Mountford Manor

Curriculum Policy

Computing

"It's impossible to fail if you learn from your mistakes. Don't give up."

Steve Jobs

Whole School Curriculum Intent:

At Mountford Manor Primary School, children are supported, guided and inspired through our excellent teaching practises, to achieve academic success through a knowledge-engaged approach to the curriculum, which centres around a key stimulus.

Developing the whole child is at the centre of everything we do and our intention is that the curriculum extends opportunity, raises aspiration and opens children's eyes to the world beyond their immediate environment.

Through our values-based approach, the curriculum encourages children to become kind, considerate and accepting individuals who make positive contributions to their community and beyond.

At Mountford we aspire for children to **M**ake the **M**ost of their **P**otential.

To do this, we strive for children to;

- Be **M**otivated Learners
- Seek **M**eaningful futures
- Become **P**roud citizens

In order for us to ensure our pupils "Make the Most of their Potential" 5 instrumental ***Golden Threads*** underpin and weave through everything we do at the school. We believe these threads enable children to have the essential knowledge and skills that they need to be educated citizens.

1. **Embed values** and a sense of community
2. **Develop oracy** through immersing pupils in a language rich environment
3. **Cultivate a sense of value** in the love of reading
4. **Enable and facilitate opportunities** and **experiences** to accumulate advantage; inspiring ambition and aspiration.
5. **Encourage curiosity**; pupils want to pupils do more, to know more; and therefore remember more.

How the 5 Golden Threads are embedded in our Computing Curriculum

Golden Thread	How this is embedded in Computing
Embed Values	Through online safety sessions children are taught the importance of values in the virtual world. Combined with the school's RHE curriculum, children develop a rounded understanding of what it means to be a respectful citizen.
Develop Oracy Skills	Children are given opportunities in lesson to explain and describe computing terminology as well as different processes. Through the use of discussion and debate, children express their opinions with regards to online safety. Children are encouraged to participate to group / class discussions regarding all eight online safety strands. In each unit of work, children are exposed to a range of vocabulary focusing on Digital Literacy, Computer Science, and Information Technology. They are encouraged to use taught vocabulary during discussion and in their work.
Cultivating a culture of readers	Children research and read about (where possible) famous people through time who have had a particular impact on Computing.
Giving exposure to real life opportunities and experiences	In each unit of work, children are exposed to advanced technology. Where possible, children are invited to visit museums and have the opportunity to listen to speakers regarding advanced technology. Children are made aware of the different types of careers and opportunities the world of Computing brings. Work is celebrated with various stakeholders (including) parents and opportunities are planned so that children can share what they are learning with others at home.

Encourage curiosity	By gaining a wide knowledge about the different areas of computing; children develop a good sense of understanding of Computing. By knowing more; gives children the confidence to find out more about themselves as an coders and engineers. This inspires them to seek more opportunities to learn more.

Computing Curriculum Intent:

The intent of the Computing Curriculum is to offer a high-quality computing education which equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims and Objectives:

The Computing National Curriculum aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Are responsible, competent, confident and creative users of information and communication technology.

Curriculum Implementation:

At Mountford Manor, we have developed a curriculum that meets the needs of all our pupils and is engaging and ambitious. Our curriculum is sequenced and progressive from EYFS to Year 6. The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. Learning builds on previously taught knowledge to enable children to remember in the long term. These elements are computer systems and networks, creating media, programming, data, and information, and creating media. Our curriculum has been broken into the following elements in accordance with the national curriculum, further outlined in the tables below.

Technology at the school is enabled through a wide range of software and hardware, including an ICT suite, a set of iPads, BeeBots and subscription software such as Purple Mash and TimesTables Rockstars. These all enable our children to experience various forms of technology for cross curricular links.

Online Safety is a key component of our Computing curriculum and is of considerable priority because of the importance of safeguarding our children. At Mountford Manor, we use the Education for a Connected World

Online Safety curriculum to ensure that learning is planned, sequenced, and covers a broad range of topics. Online safety is taught as a started to computing lessons so that it is a regular part of the weekly timetable. It is also linked to other subjects such as PSHE so that it is a continuous theme throughout our school.

