



# COMPUTING

## Computing

### Curriculum Intent

Computing at Tattershall Primary School intends to develop 'thinkers of the future' through a modern, ambitious and relevant education in Computing. Our Computing Curriculum aims to instil a sense of enjoyment around using technology and to develop pupils' appreciation of its capabilities and the opportunities technology offers to create, manage, organise and collaborate. 'Tinkering' with software and programs forms part of the ethos of our curriculum as we want to develop pupils' confidence when encountering new technology, which is a vital skill in the ever evolving and changing landscape of technology. It is important to us that pupils understand how to use the ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future. Through our curriculum, we intend for pupils not only to be digitally competent and have a range of transferrable skills at a suitable level for the future workplace, but also to be responsible online citizens.

Our Computing curriculum enables pupils to meet the end of Key Stage Attainment Targets outlined in the National Curriculum and the aims align with those in the National Curriculum. In conjunction with our PSHE and RSE Curriculum, our Computing curriculum also satisfies all of the objectives of the DFE's 'Education for a Connected World' framework. This guidance was created to help equip children for life in the digital world, including developing their understanding of appropriate online behaviour, copyright issues, being discerning consumers of online information and healthy use of technology.

# Computing

## Curriculum Implementation

At Tattershall Primary School we have used the curriculum design model from 'Kapow Primary'.

The National Curriculum 'Purpose of Study' states:

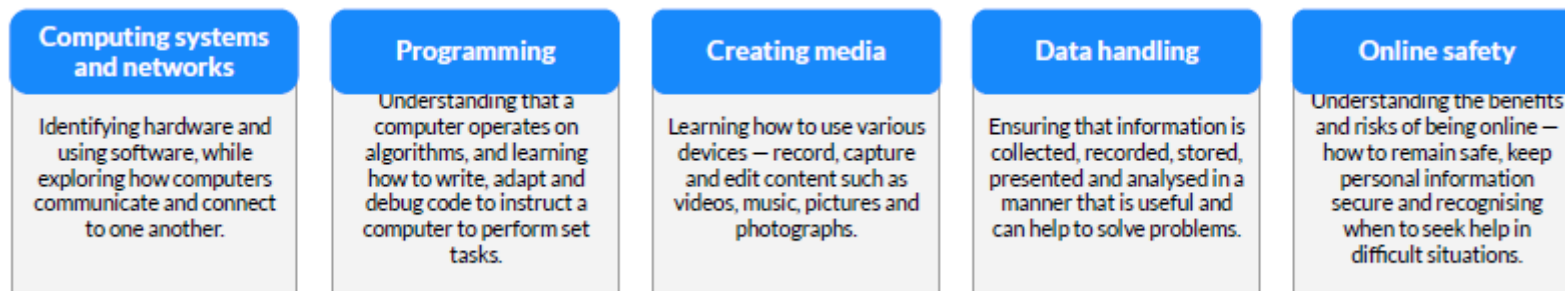
'The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to 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.'



Therefore, our Computing curriculum is designed with three strands which run throughout:

- Computer Science
- Information Technology
- Digital Literacy

Our curriculum is organised into five key areas, creating a cyclical route through which pupils can develop their computing knowledge and skills by revisiting and building on previous learning:



