Computing Curriculum Handbook

Curriculum Intent:	Essential Characteristics of Computational Thinkers:
To develop in our pupils a discerning mind-set that leads to being computational thinkers. Our pupil will be able to describe concepts, processes and approaches while reflecting on their own digital identity.	- Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects. - The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity. - An understanding of the connected nature of devices. - The ability to communicate ideas well by using applications and devices throughout the curriculum. - The ability to collect, organise and manipulate data effectively.

loving hopeful
attentive curious
faith-filled learned wise
generous prophetic grateful
eloquent discerning
intentional compassionate
truthful active

"Forget the former things; do not dwell on the past. See, I am doing a new thing!
Now it springs up; do you not perceive it?
I am making a way in the wilderness and streams in the wasteland." Isaiah 43:18-19

ST MARY'S

Curriculum Implementation:

At St. Mary's Primary School, we believe that Computing education is a powerful tool for nurturing not only **digital literacy** but also a strong **Catholic faith** in our pupils. Our Computing program is designed to empower them with the knowledge and skills needed to navigate the digital world safely and responsibly, understand the capabilities of technology, and prepare for a future where technology plays a central role.

Our Key Objectives:

❈ Digital Literacy in a Faithful Context: We integrate Catholic values into our Computing curriculum, teaching pupils to use digital technology responsibly, ethically, and in alignment with our faith. Lessons include discussions on digital ethics and responsible online behaviour.

❈ Online Safety: We prioritise online safety education. Pupils learn how to protect themselves and others in the digital realm, recognizing that being a good digital citizen is an extension of being a good Catholic citizen.

❈ Understanding Technology: Our program ensures that pupils comprehend what a computer is, how it works, and what it can do. This foundational knowledge includes computer components, software, and basic programming concepts.

❈ Computer Science Skills: We introduce pupils to computer science principles, promoting problem-solving, critical thinking, and creativity. They learn coding and programming, which are essential skills in the digital age.

❈ Information Technology: Pupils gain proficiency in using various software applications and digital tools for educational, creative, and productive purposes. They understand how technology can enhance learning and communication.

❈ Faith-Infused Projects: Pupils engage in faith-based technology projects, using digital tools to explore and express their Catholic faith creatively. These projects foster a deeper connection between technology and spirituality.

❈ Preparing for the Future: We equip pupils with the skills they need for a technology-driven future. This includes exposure to emerging technologies and concepts like artificial intelligence, cybersecurity, and data privacy.

❈ Digital Responsibility: We emphasise the importance of being responsible stewards of technology. Pupils learn about environmental considerations related to electronics and digital sustainability.

❈ Critical Thinking: We encourage critical thinking and discernment, helping pupils evaluate digital content and sources, discerning what aligns with their faith and values.

❈ Faith and Technology Integration: We explore how technology can enhance faith experiences, such as virtual pilgrimages, digital prayer resources, and online community building.

In summary, the Computing curriculum at St. Mary's Primary School is designed to empower our pupils with **digital literacy**, **computer science** skills, and **information technology** knowledge while nurturing their strong Catholic faith. We prepare them to be responsible, ethical, and faithful digital explorers who are well-equipped for the technology-driven world ahead.

Catholic Social Teaching Principles:

As with all our teaching at St. Mary's, staff will look to make relevant and meaningful links throughout their teaching to all elements of CST. Some will occur naturally with the pupil's curiosity and understanding, others will be more specific and intrinsic to the subject. These 3 principles of CST are the main focus for Computing lessons as their have an inherit link with the skills and knowledge shared.

How is Computing a sacred subject? Computer science opens up for the learners the possibility of being key influencers and transformational leaders at a local, national and global level. The development of computational thinking and operational skills calls for the formation of learners who prioritise the importance of justice, equality, truth and the common good of all people at a global level.