Curriculum Impact

At Mountford Manor, we use a range of different strategies to measure the impact of our curriculum on pupil attainment and progress in Computing, as well as their knowledge of online risks and their ability to be able to apply this to real life situations. Teachers continuously assess pupil understanding and use this to provide engaging lessons which aim to stretch and challenge every pupil. The impact of our curriculum is proven by children's ability to become 'life-long learners' as well as their capability to be autonomous, independent users of computing who gain confidence and enjoyment from technology. We use various types of monitoring throughout the year to assess our Computing and Online Safety provision which allows us to identify areas of strength and areas for further improvement.

Curriculum themes and taxonomy strands

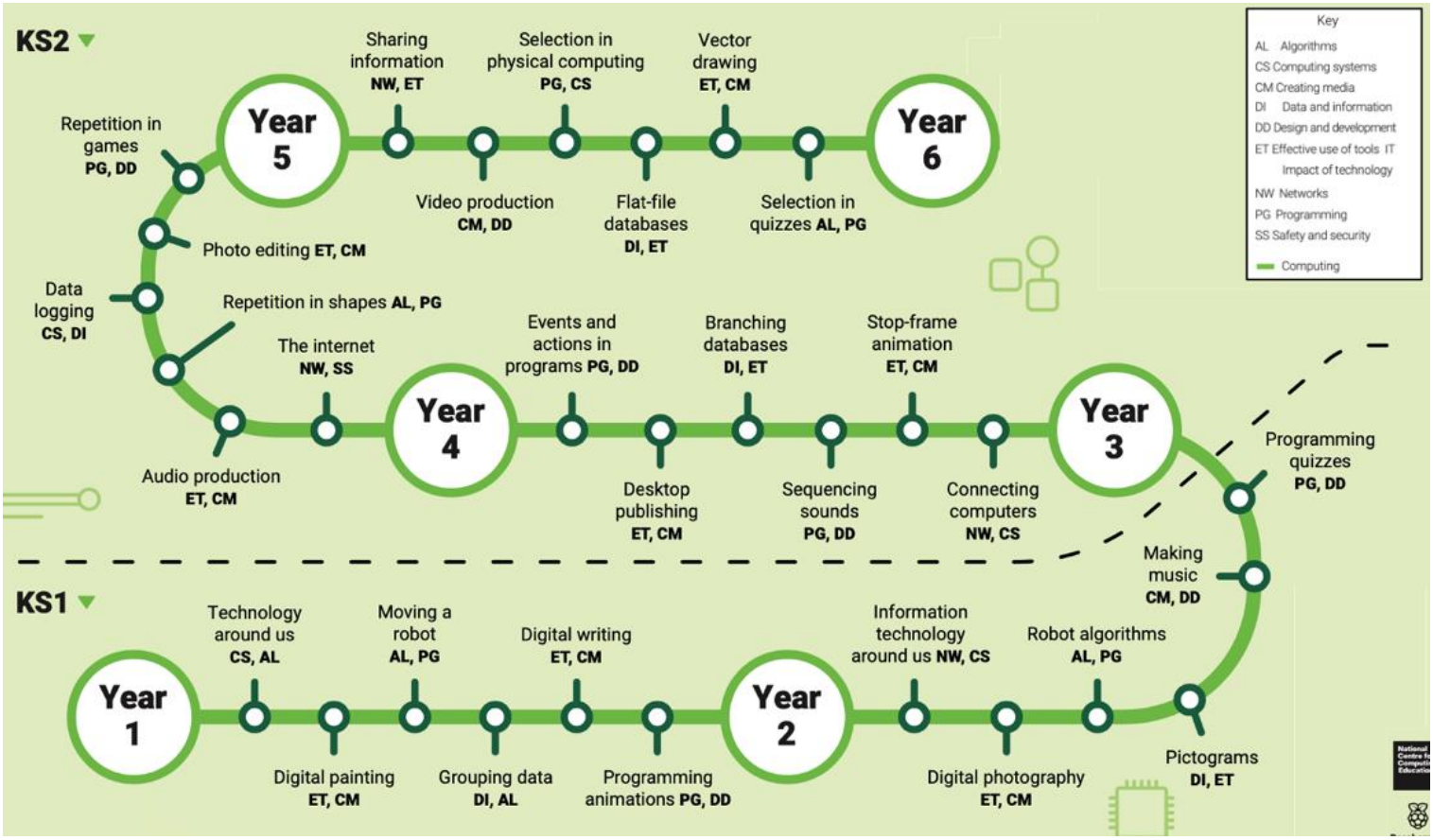
At Mountford Manor the curriculum is broken down into 4 progressive primary themes (outlined below). The design of the NCCE curriculum ensures that the revisiting of topics, subjects, or themes are embedded throughout the course of the programme. It also requires the deepening of it, with each successive encounter building on the previous one. Our strands and themes are outlined in the table below.

