

Computing Intent

Computing at St John's

At St John's the computing curriculum is designed 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 and are responsible, competent, confident and creative users of information and communication technology. At St John's we intend to develop 'thinkers of the future' through modern, ambitious and relevant education in Computing. We want to equip our pupils with the ability to use computational thinking and creativity that will enable them to be active participants in the digital world. It is important to us that pupils have confidence using technology and that they understand how to use this ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future. The computing curriculum is made up of three aspects: **Information Technology, Computer Science and Digital Literacy.**

Compass Curriculum Drivers

	In all subjects...	In computing, this looks like...
Citizenship	We want children to flourish in their sense of self-worth and through this have respect for others. Our curriculum promotes an appreciation and respect for diversity through a celebration of heritage, culture and religion so that all are encouraged to be inclusive, open minded and be ready and willing to develop new friendships. Our learners are encouraged to speak out against injustice.	<ul style="list-style-type: none"> • Exploring the lives of people who represent a range of backgrounds including ethnicity, gender, religion and status. • Understanding the impact information technology can have in shaping and reflecting the changing shape of society. • Learning to be a good citizen and a good friend
Oracy	We prioritise speaking and listening and recognise that developing speaking and listening skills needs to be at the heart of teaching and learning at St John's CE Primary School. We aim to develop children's speaking skills and also prioritise opportunities to learn through talk. We see oracy as part of the school's pedagogy, not a standalone lesson or subject and we expect it to be a valued feature in all aspects of school life.	<ul style="list-style-type: none"> • Providing opportunities to develop their understanding through discussion and talk. • Encouraging pupils to discuss and evaluate their own work as well as the work of others. • Using discussion scaffolds to support pupils articulating their preferences and opinions in clear, articulate ways.
Mastery and Mindset	We want every child to develop a love of learning by ensuring that they have a deep, long-term, secure and adaptable understanding of the subjects they are taught. Through the language we use, activities we plan into our lessons, and by modelling it with our own behaviour we encourage pupils to adopt a growth mind set. We want children to take risks and know that through making mistakes we learn and improve. We want children to have courage and resilience to keep going, even when things are hard.	<ul style="list-style-type: none"> • Careful sequential planning to ensure pupils are equipped with the skills and knowledge to enable them to succeed. • Substantive concepts are revisited and developed through concrete experiences. • Children are aware of disciplinary knowledge and able to explain how it shapes their learning.
Past/present/place	We aim to promote a sense of belonging and purpose throughout teaching and learning at St John's CE Primary School. Through learning about the past, we identify ways to create a better future. We want our learners to appreciate that our world is precious and needs to be looked after. We seek to grow courageous advocacy in our learners so that children experience how they can also be game changers and activists to make changes for the better.	<ul style="list-style-type: none"> • Children learn about the lives of people from different periods in history and their contribution to our society today • Pupils learn how technology has the power to communicate and share important messages about society and the world we live in. • To appreciate the development of communication technology and how it helps us to communicate with others in the modern world

Aspiration	We want all our children to aspire and to live their lives to the full. We understand that we need to broaden their horizons through rich experiences of the world. We provide a supportive environment in which to nurture their interests and self-belief and seek to offer high quality opportunities in order for each individual to become aware of their own potential for success.	<ul style="list-style-type: none"> • Opportunities to take part in enrichment projects, working alongside others to collaborate when producing digital art, films, animation and music. • High quality resources are used alongside a dedicated computing hardware. • Opportunities to present and display their work.
Self Esteem	We know that in order for our learners to achieve they need to develop the social and emotional skills needed to access learning and develop positive relationships underpinned by a sense of understanding, justice, empathy and respect for themselves and others. This sits alongside a total commitment to high quality teaching and learning that is experienced by every child no matter what their starting points might be, underpinned by high expectations and targeted intervention to ensure that success can be celebrated for every child and their family.	<ul style="list-style-type: none"> • Provide inclusive and aspirational environments and learning experiences where pupils thrive and build the cultural capital, they need to make aspirational choices about their own futures, overcoming any barriers. • Think before sharing comments online • Make judgements in order to stay safe
Spirituality	We prioritise time and space to offer children at St John's CE Primary School opportunities to reflect, think upon and value creativity, beauty and amazement through our curriculum. We promote and offer opportunities to explore spirituality throughout all that we do. We value this as a treasured opportunity to ensure that our children develop good mental health, have opportunities to experience peace, acceptance and appreciation of wonder therefore growing in their understanding of themselves, others, the world and beyond.	<ul style="list-style-type: none"> • Empathy with people from different cultures • Studying the lives of people whose spirituality reflects how they lived their lives. • Using computing as a model to express their feelings and reflections • Taking part in local, collaborative projects with churches in our community • The study of self-image in Digital literacy • Using computing to explore themes in collective worship