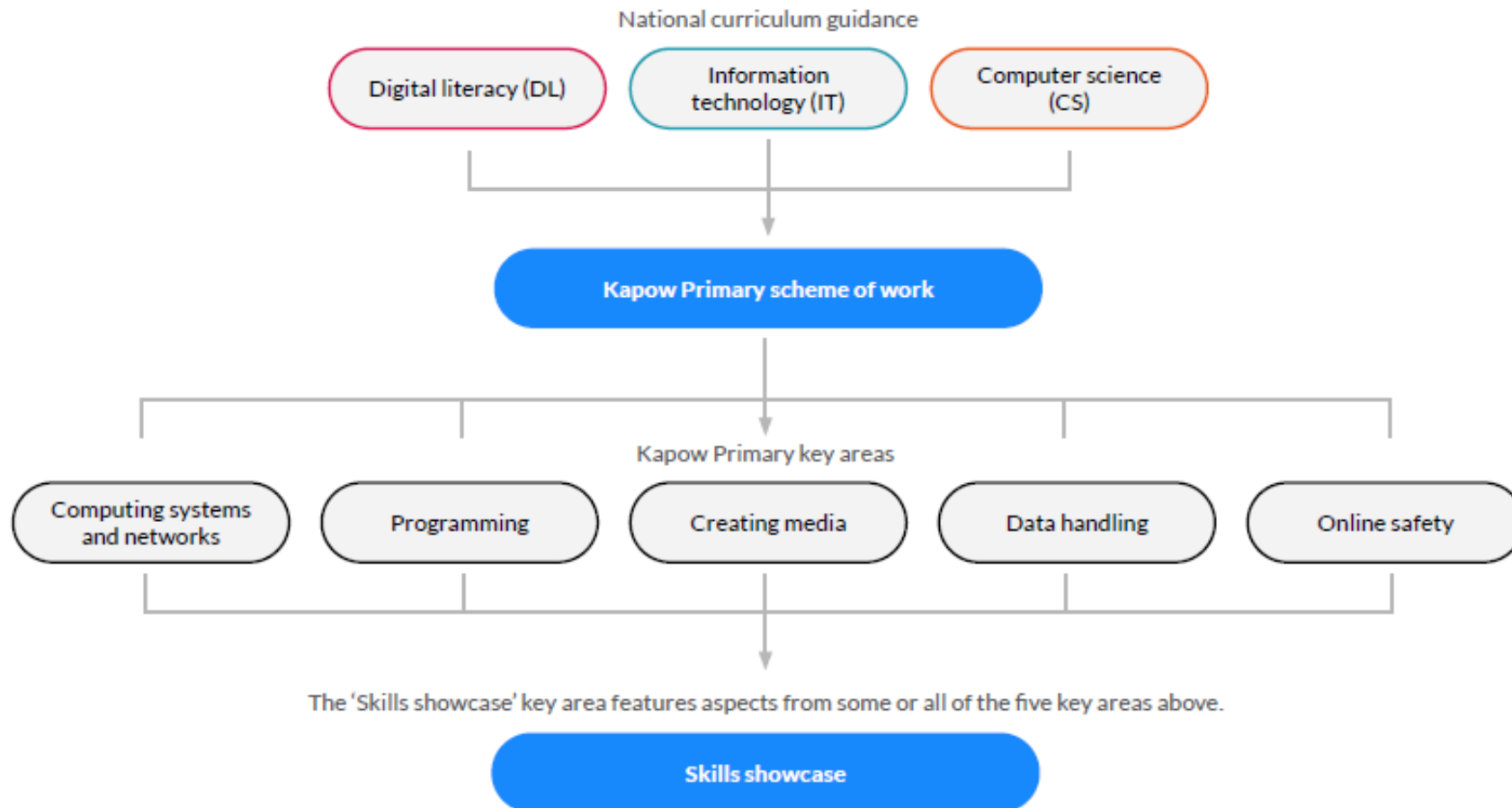
The implementation of our curriculum ensures a broad and balanced coverage of the National Curriculum requirements, and our 'Skills Showcase' units provide pupils with the opportunity to learn and apply transferable skills. Where meaningful, units have been created to link to other subjects such as Science, Art and Music to enable the development of further transferable skills and genuine cross-curricular learning.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work as well as unplugged and digital activities. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Adaptations are planned for every lesson to ensure that all pupils can access the intended learning and be successful and so that there are opportunities to stretch pupils' learning wherever possible. Knowledge Organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

At Tattershall Primary School Computing is taught discreetly from Year 1 to Year 6, mostly through a weekly lesson. Each year group is taught independently, despite our two mixed age classes, due to the nature of the progression of skills and knowledge within the Computing curriculum. To enable us to do this, we utilise an additional teacher so that Alpaca Class (Years 3 and 4) and Lion Class (Years 4 and 5) can be taught in year groups rather than mixed age classes. Online safety is taught across each term both as a 'stand-alone' Computing lesson and through our PSHE curriculum as well as other enrichments such as through assemblies and engagement with Safer Internet Day.