To '*bring the gospel to the street'* here are key links and opportunities to promote CST within our Computing lessons and beyond:
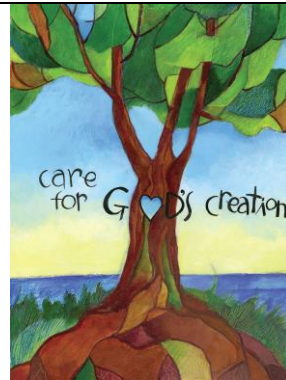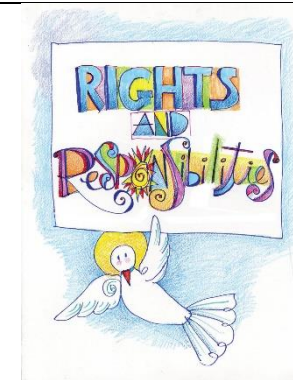
Solidarity and the Common Good	**Stewardship of God's Creation**	**Rights and Responsibilities**
Computing Science: Computing systems and networks & Programming	**Information Technology: Creating Media & Data Handling**	**Digital Literacy: Online Safety**

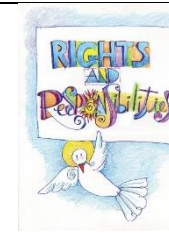| Solidarity and the Common Good	Stewardship of God's Creation	Rights and Responsibilities
Computing Science: Computing systems and networks & Programming	**Information Technology: Creating Media & Data Handling**	**Digital Literacy: Online Safety**
EYFS: We help each other	EYFS: Discovering God's Beautiful Creation	EYFS: Making the right choices.
- To know that when we help each other we can be sensible/logical choices and help predict what will happen next.	- To know that God's Creation is beautiful and can be represented in lots of different ways. Such as online painting/pictures.	- SMART Rules: who do we tell when we are unsure? Why is this important?
KS1: We build together a community of peace	KS1: Learning from God's Creation	KS1: Helping each other to make the right choices.
- **Y1**: To know that to create peace, we often need to decompose and break down things so that we can better understand and help.	- **Y1**: To know that even though we can edit God's creation, it is uniquely beautiful and individual like all of us.	- Y1: To know that we have a responsibility to be honest and truthful online.
- **Y2**: To know that to that to build a clear view of peace, we sometimes need to decompose ideas and projects to better understand their problems/errors.	- **Y2**: To know that when searching for appropriate images, you can find lots of different versions of the same idea.	- Y2: To know what we have the same R&Rs online and offline.
KS2: We face challenges together	KS2: All things are connected	KS2: Recognising the difference between rights and responsibilities.
- **Y3**: To overcome a challenge, we can use logical reasoning.	- **Y3**: To know that all things are different and when bringing them together, e.g. when editing a project, together they make the whole stronger.	- Y3: To know that people have a right to share facts, beliefs and opinions on the internet and they are not always true.
- **Y4**: To know that understanding the purpose of a project/file/algorithm we can overcome challenges they present.	- **Y4**: To know that when working collaboratively we can come up with new and amazing concepts and ideas.	- Y4: To know that we have a responsibility to behaviour appropriately online and offline to stay safe.
- **Y5**: To overcome challenges we can learn from previous experiences when working with software which can lead to a stronger more complex algorithm with a clear purpose.	- **Y5**: To know that logical thinking can support in joining up concepts.	- Y5: To know that online information can be used to form judgements and that these judgements should be right and fair the same as if they were offline.
- **Y6**: To know that past experiences help us to solve new problems and challenges when writing algorithms. To share these experiences.	- **Y6**: To know that by refining your search you can get the most relevant information needed and connect to others with similar thoughts, interests and beliefs.	- Y6: To know that we have a responsibility to have a truthful, fair and clear with our digital footprint knowing it has the same bearing online and offline.

Our approach to the teaching of Computing:

We have chosen the Kapow Scheme of work to support the teaching and learning of Computing.

We have done this for the following reasons:
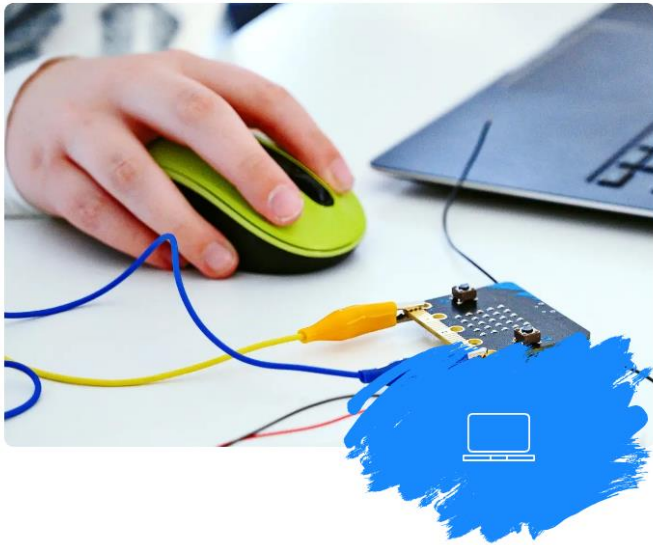
Our approach

✓ Authored by primary computing specialists using free readily-available software.