Computing Implementation

Our computing scheme is based on the Teach Computing Curriculum which has been created by the National Centre for Computing Education (NCCE) and Project Evolve which focusses on Digital Literacy. The schemes have been thoroughly tested by teachers, is grounded in the latest research and allows our children to enjoy the full breadth of what computing involves. Computing is taught using a discrete lesson approach to allow the specific skills being taught to be focused on. This is important to allow children to master each skill they encounter. Each unit is focused around a theme which will cover one or more of the National Curriculum statements. 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. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years. Early on, pupils will start looking at technology and will learn basic computing skills. This will build a foundation of skills that pupils will be able to use throughout their computing journey.

Teach Computing: Units Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Computing systems and networks Technology around us	Creating media – Digital painting	Creating media – Digital writing	Data and information Grouping Data	Programming A Moving a robot	Programming B Introduction to animation
Year 2	Computing systems and networks IT around us	Creating media Digital photography	Creating media Making music	Data and information Pictograms	Programming A Robot algorithms	Programming B An introduction to quizzes
Year 3	Computing systems and networks Connecting computers	Creating media Animation	Programming A Sequence in music	Data and information Branching databases	Creating media Desktop publishing	Programming B Events and actions
Year 4	Computing systems and networks The internet	Creating media Audio editing	Programming A Repetition in shapes	Data and information Data logging	Creating media Photo editing	Programming B Repetition in games

Year 5	Computer systems and networks Sharing information	Creating media Video editing	Programming A Selection in physical computing	Data and information Flat-file databases	Creating media Vector drawing	Programming B Selection in quizzes
Year 6	Computer systems and networks Communication	Creating media Web page creation	Programming A Variables in games	Data and information Spreadsheets	Creating media 3D modelling	To use conditional statement to compare a variable to value

Project Evolve: Units Overview and progression

	Autumn 1 Self Image and Identity	Autumn 2 Online relationships	Spring 1 Online reputation	Spring 2 Online Bullying	Summer 1 Managing online information Health, wellbeing and lifestyle	Summer 2 Privacy and security Copyright and ownership
EYFS	I know that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset I can give different examples of how to say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' I can explain how this could be better to do in real life or online	I can name some ways that members of my family talk to each other and other people using the internet I can name an app, a piece of software or a technology that I use or could use to talk to people I know	I know what the word 'information' means I know what 'online' means I understand that I can put information online for others to see.	Say what being 'unkind online' means to them. Give specific examples/ways that people can be unkind through technology and the internet. Recognise differences between kind and unkind behaviours.	I can talk about how to use the internet as a way of finding information online. I can identify rules that help keep us safe and healthy in and beyond the home when using technology	I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). I know that work I create belongs to me.
Year 1	I can recognise that there may be people online who could make someone feel sad, embarrassed or upset	I can give examples of when I should ask permission to do something online and explain why this is important.	I can recognise that information can stay online and could be copied.	I can describe how to behave online in ways that do not upset others and can give examples.	I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.	I can explain how passwords are used to protect information, accounts and devices.

