and carefully - To review and improve an animation - To evaluate the impact of adding other media to an animation -	- To create a branching database - To explain why it is helpful for a database to be well structured - To identify objects using a branching database - To compare the information shown in a pictogram with a branching database	edited - To choose appropriate page settings - To add content to a desktop publishing publication - To consider how different layouts can suit different purposes To consider the benefits of desktop publishing	directions - To adapt a program to a new context - To develop my program by adding features - To identify and fix bugs in a program - To design and create a maze-based challenge

	Online safety – Year 4				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership

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- I can describe how others can find out information about me by looking online. -I can explain ways that some of the info' about me online could've been created/copied/shared by others.	-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. in-app purchases) and can recognise some of these when they appear online. -I can explain that some people I 'meet online' 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	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.	-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.	- I can recognise when someone is upset, hurt or angry online. - I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). - 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).	- 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. - I can give some simple examples.

	those opinions or beliefs true.				

Year 4	COMPUTING SYSTEMS AND NETWORKS The internet	PROGRAMMING A Repetition in shapes	CREATING MEDIA Audio editing	DATA AND INFORMATION Data logging	CREATING MEDIA Photo editing	PROGRAMMING B Repetition in games
	The internet: - To describe how networks physically connect to other networks - To recognise how	**Repetition in shapes:** - To identify that accuracy in programming is important	**Audio editing:** - To identify that sound can be digitally recorded	**Data logging:** - To explain that data gathered over time can be used to answer questions - To use a digital device	**Photo editing:** - To explain that digital images can be changed	**Repetition in games:** - To develop the use of count-controlled loops in a different programming environment

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

	Online safety – Year 5				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership
-I can search for information about an individual online and create a summary report of the information I find.	-I can use different search technologies. -I can evaluate digital content and can explain how I make choices from search results.	- I can describe ways technology can affect healthy sleep and can describe some of the issues. -I can describe some	-I can create and use strong passwords. - I can explain how many free apps or services may read and share my private	- I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. - I can describe how what	- I can give examples of content that is permitted to be reused. - I can assess and justify when it is acceptable to use the work of others.

-I can describe ways that info' about people online can be used by others to make judgments about an individual.	-I can explain key concepts including: data, info', fact, opinion belief, true, false, valid, reliable and evidence. -I understand the difference between online mis-information & dis-information -I can explain what is meant by 'being sceptical'. I can give e.g.s of when and why it is important to be 'sceptical'. - I can explain what is meant by a 'hoax'. I can explain why I need to think carefully before I forward anything online. -I can explain why some information I find online may not be honest, accurate or legal. -I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of	strategies, tips or advice to promote healthy sleep with regards to technology.	information with others. -I can explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing.	one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. - I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. - I can identify a range of ways to report concerns and access support both in school and at home about online bullying. - I can explain how to block abusive users. - I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	

	misinformation either by accident or on purpose).				

Year 5	COMPUTING SYSTEMS AND NETWORKS Sharing information	PROGRAMMING A Selection in physical computing	CREATING MEDIA Video editing	DATA AND INFORMATION Flat-file databases	CREATING MEDIA Vector drawing	PROGRAMMING B Selection in quizzes
	Sharing information: - To explain that computers can be connected together to form systems - To recognise the role of computer systems in our lives - To recognise how information is transferred over the internet - To explain how sharing information online lets people in different places work together	**Selection in physical computing:** - To control a simple circuit connected to a computer - To write a program that includes count-controlled loops - To explain that a loop can stop when a condition is met - To explain that a loop can be used to repeatedly check whether a condition has been met - To design a physical project that includes selection	**Video editing:** - To explain what makes a video effective - To identify digital devices that can record video - To capture video using a range of techniques - To create a storyboard - To identify that video can be improved through reshooting and editing - To consider the impact of the choices made when making and sharing a video	**Flat-file databases:** - To use a form to record information - To compare paper and computer-based databases - To outline how grouping and then sorting data allows us to answer questions - To explain that tools can be used to select specific data - To explain that computer programs can be used to compare data visually	**Vector drawing:** - To identify that drawing tools can be used to produce different outcomes - To create a vector drawing by combining shapes - To use tools to achieve a desired effect - To recognise that vector drawings consist of layers - To group objects to make them easier to work with - To evaluate my vector drawing	**Selection in quizzes:** - To explain how selection is used in computer programs - To relate that a conditional statement connects a condition to an outcome - To explain how selection directs the flow of a program - To design a program which uses selection - To create a program which uses selection To evaluate my program

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	- To contribute to a shared project online - To evaluate different ways of working together online	- To create a program that controls a physical computing project -		- To apply my knowledge of a database to ask and answer real-world questions		

	Online safety – Year 6				
Online reputation	Managing online information	Health, well-being and lifestyle	Privacy and security	Online Bullying	Copyright and ownership

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-I can explain how I am developing an online reputation which will allow other people to form an opinion of me. - I can describe some simple ways that help build a positive online reputation.	- I can use search technologies effectively. - I can explain how search engines work and how results are selected and ranked. -I can demonstrate the strategies I would apply to be discerning in evaluating digital content. -I can describe how some online information can be opinion and can offer examples. -I can explain how and why some people may present 'opinions' as 'facts'. -I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. 'ad targeting'). -I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. -I can identify, flag and report inappropriate content.	- I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. -I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise). -I can explain the importance of self-regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents).	- I use different passwords for a range of online services. - I can describe effective strategies for managing passwords (e.g. password managers, acronyms, stories). -I know what to do if my password is lost or stolen. -I can explain what app permissions are and can give some examples from the technology or services I use. -I can describe simple ways to increase privacy on apps and services that provide privacy settings. -I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).	-I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. - I can explain how someone would report online bullying in different contexts. -	-I can demonstrate the use of search tools to find and access online content which can be reused by others. -I can demonstrate how to make references to and acknowledge sources I have used from the internet.

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Year 6	COMPUTING SYSTEMS AND NETWORKS Communication	PROGRAMMING A Variables in games	CREATING MEDIA Web page creation	DATA AND INFORMATION Spreadsheets	CREATING MEDIA 3D modelling	PROGRAMMING B Sensing
	Communication: - To identify how to use a search engine - To describe how search engines select results	**Variables in games:** - To define a 'variable' as something that is changeable - To explain why a variable is used in a	**Web page creation:** - To review an existing website and consider its structure - To plan the features of a web page	**Spreadsheets:** - To identify questions which can be answered using data - To explain that objects can be described	**3D modelling:** - To use a computer to create and manipulate three-dimensional (3D) digital objects	**Sensing:** - To create a program to run on a controllable device - To explain that selection can control

	- To explain how search results are ranked - To recognise why the order of results is important, and to whom - To recognise how we communicate using technology To evaluate different methods of online communication	program - To choose how to improve a game by using variables - To design a project that builds on a given example - To use my design to create a project - To evaluate my project -	- To consider the ownership and use of images (copyright) - To recognise the need to preview pages - To outline the need for a navigation path - To recognise the implications of linking to content owned by other people	using data - To explain that formulas can be used to produce calculated data - To apply formulas to data, including duplicating - To create a spreadsheet to plan an event - To choose suitable ways to present data	- To compare working digitally with 2D and 3D graphics - To construct a digital 3D model of a physical object - To identify that physical objects can be broken down into a collection of 3D shapes - To design a digital model by combining 3D objects - To develop and improve a digital 3D model -	the flow of a program - To update a variable with a user input - To use an conditional statement to compare a variable to a value - To design a project that uses inputs and outputs on a controllable device - To develop a program to use inputs and outputs on a controllable device