# Computing

## Curriculum Organisation



# Computing

## Long Term Plan

	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing Systems and Networks		<p><b>‘Improving Mouse Skills’</b> Learning how to login and navigate around a computer; developing mouse skills; learning how to drag, drop, click and control a cursor to create works of art.</p>	<p><b>‘What is a Computer?’</b> Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention.</p> <p><b>‘Word Processing’</b> Developing touch typing skills, learning keyboard shortcuts and simple editing tools.</p>	<p><b>‘Networks’</b> Learning what a network and how devices communicate and share information.</p> <p><b>‘Emailing’</b> Sending emails with attachments and understanding what cyberbullying is.</p> <p><b>‘Journey Inside a Computer’</b> Assuming the role of computer parts and creating paper versions of computers to consolidate understanding of how a computer works.</p>	<p><b>‘Collaborative Learning’</b> Learning how to work collaboratively and exploring a range of collaborative tools.</p>	<p><b>‘Search Engines’</b> Learning about how page rank works and how to identify inaccurate information.</p>	<p><b>‘Bletchley Park’</b> Discovering the history of Bletchley and learning about code breaking and password hacking. Demonstrating digital literacy skills by creating presentations.</p>
Creating Media		<p><b>‘Digital Imagery’</b> Taking and editing photos, searching for and adding images to a project.</p>	<p><b>‘Stop Motion’</b> Learning how to create simple animations from storyboarding creative ideas.</p>	<p><b>‘Video Trailers’</b> Developing digital video skills to create trailers, with special effects and transitions.</p>	<p><b>‘Website Design’</b> Learning how web pages and sites are created and how to embed media and links.</p>	<p><b>‘Stop Motion Animation’</b> Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image.</p>	<p><b>‘History of Computers’</b> Writing, recording and editing radio plays set during WWII, learning about how computers have evolved.</p>

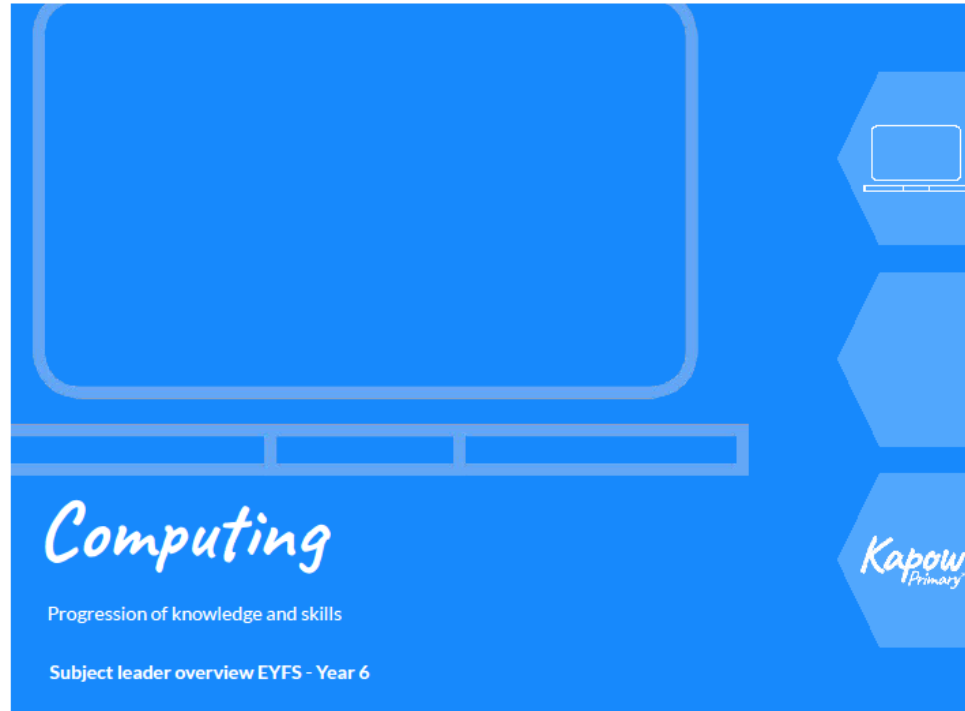
<b>Programming</b>		<p><b>‘Algorithms Unplugged’</b> Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific.</p> <p><b>‘Programming Bee-Bots’</b> Introducing programming through the use of a Bee-Bot and exploring its functions.</p>	<p><b>‘Algorithms and Debugging’</b> Developing an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops.</p> <p><b>‘ScratchJr’</b> Exploring what ‘blocks’ do’ by carrying out an informative cycle of predict &gt; test &gt;review. Programming a familiar story and make a musical instrument.</p>	<p><b>‘Scratch’</b> Exploring the programme Scratch, following the predict &gt; test &gt; review cycle. Learning about ‘loops’ and programming an animation, story and game.</p>	<p><b>‘Furter Coding with Scratch’</b> Revisiting the key features and beginning to use ‘variables’ in code scripts.</p> <p><b>‘Computational Thinking’</b> Solving problems effectively using the four areas of abstraction, algorithm design, decomposition and pattern recognition.</p>	<p><b>‘Programming Music’</b> Building on programming and music skills to create different sounds, beats and melodies which are put to the test with a Battle of the Bands performance!</p> <p><b>‘Micro:Bit’</b> Creating algorithms and programs that are used in the real world. Using the ‘predict, test and evaluate’ cycle to create and debug programs with specific aims.</p>	<p><b>‘Intro to Python’</b> Using the programming language ‘Python’ to create designs and art. Learning how to create loops and nested loops to make their code more efficient.</p>
<b>Online Safety</b>		<p><b>‘Online Safety’</b> Learning how to stay safe online and how to manage feelings and emotions when someone or something has upset us.</p>	<p><b>‘Online Safety’</b> Learning how to keep information safe and private online; who we should ask before sharing things online and how to give, or deny permission online.</p>	<p><b>‘Online Safety’</b> Learning: the difference between fact, opinion and belief; and how to deal with upsetting online content. Knowing how to protect personal information online.</p>	<p><b>‘Online Safety’</b> Searching for information and making a judgement about the probable accuracy; recognising adverts and pop-ups; understanding that technology can be distracting.</p>	<p><b>‘Online Safety’</b> Learning about app permissions; the positive and negative aspects of online communication: that online information is not always factual; how to deal with online bullying and managing our health and wellbeing.</p>	<p><b>‘Online Safety’</b> Learning to deal with issues online, about the impact and consequences of sharing information online; how to develop a positive online reputation; combating and dealing with online bullying and protective passwords.</p>