Primary themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems Computer networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

Curriculum Map (Progression and sequencing):

Mountford Manor Computing Curriculum overview

Curriculum Overview



Unit summaries

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	**Technology around us** Recognising technology in school and using it responsibly.	**Digital painting** Choosing appropriate tools in a program to create art and making comparisons with working non-digitally.	**Moving a robot** Writing short algorithms and programs for floor robots and predicting program outcomes.	**Grouping data** Exploring object labels, then using them to sort and group objects by properties.	**Digital writing** Using a computer to create and format text, before comparing to writing non-digitally.	**Programming animations** Designing and programming the movement of a character on screen to tell stories.
Year 2	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.	**Digital photography** Capturing and changing digital photographs for different purposes.	**Robot algorithms** Creating and debugging programs and using logical reasoning to make predictions.	**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Making music** Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.
Year 3	**Connecting computers** Identifying that digital device have inputs, processes, and outputs, and how devices can be connected to make networks.	**Stop-frame animation.** Capturing and editing digital still images to produce a stop-frame animation that tells a story.	**Sequencing sounds** Creating sequences in a block-based programming language to make music.	**Branching databases** Building and using branching databases to group objects using yes/no questions.	**Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose.	**Events and actions in programs** Writing algorithms and programs that use a range of events to trigger sequences of actions.
Year 4	**The internet** Recognising the internet as a network of networks including	**Audio production** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Repetition in shapes** Using a text-based programming language to	**Data logging** Recognising how and why data is collected over time, before	**Photo editing** Manipulating digital images and reflecting on the impact of	**Repetition in games** Using a block-based programming language to explore count-controlled and

	the WWW, and why we should evaluate online content.		explore count-controlled loops when drawing shapes.	using data loggers to carry out an investigation.	changes and whether the required purpose is fulfilled.	infinite loops when creating a game.
Year 5	**Systems and searching** Recognising IT systems around us and how they allow us to search the internet.	**Video production** Planning, capturing, and editing video to produce a short film.	**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Vector drawing** Creating images in a drawing program by using layers and groups of objects.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.
Year 6	**Communication and collaboration** Identifying and exploring how data is transferred and information is shared online.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	**Variables in games** Exploring variables when designing and coding a game.	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects.	**Sensing** Designing and coding a project that captures inputs from a physical device.

Links to National Curriculum

National Curriculum Coverage — Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Making music	2.6 Programming quizzes
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	✓			✓	✓		✓	✓	✓	✓		

National curriculum coverage - Years 3 and 4	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The internet	4.2 Audio production	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
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		✓		✓			✓	✓			✓	

National curriculum coverage - Years 5 and 6	5.1 Sharing information	5.2 Video production	5.3 Selection in physical computing	5.4 Flat-file databases	5.5 Vector drawing	5.6 Selection in quizzes	6.1 Internet communication	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing
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	✓	✓						✓	✓		✓	

Progression across key stages

All learning objectives have been mapped to the National Centre for Computing Education's taxonomy of ten strands, which ensures that units build on each other from one key stage to the next.