✓ A full scheme of work, easily adaptable to your teaching needs.

✓ Resources to support less confident staff: learn as you plan with our teacher and pupil videos.

✓ Clear progression of skills and learning throughout EYFS, KS1 & KS2.

✓ Relevant cross-curricular opportunities.

✓ Content mapped to Education for a Connected World framework and the Teaching online safety in schools DfE document.

Teach Computing with Confidence with Kapow Primary™
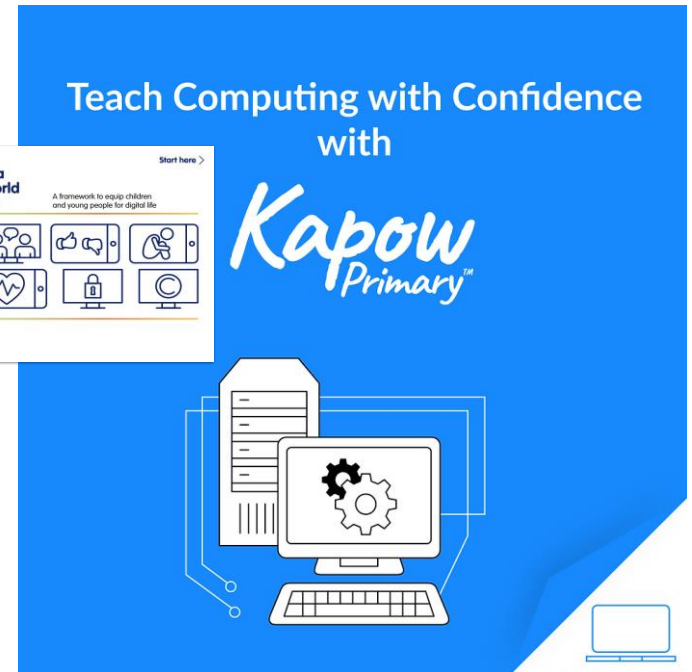
Alongside the above, Kapow Computing offers teaching effective support, CPD, planning and resources to help effectively deliver the Computing curriculum.

Curriculum Overview:

National Curriculum guidance

| DL Digital Literacy | IT Information Technology | CS Computer Science |

Kapow Primary scheme of work

Kapow Primary key areas

| Computing systems and networks | Programming | Creating media | Data handling | Online safety |
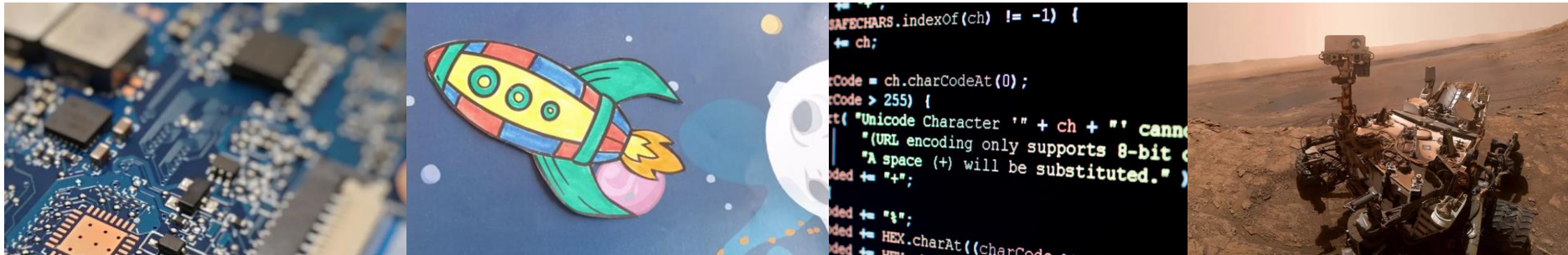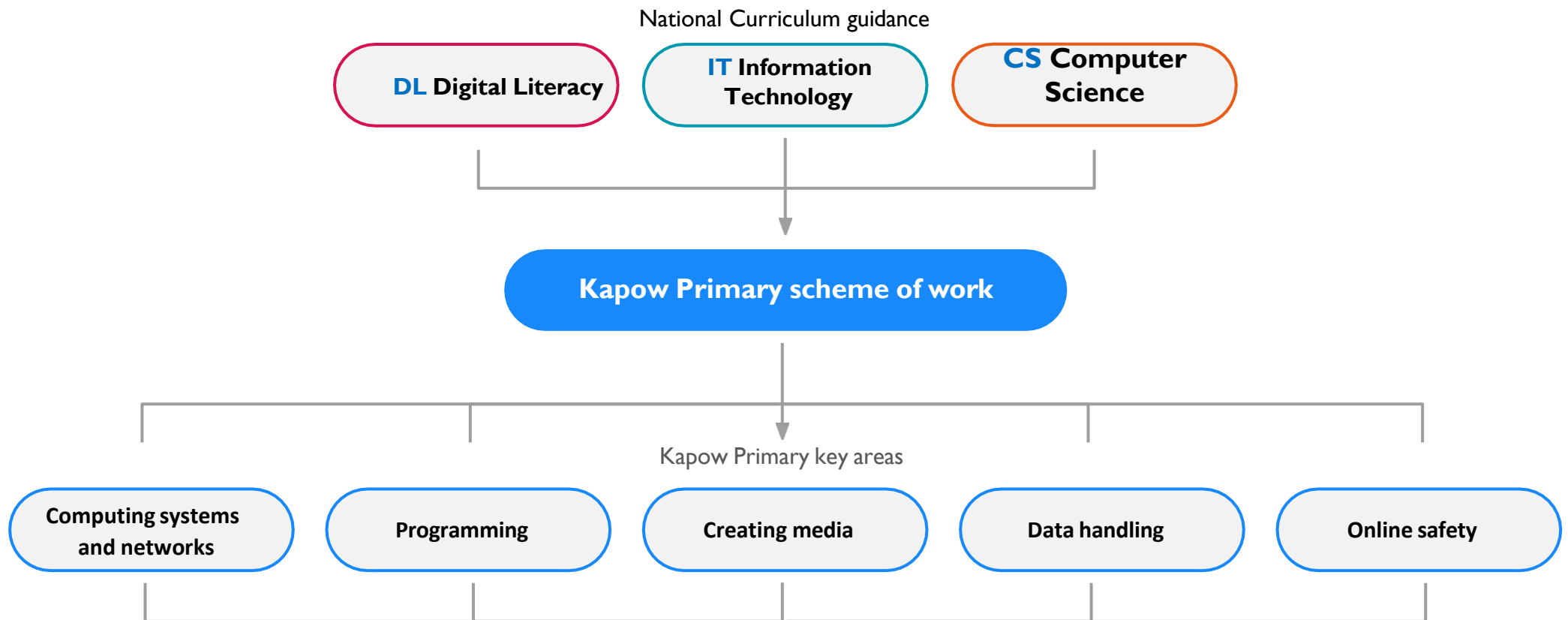
Key areas: We have categorised our lessons into the five key areas below, which we return to in each year group making it clear to see prior and future learning for your pupils and how what you are teaching fits into their wider learning journey.

Computing systems and networks	Programming	Creating media	Data handling	Online safety
Identifying hardware and using software, while exploring how computers communicate and connect to one another.	Understanding that a computer operates on algorithms, and learning how to write, adapt and debug code to instruct a computer to perform set tasks.	Learning how to use various devices — record, capture and edit content such as videos, music, pictures and photographs.	Ensuring that information is collected, recorded, stored, presented and analysed in a manner that is useful and can help to solve problems.	Understanding the benefits and risks of being online — how to remain safe, keep personal information secure and recognising when to seek help in difficult situations.

Kapow Primary's Computing scheme of work has been designed as a spiral curriculum with the following key principles in mind:

✓ **Cyclical**: Pupils revisit the five key areas throughout KS1 and KS2.

✓ **Increasing depth**: Each time a key area is revisited, it is covered with greater complexity.