Data Handling		<p><b>‘Introduction to Data’</b> Learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded.</p>	<p><b>‘International Space Station’</b> Learning how data is collected, used and displayed and the scientific learning of the conditions needed for plants and humans, to survive.</p>	<p><b>‘Comparison Cards Databases’</b> Learning about records, fields and data and sorting and filtering data.</p>	<p><b>‘Investigating Weather’</b> Researching and storing data on spreadsheets and designing a weather station.</p>	<p><b>‘Mars Rover’</b> Learning about the Mars Rover, exploring how and why it transfers data including instructions, and how messages can be sent using binary code.</p>	<p><b>‘Big Data 1’</b> Identifying how barcodes and QR codes work. Learning how infrared waves are used for the transmission of data while recognising the uses of RFID.</p> <p><b>‘Big Data 2’</b> Further developing understanding of how networks and the Internet are able to share information. Learning how big data can be used to design smart buildings.</p>
Skills Showcase		<p><b>‘Rocket to the Moon’</b> Developing keyboard and mouse skills through designing, building and testing. Creating a digital list of materials, using drawing software and recording data.</p>			<p><b>‘HTML’</b> Learning about the markup language behind a webpage; becoming familiar with HTML tags, changing HTML and CSS code to alter images and ‘remix’ a live website.</p>	<p><b>‘Mars Rover 2’</b> Exploring how the Mars rover: moves, follows instructions, collects and sends data; understanding how computers work, what data is and how it is transferred.</p>	<p><b>‘Inventing a Product’</b> Designing a product, pupils: evaluate, adapt and debug code to make it suitable for their needs and designing products in CAD and creating a website and video.</p>



## Progression of Knowledge and Skills

Click on the icon below to open our Computing Progression of Knowledge and Skills Document