Progression across year groups

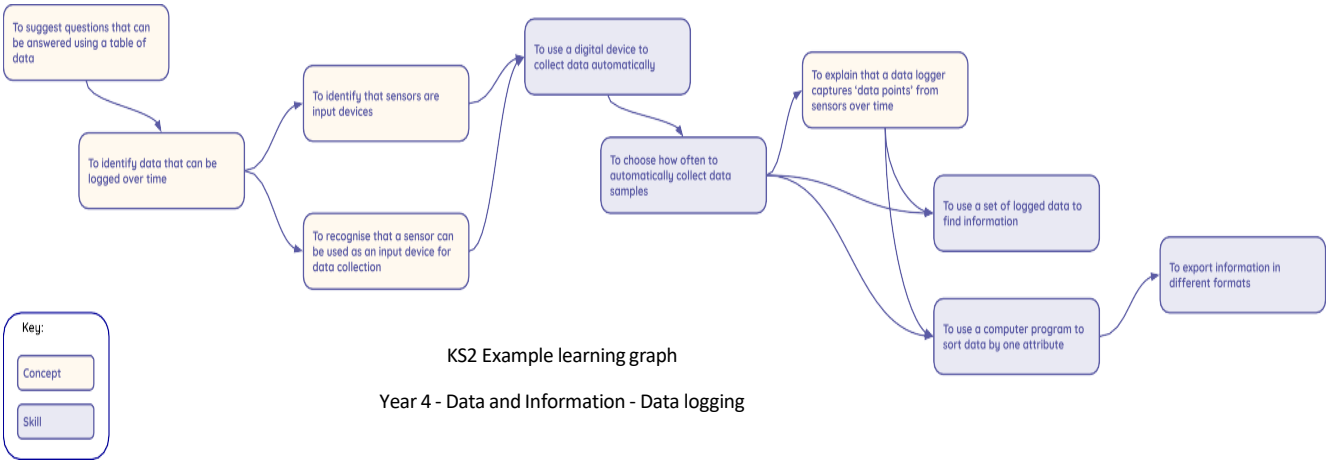
Within the Teach Computing Curriculum, every year group learns through units within the same four themes, which combine the ten strands of the National Centre for Computing Education's taxonomy (see table, below). This approach allows us to use the spiral curriculum approach (see the 'Spiral curriculum' section for more information) to progress skills and concepts from one year group to the next.

Themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems Computer Networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

Progression within a unit — learning graphs

Learning graphs are provided as part of each unit and demonstrate progression through concepts and skills. To learn some of those concepts and skills, pupils need prior knowledge of others, so the learning graphs

show which concepts and skills need to be taught first and which could be taught at a different time. The learning graphs often show more statements than there are learning objectives. All of the skills and concepts learnt are included in the learning graphs. Some of these skills and concepts are milestones, which form learning objectives, while others are smaller steps towards these milestones, which form success criteria



KS2 Example learning graph

Year 4 - Data and Information - Data logging

Online safety

Alongside our computing topics, we also run an online safety curriculum. The internet and online technology provide new opportunities for young people's learning and growth, but it can also expose them to new types of risks. E-safety forms a fundamental part of our schools safeguarding and child protection measures. Each computing lesson starts with an online safety element which are outlined below.

Online Safety Curriculum Overview.

Online Safety yearly overview and curriculum links								
	Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Strand	**Self-Image and Identity**	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
PSHE Jigsaw	Being Me in my World		Celebrating Differences		Healthy Me	Relationships		
SMART rules	A - Accept T - Tell	S – Safe and secure T - Tell	T - Tell	T - Tell	T - Tell	M – Meet T - Tell	R – Reliability T - Tell	T - Tell
Values	Understanding Freedom Tolerance	Responsibility	Kindness Trustworthy Honesty Friendship Responsibility Respect Thoughtfulness	Positivity Happiness Responsibility	Responsibility	Kindness Trustworthy Honesty Friendship Caring Cooperation	Responsibility	
Online Safety Books (Book list)	- Messages about Me: Sydney/ Wade's Story (UKS2)	- MonkeyCow	- Digi-Ducks Big Decision - Trolls Stink - One Creepy Street: The Terrible Terabytes (KS2)	- Webster's Email - Digi-Ducks Big Decision	- Webster's Bedtime - But it's just a game	- The Fabulous Friend Machine - Zoe and Molly online (UKS2) - One Creepy Street: The Spider on the Web (KS2) - Chicken Clicking	- Penguin Pig - But I Read It On the Internet	
Other			Anti-Bullying week					

Online Safety Curriculum links								
	Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Strand	**Self-Image and Identity**	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
PSHE Jigsaw	Being Me in my World		Celebrating Differences		Healthy Me	Relationships		
SMART rules	A - Accept T - Tell	S – Safe and secure T - Tell	T - Tell	T - Tell	T - Tell	M – Meet T - Tell	R – Reliability T - Tell	T - Tell
Values	Understanding Freedom Tolerance	Responsibility	Kindness Trustworthy Honesty Friendship Responsibility Respect Thoughtfulness	Positivity Happiness Responsibility	Responsibility	Kindness Trustworthy Honesty Friendship Caring Cooperation	Responsibility	
Online Safety Books (Book list)	- Messages about Me: Sydney/ Wade's Story (UKS2)	- MonkeyCow	- Digi-Ducks Big Decision - Trolls Stink - One Creepy Street: The Terrible Terabytes (KS2)	- Webster's Email - Digi-Ducks Big Decision	- Webster's Bedtime - But it's just a game	- The Fabulous Friend Machine - Zoe and Molly online (UKS2) - One Creepy Street: The Spider on the Web (KS2) - Chicken Clicking	- Penguin Pig - But I Read It On the Internet	
Other			Anti-Bullying week					