✓ **Prior knowledge**: Upon returning to each key area, prior knowledge is utilised so pupils can build on previous foundations, rather than starting again.
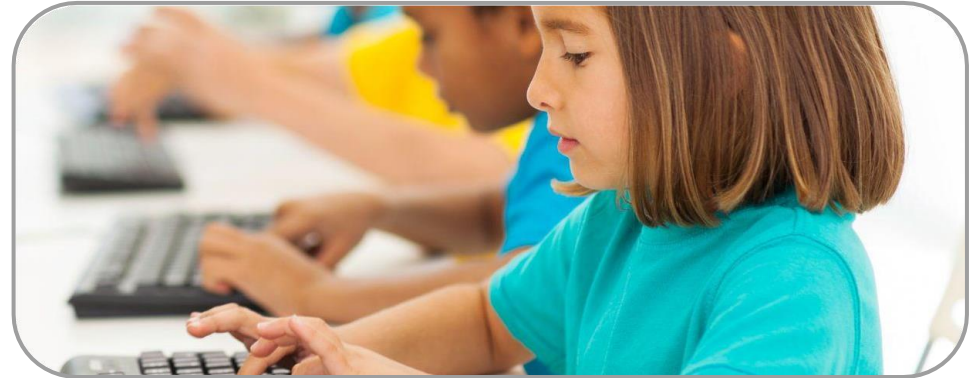
Computing in EYFS:

Our EYFS lessons are a natural precursor to our Year 1 Computing plans. They are designed especially for the Reception classroom and are play-based, hands-on and fun!

Please read the teacher guidance for:

Supporting a child-led project using technology and

Computing through continuous provision

Whilst the technology strand is no longer a specific area in the new EYFS framework (2021), having the opportunity to develop computing skills at an early age can foster interest and confidence in technology and give pupils an advantage going into KS1.

Our EYFS units focus on the same key areas and link to Primary and Specific Areas of the *EYFS framework 2021* and *Development Matters Guidance* as detailed on individual lesson plans and on our National curriculum mapping document.

Unit Overview:

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
EYFS	**Computing systems and networks** **Using a computer** (All 5 lessons)	**Programming** **All about instructions** (All 5 lessons)	**Computing systems and networks** **Exploring hardware** (4 lessons: 1-4 only)	**Data handling** **Introduction to data** (4 lessons: 1-4 only)	**N/A**
Year 1	**Computing systems and networks** **Improving mouse skills** (3 lessons: 1-3 only)	**Programming 1** **Algorithms unplugged** (4 lessons: 1, 2 , 4 and 5 only)	**Creating media** Digital imagery **(Option 1: google)** (3 lessons: 1-3 only)	**Programming 2** **Bee-bot** **(Option 1: Bee-Bot)** **(Option 2: Virtual Bee-Bot)** (4 lessons: 1, 3, 4 and 5 only)	**Online safety** **Online safety Y1** (All 4 lessons)
Year 2	**Computing systems and networks 1** **What is a computer?** (3 lessons: 1, 2 and 5 only)	**Programming 1** **Algorithms and debugging** (4 lessons: 1, 2, 4 and 5 only)	**Data Handling** **International Space Station** (3 lessons: 1, 3 and 5 only)	**Programming 2** **ScratchJr** (4 lessons: 1, 2, 4 and 5 only)	**Online safety** **Online safety Y2** (All 4 lessons)

For the most up to date unit overview and resources: Click Here

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Year 3	**Computing systems and networks 1**	**Computing systems and networks 3**	**Creating media**	**Programming**	**Online safety**
	Networks (3 lessons: 1, 3 and 5 only)	Journey inside a computer (3 lessons: 1, 2 and 5 only)	Video trailers (Option 2: Using iPads) (4 lessons: 1-4 only)	Programming: Scratch (4 lessons: 1, 2, 3 and 5 only)	Online safety Y3 (4 lessons: Teach all five by combining lessons 4 and 5)
Year 4	**Computing systems and networks**	**Programming 1**	**Data Handling**	**Programming 2**	**Online safety**
	Collaborative learning (Option 1: Google) (4 lessons: 1, 3, 4 and 5)	**Further coding with Scratch** (3 lessons: 2-4 only)	**Investigating weather** (3 lessons: 1, 3, and 4)	**Computational thinking** (4 lessons: 1-4 only)	**Online safety Y4** (4 lessons: 1, 2, 3 and 5)
Year 5	**Computing systems and networks**	**Data Handling**	**Creating media**	**Programming**	**Online safety**
	Search engines (4 lessons: 1-4)	**Mars Rover 1** (3 lessons: 1, 2 and 4)	**Stop motion animation (Option 2: with cameras)** (4 lessons: 1-4)	**Programming music (Option 2: Scratch)** (4 lessons: 1-4)	**Online safety Y5** (3 lessons: 1, 4 and 5)
Year 6	**Computing systems and networks**	**Data Handling**	**Creating media**	**Programming**	**Online safety**
	Bletchley Park (3 lessons: 1-3)	**Big data 1** (4 lessons: 1, 3, 4 and 5)	**History of Computers** (3 lessons: 3-5)	**Intro to Python** (4 lessons: 1-4)	**Online safety Y6** (4 lessons: 1, 2, 4 and 6)