					I can explain rules to keep myself safe when using technology both in and beyond the home.	I can explain why work I create using technology belongs to me
Year 2	I can explain how other people may look and act differently online and offline.	I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country).	I can explain how information put online about someone can last for a long time.	I can explain what bullying is, how people may bully others and how bullying can make someone feel.	I can explain why some information I find online may not be real or true. I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	I can explain how passwords can be used to protect information, accounts and devices. I can recognise that content on the internet may belong to other people.
Year 3	I can explain what is meant by the term 'identity'.	I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.	I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.	I can describe appropriate ways to behave towards other people online and why this is important.	I can demonstrate how to use key phrases in search engines to gather accurate information online. I can explain why spending too much time using technology can sometimes have a	I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. I can explain why copying someone else's work from the internet without

					negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged	permission isn't fair and can explain what problems this might cause.
Year 4	I can explain how my online identity can be different to my offline identity.	I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.	I can explain ways that some of the information about anyone online could have been created, copied or shared by others.	I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).	I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.
Year 5	I can demonstrate how to make responsible choices about having an online identity, depending on context.	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 describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	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 what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.	I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.

					I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.	I can give examples of content that is permitted to be reused and know how this content can be found online.
Year 6	I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online	I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.	I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.	I can explain how someone would report online bullying in different contexts.	<p>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 or disinformation).</p> <p>I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).</p>	<p>I can describe how and why people should keep their software and apps up to date, e.g. auto updates.</p> <p>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</p>

Computing in EYFS

Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, which focuses on the learning and development of children from birth to age five, there are many opportunities for young children to use technology to solve problems and produce creative outcomes. In particular, many areas of the framework provide opportunities for pupils to develop their ability to use computational thinking effectively, such as through undertaking projects involving the concepts explained below. At St John's we use Barefoot Computing to support the teaching of computing in EYFS.

As young children take part in a variety of tasks with digital devices, such as moving a Bee Bot around a classroom, they will already be familiar with the device before being asked to undertake tasks related to the key stage one (KS1 - ages 5 - 7 years) computing curriculum, such as writing and testing a simple program. Not only will children be keen to again use a device they had previously enjoyed using, their cognitive load will also be reduced, meaning they are more likely to succeed when undertaking activities linked to the next stage in their learning.

Within the EYFS statutory framework, there are opportunities to enable our teachers to effectively prepare children for studying the computing curriculum in KS1

Substantive Concepts	Understanding the world	Physical development	Communication and language	Personal, social and emotional development	Expressive arts and design
<p>EYFS</p>	<p>Classrooms contain a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote controlled cars, walkie-talkies and interactive pets, as part of continuous provision. Further technology could be included in conjunction with other activities, such as digital cameras for pupils to photograph their own learning. We recognise the need to tinker, or play, with a device, in order to discover how it functions.</p>	<p>Many children entering Early Years settings are already familiar with tablet devices. This has recently become a more significant issue, due to the prevalence of tablet devices in the home. It is therefore important that children are given opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills. Usage could be linked to phonics sessions, such as through the use of drill and practice games, including Dance Mat Typing or the Animal Typing app, or more creative outcomes, as described when examining the areas below.</p>	<p>Unplugged activities, or those away from the machine, give children an opportunity to develop their understanding of technology without the need for expensive devices. Children could be asked to give precise instructions verbally, such as through giving instructions to a sandwich making robot, with links made to the importance of using the correct vocabulary, along with speaking clearly and precisely. Giving instructions could also form part of sessions linked to physical development activities, such as determining rules for certain playground games.</p>	<p>Voice recorders, or the microphone built into a tablet device, could be used to record how pupils are feeling, or to discuss their relationships with others. This could be extended through pupils creating their own videos, which could also link to children giving online safety guidance to their peers on appropriate use of technology and what to do if they feel worried or concerned when using a device. A range of age-appropriate books are now available for young children to examine online safety, such as Chicken Clicking, Goldilocks (A hashtag cautionary tale) and the free Smartie the Penguin. Using voice and video recorders also allows children to self-evaluate their own speaking.</p>	<p>The use of painting and graphics applications can further develop pupils' keyboard and mouse skills, whilst a range of tablet based apps are also available, such as the free Doodle Buddy. Creative outcomes can be produced, which allows pupils to take ownership of their work and could even be part of an extended project. Outputs can be linked to other uses of technology, such as producing mats for Bee Beets to travel around, whilst other physical computing devices, such as Spheros, can even be put into paint and controlled using a tablet device to produce images. Outfits for a device to wear, such as Bee Bot head dresses or Sphero paper cup people, could also be developed.</p>