KS1

Year 1 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- I can recognise that there may be people online who could make me feel sad, embarrassed or upset. - If something happens that makes me feel sad, worried, uncomfortable or frightened, I can give examples of when and how to speak to an adult I can trust.	- 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 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 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 use the internet with adult support to communicate with people I know. - I can explain why it is important to be considerate and kind to people online.	- 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 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).

Year 2 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- I can explain how other people's identity online can be different to their identity in real life. - I can describe ways in which people might make themselves look different online. - I can give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help.	- I can describe how online information 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 give examples of bullying behaviour and how it could look online. - I understand how bullying can make someone feel. - I can talk about how someone can/would get help about being bullied online or offline.	- I can explain how information put online about me can last for a long time. - I know who to talk to if I think someone has made a mistake about putting something online.	- 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 use the internet to communicate with people I don't know well (e.g. email a penpal/author/local school). - I can give examples of how I might use technology to communicate with others I don't know well.	- I can use keywords in search engines. - 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 voice activated searching is and how it might be used (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 true.	- I can describe why other people's work belongs to them. - I can recognise that content on the internet may belong to other people.

KS2

Year 3 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- 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	- 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 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).	- 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.	- 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 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.	- 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 programmes 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.	- 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.

Year 4 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- I can explain what is meant by the term 'identity' - I can explain how I can represent myself in different ways online. - I can explain ways in which, and why, I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media).	- I can give reasons why I should only share information 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 collect and share my information with others.	- I can explain what bullying is and can describe how people may bully others. - I can describe rules about how to behave online and how I follow them.	- I can search for information about myself online. - I can recognise that I need to be careful 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 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, films, videos).	- I can describe ways people who have similar likes and interests can get together online. - I can give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak). - I can explain some risks of communicating online with others I don't know well. - I can explain how my and other people's feelings can be hurt by what is said or written online. - I can explain why I should be careful who I trust online and what information I can trust them with. - I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. - I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life. - I can explain what is meant by 'trusting someone online'. - I can explain why this is different from 'liking someone 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 copying someone else's work from the internet without permission can cause problems. - I can give examples of what those problems might be.

Year 5 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- I can explain how identity online can be copied, modified or altered. - I can demonstrate responsible choices about my online identity, depending on context.	- I can create and use strong and secure passwords. - I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) 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.	- I can recognise when someone is upset, hurt or angry online - I can describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone. - I can explain how to block abusive users. - I can explain how I would report online bullying on the apps and platforms that I use. - I can describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline).	- I can search for information about an individual online and create a summary report of the information I find. - I can describe ways that information about people online can be used by others to make judgments about an individual.	- I can describe ways technology can affect healthy sleep and can describe some of the issues. - I can describe some strategies, tips or advice to promote healthy sleep with regards to technology	- I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. - I can make positive contributions and be part of online communities. - I can describe some of the communities in which I am involved and describe how I collaborate with others positively.	- I can use different search technologies. - I can evaluate digital content and can explain how I make choices from search results. - I can explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence. - I understand the difference between online **mis-information** (inaccurate information distributed by accident) and **dis-information** (inaccurate information deliberately distributed and intended to mislead). - I can explain what is meant by 'being sceptical'. - I can give examples 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 misinformation either by accident or on purpose).	- I can assess and justify when it is acceptable to use the work of others. - I can give examples of content that is permitted to be reused.