Progression of Computer Science:

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Hardware	Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary. Recognising and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking.	Learning how to operate a camera or tablet to take photos and videos. Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard.	Understanding what a computer is and that it's made up of different components. Recognising that buttons cause effects and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Developing confidence with the keyboard and the basics of touch typing.	Understanding what the different components of a computer do and how they work together. Drawing comparisons across different types of computers. Learning about the purpose of routers.	Using tablets or digital cameras to film a weather forecast. Understanding that weather stations use sensors to gather and record data which predicts the weather.	Learning that external devices can be programmed by a separate computer.	Learning about the history of computers and how they have evolved over time. Using the understanding of historic computers to design a computer of the future. Understanding and identifying barcodes, QR codes and RFID. Identifying devices and applications that can scan or read barcodes, QR codes and RFID.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computational Thinking	Using logical reasoning to understand simple instructions and predict the outcome.	Learning that decomposition means breaking a problem down into smaller parts. Using decomposition to solve unplugged challenges. Using logical reasoning to predict the behaviour of simple programs. Developing the skills associated with sequencing in unplugged activities. Following a basic set of instructions. Assembling instructions into a simple algorithm.	Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaini ng what an algorith m is. Followi ng an algorith m. Creating a clear and precise algorithm.	Using decomposition to explain the parts of a laptop computer. Using decomposition to explore the code behind an animation. Using repetition in programs. Using logical reasoning to explain how simple algorithms work. Explaining the purpose of an algorithm. Forming algorithms independently.	Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. Identifying patterns through unplugged activities. Using abstraction to identify the important parts when completing both plugged and unplugged activities.	Decomposing animations into a series of images. Decomposing a story to be able to plan a program to tell a story. Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose.	Decomposing a program into an algorithm. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Programming	Following instructions as part of practical activities and games. Learning to give simple instructions. Learning to debug instructions, with the help of an adult, when things go wrong.	Programming a Floor robot to follow a planned route. Learning to debug instructions when things go wrong. Learning to debug an algorithm in an unplugged scenario.	Using logical thinking to explore software, predicting, testing and explaining what it does. Using an algorithm to write a basic computer program.	Using logical thinking to explore more complex software; predicting, testing and explaining what it does. Incorporating loops to make code more efficient. Continuing existing code.	Creating algorithms for a specific purpose. Coding a simple game. Using abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient.	Iterating and developing their programming as they work. Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. Using a range of programming commands. Using repetition within a program.	Debugging quickly and effectively to make a program more efficient. Remixing existing code to explore a problem. Using and adapting nested loops. Programming using the language Python. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose.

	Year 3	Year 4	Year 5	Year 6
Networks and data representation	Understanding the role of the key components of a network. Identifying the key components within a network, including whether they are wired or wireless. Understanding that websites and videos are files that are shared from one computer to another. Learning about the role of packets. Understanding how networks work and their purpose. Recognising links between networks and the internet. Learning how data is transferred.	Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.	Learning the vocabulary associated with data: data and transmit. Recognising that computers transfer data in binary and understanding simple binary addition. Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.	N/A

Information technology:

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using Software	Using a simple online paint tool to create digital art.	Using a basic range of tools within graphic editing software. Taking and editing photographs. Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Developing understanding of different software tools.	Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images.	Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions.	Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others.	Using logical thinking to explore software more independently, making predictions based on their previous experience. Using software programme Sonic Pi/Scratch to create music. Using the video editing software to animate. Identify ways to improve and edit programs, videos, images etc. Independently learning how to use 3D design software package TinkerCAD.	Using logical thinking to explore software independently, iterating ideas and testing continuously. Using search and word processing skills to create a presentation.
Using email and internet searches	N/A	Recognising devices that are connected to the internet. Understanding that we are connected to others when using the internet.	Searching for appropriate images to use in a document.	N/A	Understanding why some results come before others when searching. Understanding that information found by searching the internet is not all grounded in fact. Searching the internet for data.	Developing searching skills to help find relevant information on the internet.	Understanding how search engines work.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using data	Representing data through sorting and categorising objects in unplugged scenarios. Exploring branch databases through physical games.	N/A	Collecting and inputting data into a spreadsheet. Interpreting data from a spreadsheet.	N/A	Understanding that data is used to forecast weather. Recording data in a spreadsheet independently. Sorting data in a spreadsheet to compare using the 'sort by…' option. Designing a device which gathers and records sensor data.	Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location.	Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets.
Wider use of technology	N/A	Recognising common uses of information technology, including beyond school. Understanding some of the ways we can use the internet.	Learning how computers are used in the wider world.	Recognising how social media platforms are used to interact.	Understanding that software can be used collaboratively online to work as a team.	Learn about different forms of communication that have developed with the use of technology.	Learning how 'big data' can be used to solve a problem or improve efficiency.

Digital Literacy:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognising that a range of technology is used for different purposes. Learning to log in and log out.	Logging in and out and saving work on their own account. When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. Understanding how to interact safely with others online. Recognising how actions on the internet can affect others. Recognising what a digital footprint is and how to be careful about what we post.	Learning how to create a strong password. Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online. Learning to be respectful of others when sharing online and ask for their permission before sharing content. Learning strategies for checking if something they read online is true.	Recognising that different information is shared online including facts, beliefs and opinions. Learning how to identify reliable information when searching online. Learning how to stay safe on social media. Considering the impact technology can have on mood. Learning about cyberbullying. Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.	Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others. Learning to make judgements about the accuracy of online searches. Identifying forms of advertising online. Recognising what appropriate behaviour is when collaborating with others online. Reflecting on the positives and negatives of time spent online. Identifying respectful and disrespectful online behaviour.	Identifying possible dangers online and learning how to stay safe. Evaluating the pros and cons of online communication. Recognising that information on the internet might not be true or correct and learning ways of checking validity. Learning what to do if they experience bullying online. Learning to use an online community safely	Learning about the positive and negative impacts of sharing online. Learning strategies to create a positive online reputation. Understanding the importance of secure passwords and how to create them. Learning strategies to capture evidence of online bullying in order to seek help. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking.

Computing Systems and networks:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To be able to understand what a computer keyboard is and recognising some letters and numbers. To know that a mouse can be used to click, drag and create simple drawings. To know that to use a computer you need to log in to it and then log out at the end of your session. To know that different types of technology can be found at home and in school. To know that you can take simple photographs with a camera or iPad. To know that you must hold the camera still and ensure the subject is in the shot to take a photo	To know that "log in and log out" means to begin and end a connection with a computer. To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. To know that passwords are important for security. To know that when we create something on a computer it can be more easily saved and shared than a paper version. To know some of the simple graphic design features of a piece of online software.	To know the difference between a desktop and laptop computer. To know that people control technology. To know that buttons are a form of input that give a computer an instruction about what to do (output). To know that computers often work together.	To know what a tablet is and how it is different from a laptop/desktop computer. To understand what a network is and how a school network might be organised. To know how the internet uses networks to share files. To know what a packet is and why it is important for website data transfer. To know the roles that inputs and outputs play on computers. To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.	To understand that software can be used collaboratively online to work as a team. To know that you can use images, text, transitions and animation in presentation slides.	To know how search engines work. To understand that anyone can create a website and therefore we should take steps to check the validity of websites. To understand what copyright is. To know the difference between ROM and RAM.	To understand the importance of having a secure password and what "brute force hacking" is. To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.

Programming:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To know that being able to follow and give simple instructions is important in computing. To understand that it is important for instructions to be in the right order. To understand why a set of instructions may have gone wrong.	To understand that an algorithm is when instructions are put in an exact order. To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing. To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'. To understand the basic functions of a Bee-Bot. To know that you can use a camera/tablet to make simple videos. To know that algorithms move a bee-bot accurately to a chosen destination.	To understand what machine learning is and how that enables computers to make predictions. To know that abstraction is the removing of unnecessary detail to help solve a problem. To know that coding is writing in a special language so that the computer understands what to do. To understand that the character in ScratchJr is controlled by the programming blocks. To know that you can write a program to create a musical instrument or tell a joke.	To know that Scratch is a programming language and some of its basic functions. To understand how to use loops to improve programming. To understand how decomposition is used in programming. To understand that you can remix and adapt existing code.	To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch. To know what a conditional statement is in programming. To understand that pattern recognition means identifying patterns to help them work out how the code works. To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.	To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. To understand that using loops can make the process of writing music simpler and more effective.	To know that there are text-based programming languages such as Logo and Python. To know that nested loops are loops inside of loops.