Substantive Concepts – these are the concepts that give a subject substance or content.

Our curriculum is refined yearly, but it maintains a consistent knowledge base to ensure conceptual progression. We have identified a set of key substantive concepts that children will repeatedly revisit throughout their time at St John’s. Our substantive concepts are: **Logic** (predicting and analysing), **Algorithms** (making steps and rules), **Decomposition** (breaking down into parts), **Patterns** (spotting and using similarities), **Abstraction** (removing unnecessary detail) and **Evaluation** (making judgements)

Substantive knowledge in computing is understanding how to use technology, how to be safe and knowing how to program. This is developed through deliberate practice and by children applying their knowledge of how to be computational thinkers. “Computational thinking is an important life skill, which all pupils now need to develop. It is central to both living in and understanding our digitally enriched world. It is a cognitive process involving logical reasoning by which problems are solved across the whole curriculum and through life in general.” (Computing at School, 2015)

	Logic	Algorithms	Decomposition	Patterns	Abstraction	Evaluation
KS1	Your child will be introduced to writing simple flow charts that include some basic decision making. Your child will use a turtle robot and will write computational logic to decided what command to run next.	To understand what algorithms are; how they are implemented as programs on digital devices; and that Programs execute by following precise and unambiguous instructions. And that programs execute by following precise and unambiguous instructions Create algorithms with clear instructions Give examples of algorithms in everyday lives	Identifying and describing problems and processes. Breaking down problems and processes into distinct steps.	From an early age, they’ll become familiar with repeated phrases in nursery rhymes and stories; later on they’ll notice repeated narrative structures in traditional tales or other genres. In music, children will learn to recognise repeating.	Children learn that games they play using the computer are not ‘real life’ but a simulation. Children start to make links between the games and real life eg. They need to solve problems and consider variables.	Evaluation is the process of ensuring that a solution, whether an algorithm, system, or process, is a good one.

LKS2	<p>If using a visual programming language, students will start to implement very simple logic such as yes and no answers. Students will start to write code that can respond to a variety of conditions being true or false (if/then statements).</p>	<p>To debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p>	<p>Describing problems and processes as a set of structured steps.</p>	<p>In computing, encourage pupils to always look for simpler or quicker ways to solve a problem or achieve a result. Ask pupils to explore geometric patterns using turtle graphics commands in languages like Scratch, Logo or TouchDevelop to create 'crystal flowers' (see pages 26–27). Emphasise how the use of repeating blocks of code is much more efficient than writing each command separately, and allow pupils to experiment with how changing one or two of the numbers used in their program can produce different shapes. Organise for the pupils to use graphics</p>	<p>Encourage pupils who are learning to program to create their own games. If these are based on real world systems then they'll need to use some abstraction to manage the complexity of that system in their game. In a simple table tennis game, e.g. Pong, the simulation includes the ball's motion in two dimensions and how it bounces off the bat, but it ignores factors such as air resistance, spin or even gravity. Ask your pupils to think really carefully about what detail they need to include, and what can be left out when programming a similar game</p>	<p>Various properties of solutions need to be evaluated. Are correct? Are they fast enough? Do they use resources economically? Are they easy for people to use?</p>