Year 6 Online Safety objectives *(Taken from UKCCIS Education for a Connected World)* *(See Page 13 – 'Online Safety Curriculum links' for more information)*

Term 1		Term 2	Term 3	Term 4	Term 5	Term 6	
Self-Image and Identity	**Privacy and security**	**Online Bullying**	**Online Reputation**	**Health, well-being and lifestyle**	**Online Relationships**	**Managing Online Information**	**Copyright and ownership**
- I can describe ways in which media can shape ideas about gender. - I can identify messages about gender roles and make judgements based on them. - I can challenge and explain why it is important to reject inappropriate messages about gender online. - I can describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. - I know and can give examples of how I might get help, both on and offline. - I can explain why I should keep asking until I get the help I need.	- I use different passwords for a range of online services. - I can describe effective strategies for managing those 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 identify a range of ways to report concerns both in school and at home about online bullying.	- 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 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 can show I understand my responsibilities for the well-being of others in my online social group. - I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming). - I can demonstrate how I would support others (including those who are having difficulties) online. - I can demonstrate ways of reporting problems online for both myself and my friends.	- 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. advertising and '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 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.

The Teaching and Learning of Computing

At Mountford Manor, we approach teaching and learning of Computing through 6 Key Principles. These 6 principles are key to effective teaching but by its very nature, teaching is a creative profession so there is no prescribed formula for the way they are implemented in the classroom.
These 6 Key Principles are:

1.CHALLENGE

With the mastery learning model, rather than prejudging potential outcomes and stifling expectations by setting a host of differentiated learning objectives, there is a single challenging learning objective (Challenge for all). Staff are expected to consider what each individual student needs to achieve it and adjust their lesson accordingly.

All students may have different starting points but should aspire to the learning objective and a teacher should tailor and adapt their teaching.

- Focused questioning.
- Adult/ peer help with starting their sentences.
- Modelled and worked examples
- Manipulatives and practical apparatus to support learning

It is about equity of opportunity, not all getting the same to reach the objective. The aim is to keep students in the challenge zone.

2.EXPLANATION

Three key principles should guide explanations:

1. Plan in to schemes of learning how to **link to and build on something already known.** a. Begin each lesson with a short review of previous learning (Rosenshine, 2012)

2. Allow for the **limitations of the working memory** when asking students to take on board new information, giving instructions, asking them to sort key bits of information etc. a. Present new information in small steps with student practice after each step (Rosenshine, 2012)

3. Where possible try to make the **abstract concrete** – think about and plan, how to make abstract ideas make sense:

a. Drawing diagrams; demonstrations; sharing and discussing images; taking the learning outside etc.

b. Provide scaffolds for difficult tasks (Rosenshine, 2012)

c. Direct explicit instruction (Kirschner, Sweller, Clarke, 2006)

3.MODELLING

Explain the key ideas, then model how to do it / what to do with it. This falls in to two main categories:

1. **Model the creation of products/procedures**. For example: write an essay, *show* them how to do it. Write it out on the board and discuss how/why you are doing each step as you go. Question them on what is being done. Explain, out loud, thought processes. If mistakes are made, point them out.

2. **Deconstruct expert examples and use worked examples** – have an excellent finished product and share it, discuss why it is good.

4.PRACTICE

Plan in time, during the lesson and over a series of lessons, for students to practice using new knowledge and skills. Consider the type of practice and its purpose:

1. Practice for fluency and long-term retention – repeating things in order to master them; coming back to things in subsequent lessons etc.

2. Deliberate 'intelligent' practice at the outer reaches of ability – allowing students to make connections and see patterns. Practising at the outer reaches of ability means students will have to layer skills and use them with agility. a. Guide student practice (Rosenshine, 2012)

b. Require and monitor independent practice (Rosenshine, 2012)

5.FEEDBACK

Plan in how you will give feedback during/after lessons and – for this feedback to be meaningful -how you will allow students to respond this feedback. Feedback is a two way process and the teacher should use the students' feedback to inform future planning.

Moreover, it is our goal to nurture independent and agile learners who have the skills to be successful in an increasingly globalised and rapidly changing world. To achieve this, we must equip students to be critical and reflective learners in their own right by 'learning how to learn'. Students need to be engaged in their own learning, be part of the creation of their 'next steps' and have the opportunity to assess their own work and that of their peers in a meaningful and useful manner.