Creating Media:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
N/A	To understand that holding the camera still and considering angles and light are important to take good pictures. To know that you can edit, crop and filter photographs. To know how to search safely for images online.	N/A	To know that different types of camera shots can make my photos or videos look more effective. To know that I can edit photos and videos using film editing software. To understand that I can add transitions and text to my video.	N/A	To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. To know that decomposition of an idea is important when creating stop-motion animations. To know that editing is an important feature of making and improving a stop motion animation.	N/A

Data Handling:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To know that sorting objects into various categories can help you locate information. To know that using yes/no questions to find an answer is a branching database.	N/A	To understand that you can enter simple data into a spreadsheet. To understand what steps you need to take to create an algorithm. To know what data to use to answer certain questions. To know that computers can be used to monitor supplies.	N/A	To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called 'sensor data'. To know that a weather machine is an automated machine that responds to sensor data. To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.	To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. To know what numbers using binary code look like and be able to identify how messages can be sent in this format. To know what simple operations can be used to calculate bit patterns.	To know that data contained within barcodes and QR codes can be used by computers. To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. To know that data is often encrypted so that even if it is stolen it is not useful to the thief.

Online Safety:

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Early elements of the SMART rules. Learning through the RSE curriculum.	To know that the internet is many devices connected to one another. To know that you should tell a trusted adult if you feel unsafe or worried online. To know that people you do not know on the internet (online) are strangers and are not always who they say they are. To know that to stay safe online it is important to keep personal information safe. To know that 'sharing online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.	To understand the difference between online and offline. To understand what information I should not post online. To know what the techniques are for creating a strong password. To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.' To understand that not everything I see or read online is true.	To know that not everything on the internet is true: people share facts, beliefs and opinions online. To understand that the internet can affect your moods and feelings. To know that privacy settings limit who can access your important personal information Information, such as your name, age, gender etc. To know what social media is and that age restrictions apply.	To understand some of the methods used to encourage people to buy things online. To understand that technology can be designed to act like or impersonate living things. To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology. To understand what behaviours are appropriate in order to stay safe and be respectful online.	To know different ways we can communicate online. To understand how online information can be used to form judgements. To understand some ways to deal with online bullying. To know that apps require permission to access private information and that you can alter the permissions. To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.	To know that a 'digital footprint' means the information that exists on the internet as a result of a person's online activity. To know what steps are required to capture bullying content as evidence. To understand that it is important to manage personal passwords effectively. To understand what it means to have a positive online reputation. To know some common online scams.

See within our RSE – Ten:Ten Curriculum for more coverage of Online Safety.

Curriculum Impact:

To evaluate and monitor pupil achievement, we assess through a combination of formative and summative assessment, using both formative objectives and day-to-day teacher assessment. Computing can occurs through every part of the curriculum. However, our Computing lessons are where we introduce the core skills and knowledge. Within the wider curriculum we, at times, apply our computing skills to help reinforce and develop.

Assessment:
- Teachers update the **formative** objectives ongoing – this is through our Online Tracker on Arbor.
- At the end of each term, teachers update the **summative** attainment on Arbor.
- The following descriptors help to interpret from formative objectives to summative levels.

Markbook: DfE NC KS2 Computing

▼ ▶ 03 Mar 2024   ▶ Computing > Computing

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☐	Student ↑ ▼	Average ▼	Design, write and debug programs that accomplish specific g… ▼	Use sequence, selection, and repetition in programs; work wi… ▼
☐	Orlah	Green	Green ⌄	⌄
☐	Esther	Red	Red ⌄	⌄
☐	Grace	Amber	Amber ⌄	⌄
☐	Ayana		⌄	⌄

Formative Computing Objectives:

Key Stage 2 Assessment Objectives:

- 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.

Key Stage 1 Assessment Objectives:

- 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.