UKS2	The concept of computational logic will be expanded further to build complex programs and games that students plan and build themselves using Scratch or another visual programming language.	To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Communicating the Key features of problems and processes to others	Organise for the pupils to use graphics software to create tessellating patterns to cover the screen. As they do this, ask them to find quicker ways of completing the pattern, typically by copying and pasting groups of individual shapes. Help the pupils to create rhythmic and effective music compositions using simple sequencing software in which patterns of beats are repeated. Ask the pupils to experiment with number patterns and sequences using Scratch or other programming languages. Can they work out a general program which they could use to generate any linear number sequence?	In computing lessons, pupils can learn about the process of abstraction from playing computer games, particularly those that involve interactive simulations of real world systems . Encourage pupils' curiosity about how things work, helping them to think about what happens inside the computer or on the internet as they use software or browse the web. When pupils put together a presentation or video on a topic they know about, they'll need to focus on the key information, and think about how this can be represented, whilst leaving to one side much of the detail of the subject: this too involves abstraction.	Can I make improvements? Is my programming clear?
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Second order concepts

<p>Designing Designing involves working out the structure, appearance and functionality of artefacts. It involves creating representations of the design, including human readable representations such as flowcharts, storyboards, pseudo-code, systems diagrams, etc. It involves further activities of decomposition, abstraction and algorithm design.</p>	<p>Analysing Analysing involves breaking down into component parts (decomposition), reducing the unnecessary complexity (abstraction), identifying the processes (algorithms) and seeking commonalities or patterns (generalisation). It involves using logical thinking both to better understand things and to evaluate them as fit for purpose.</p>	<p>Applying Applying is the adoption of pre-existing solutions to meet the requirements of another context. It is generalisation - the identification of patterns, similarities and connections - and exploiting those features of the structure or function of artefacts. An example includes the development of a subprogram or algorithm in one context that can be re-used in a different context.</p>	<p>Evaluating and Reflecting Reflection is the skill of making judgements (evaluation) that are fair and honest in complex situations that are not value-free. Within computer science this evaluation is based on criteria used to specify the product, heuristics (or rules of thumb) and user needs to guide the judgements.</p>	<p>Coding An essential element of the development of any computer system is translating the design into code form and evaluating it to ensure that it functions correctly under all anticipated conditions. Debugging is the systematic application of analysis and evaluation using skills such as testing, tracing, and logical thinking to predict and verify outcomes.</p>
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Progression of skills and knowledge through Teach Computing

Programming	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Programming A – Moving a robot 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</p>	<p>Programming A – 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 To explain that programming projects can have code and artwork To create and debug a program that I have written</p>	<p>Programming A – Sequence in music To explore a new programming environment To identify that commands have an 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</p>	<p>Programming A - Repetition in shapes To identify that accuracy in programming is important 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</p>	<p>Programming A – 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</p>	<p>Programming A – Variables in games To define a ‘variable’ as something that is changeable To explain why a variable is used in a 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</p>

					selection To create a program that controls a physical computing project	
	<p>Introduction to animation</p> <p>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</p>	<p>Programming B – An introduction to quizzes</p> <p>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</p>	<p>Programming B – Events and actions</p> <p>To explain how a sprite moves in an existing project To create a program to move a sprite in four 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</p>	<p>Programming B – Events and actions</p> <p>To explain how a sprite moves in an existing project To create a program to move a sprite in four 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</p>	<p>Programming B – Selection in quizzes</p> <p>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</p>	<p>Programming B – Sensing</p> <p>To create a program to run on a controllable device To explain that selection can control 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</p>