1. Engage students in weekly and monthly review (Rosenshine, 2012)
2. Guide student practice

6.QUESTIONING

Some questions can be planned for but some should be responsive to what is happening in the lesson. When considering planned questions, they should be to:

1. Check for understanding – i.e. hinge questions that students should be able to answer at a certain point in the lesson, before they move on. a. Ask a large number of questions and check the responses of all students, b. Check for understanding (Rosenshine, 2012)
2. Provoke deeper thinking
3. Increase the ratio of participation and thinking of all students

Inclusion and the Computing Curriculum

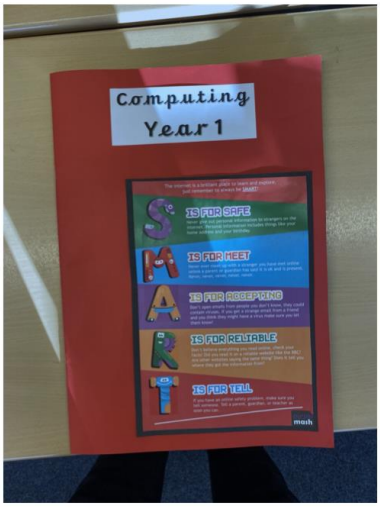
When teaching at Mountford Manor, staff are aware of children's individual needs and how to best scaffold teaching and learning, to enable access for all. Teachers consider; a range of resources, classroom organisation and management strategies to ensure optimal access for all learners, including those with physical and learning needs. Teachers have access to specialist support for advice on target setting and assessment. All SEND pupils are identified (through the Swindon Core Standards paperwork and on the Mountford Manor' SEND register). Their progress is systematically recorded and monitored in individual provision maps / Termly SEN assessments.

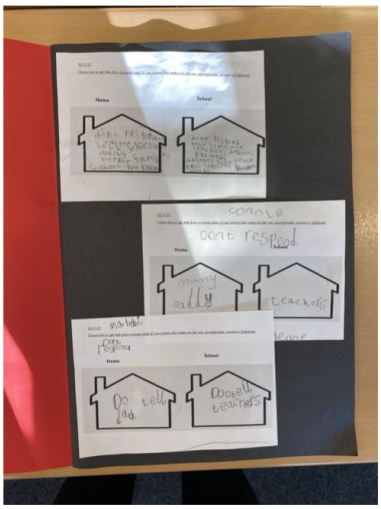
Monitoring and Assessment

EYFS and Key Stage 1

In EYFS the new skills and knowledge learnt in Computing is evidenced by collecting photos and work produced by a child and placing it in their Learning Journeys or floor books.

Children's computing knowledge and skills are assessed by judging them against the Early learning goals set out in the EYFS Profile documentation as well as the reception objectives from our programme of study.



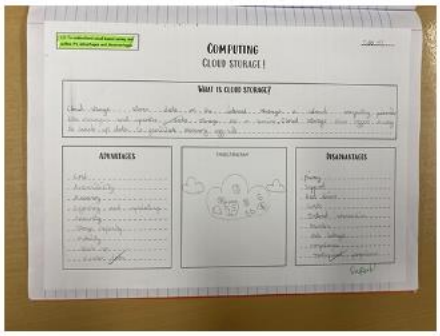


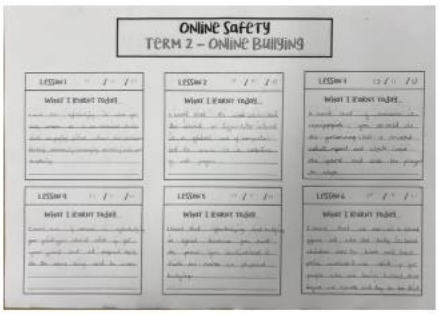
Key Stage 2

In KS2 the new skills and knowledge learnt in Computing is evidenced through a combination of work in books and pupil's responses to key questions in Computing and Online Safety that are documented on a single sheet. POP tasks are a form of summative assessment that can take place at the end of a sequence or at the end of a unit of work. They allow teachers to assess a range of knowledge and skills from the taught unit. We aim to use short quizzes throughout topics to track learning and knowledge progression.

Children's computing knowledge and skills are assessed by teacher judgement. These judgements are matched against whether pupil's work and pupil's responses to key questions show progress against the age related expectations. To ensure progression of knowledge and skills from year group to year group, teachers use questioning to understand children's prior knowledge as well as a measure of whether the child is on track. Any gaps in knowledge and skills is to be addressed so each child is best prepared for the next stage of their learning.

To assess pupils Online Safety knowledge, we use termly mind maps which allows teachers to monitor progression over the term. In computing we use concept cartoons at the end of term to show attainment of learning.





Review

To be reviewed September 2023 by Sam Bullas (Computing Curriculum lead) and Lee Edmonds (Principal at Mountford Manor).