Multimedia	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Creating media – Digital painting 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</p>	<p>Creating media – 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</p>	<p>Creating media – Animation To explain that animation is a sequence of drawings or photographs 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</p>	<p>Creating media - Audio editing To identify that sound can be recorded To explain that audio recordings can be edited To recognise the different parts of creating a podcast project To apply audio editing skills independently To combine audio to enhance my podcast project To evaluate the effective use of audio</p>	<p>Creating media – 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</p>	<p>Creating media – 3D Modelling To recognise that you can work in three dimensions on a computer To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model To create a 3D model for a given purpose To plan my own 3D model To create my own digital 3D model</p>
	<p>Creating media – Digital writing 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</p>	<p>Creating media – Making music To say how music can make us feel To identify that there are patterns in music To experiment with sound using a computer To use a computer</p>	<p>Creating media – Desktop publishing To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page</p>	<p>Creating Media Photo editing To explain that digital images can be changed To change the composition of an image To describe how images can be changed for</p>	<p>Creating media – 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</p>	<p>Creating media – Web page creation To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images (copyright)</p>

	<p>To make careful choices when changing text</p> <p>To explain why I used the tools that I chose</p> <p>To compare typing on a computer to writing on paper</p>	<p>to create a musical pattern</p> <p>To create music for a purpose</p> <p>To review and refine our computer work</p>	<p>settings</p> <p>To add content to a desktop publishing publication</p> <p>To consider how different layouts can suit different purposes</p> <p>To consider the benefits of desktop publishing</p>	<p>different uses</p> <p>To make good choices when selecting different tools</p> <p>To recognise that not all images are real</p> <p>To evaluate how changes can improve an image</p>	<p>To create a storyboard</p> <p>To identify that video can be improved through reshooting and editing</p> <p>To consider the impact of the choices made when making and sharing a video</p>	<p>To recognise the need to preview pages</p> <p>To outline the need for a navigation path</p> <p>To recognise the implications of linking to content owned by other people</p>
Technology in our lives	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Computing systems and networks – Technology around us</p> <p>To identify technology</p> <p>To identify a computer and its main parts</p> <p>To use a mouse in different ways</p> <p>To use a keyboard to type on a computer</p> <p>To use the keyboard to edit text</p> <p>To create rules for using technology responsibly</p>	<p>Computing systems and networks – IT around us</p> <p>To recognise the uses and features of information technology</p> <p>To identify the uses of information technology in the school</p> <p>To identify information technology beyond school</p> <p>To explain how information technology helps us</p> <p>To explain how to use information technology safely</p> <p>To recognise that choices are made when using</p>	<p>Computing systems and networks – Connecting computers</p> <p>To explain how digital devices function.</p> <p>To identify input and output devices</p> <p>To recognise how digital devices can change the way we work</p> <p>To explain how a computer network can be used to share information</p> <p>To explore how digital devices can be connected</p> <p>To recognise the physical components of a network</p>	<p>Computing systems and networks – Connecting computers</p> <p>To explain how digital devices function.</p> <p>To identify input and output devices</p> <p>To recognise how digital devices can change the way we work</p> <p>To explain how a computer network can be used to share information</p> <p>To explore how digital devices can be connected</p> <p>To recognise the physical components of a network</p>	<p>Computing systems and networks – Sharing information</p> <p>To explain that computers can be connected together to form systems</p> <p>To recognise the role of computer systems in our lives</p> <p>To recognise how information is transferred over the internet</p> <p>To explain how sharing information online lets people in different places work together</p> <p>To contribute to a shared project online</p> <p>To evaluate different ways of working together online</p>	<p>Computing systems and networks – Communication</p> <p>To identify how to use a search engine</p> <p>To describe how search engines select results</p> <p>To explain how search results are ranked</p> <p>To recognise why the order of results is important, and to whom</p> <p>To recognise how we communicate using technology</p> <p>To evaluate different methods of online communication</p>

		information technology				
Data Handling	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Data and Information - Grouping data 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</p>	<p>Data and information 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</p>	<p>Data and information Branching databases To create questions with yes/no answers To identify the object attributes needed to collect relevant data 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</p>	<p>Data and Information Data Logging To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data logger collects 'data points' from sensors over time To recognise how a computer can help us analyse data To identify the data needed to answer questions To use data from sensors to answer questions</p>	<p>Data and information 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 To apply my knowledge of a database to ask and answer real-world questions</p>	<p>Data and information Spreadsheets To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data</p>