## How our School Values are Embedded in Computing

### HONESTY

### FORGIVENESS

### KINDNESS

### TEAMWORK

### RESPECT

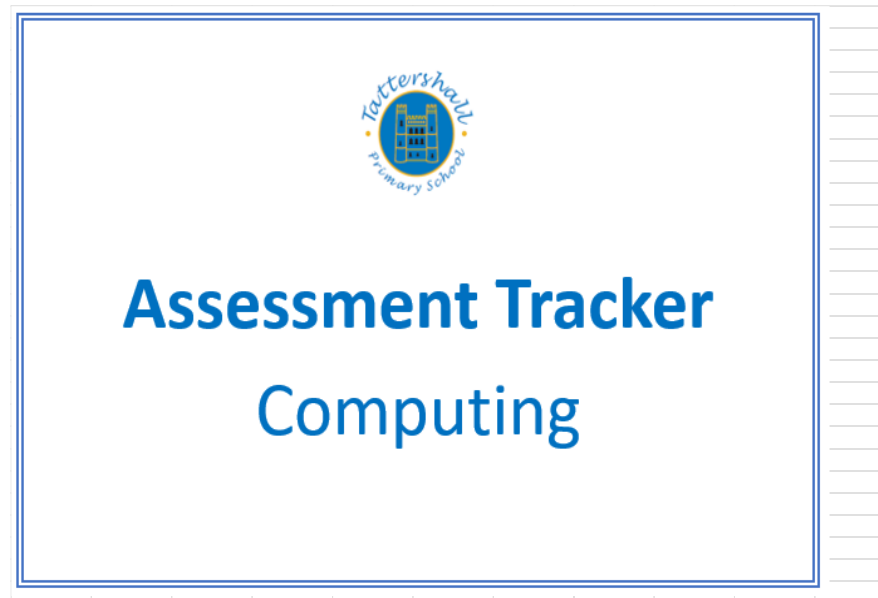
Year R	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<p>Honesty – being honest online, playing games fairly.</p> <p>Forgiveness – Understanding the needs of others.</p> <p>Kindness – Turn taking, sharing, speaking to others kindly, using technology appropriately</p> <p>Teamwork – working together on activities, playing games together.</p> <p>Respect – respecting each other as individuals, respecting the use of technology.</p>	<p>Honesty – being honest online, playing games fairly.</p> <p>Forgiveness – Understanding the needs of others. Forgiveness to those who might not understand your needs or needs of others through</p> <p>Kindness – Turn taking, sharing, speaking to others kindly, using technology appropriately – treating people online as the same as treating people in person. Online safety.</p> <p>Teamwork – working together on activities, playing games together, solving problems in pairs – debugging and algorithms.</p> <p>Respect – respecting each other as individuals, respecting the use of technology. Respect privacy and use of passwords and login details</p>	<p>Honesty – being honest online, playing games/online games. Digital footprint.</p> <p>Forgiveness – Understanding the needs of others. Forgiveness to those who might not understand your needs or needs of others through media.</p> <p>Kindness – Turn taking, sharing, speaking to others kindly, using technology appropriately – treating people online as the same as treating people in person. Online safety.</p> <p>Teamwork – working together on activities, playing games together, solving problems in pairs – debugging and algorithms. Coding.</p> <p>Respect – respecting each other as individuals, respecting the use of technology. Respect privacy and use of passwords and login details. Digital footprint.</p>	<p>Honesty – being honest online, playing games/online games. Digital footprint. Staying safe using apps and social media.</p> <p>Forgiveness – Understanding the needs of others. Forgiveness to those who might not understand your needs or needs of others through media.</p> <p>Kindness – Turn taking, sharing, speaking to others kindly, using technology appropriately – treating people online as the same as treating people in person. Online safety. Using social media appropriately. Understanding online bullying and how to report this appropriately.</p> <p>Teamwork – working together on activities, playing games together, solving problems in pairs – debugging and algorithms. Coding. Using Microsoft office effectively including Excel, Word and Publisher.</p> <p>Respect – respecting each other as individuals, respecting the use of technology. Respect privacy and use of passwords and login details. Digital footprint. Using social media appropriately.</p>

## ASSESSMENT IN COMPUTING

Teachers use formative assessment within and across lessons to be able to feedback to pupils about their learning in Computing in the moment. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives. Planning will be adapted to meet the needs of the children based on ongoing teacher assessment and adaptations will be designed to ensure pupil progress is maximised.

Each lesson will begin with an element of learning review and the key learning outcomes for each lesson are clearly identified. In addition, each unit has a quiz and knowledge catcher which can be used at the start and end of the unit. At the end of each unit, teachers will use the Assessment Tracker grid to make a summative judgement of each pupil's achievements. This information supports not only our assessment of achievement at an individual lesson but an overview of the class's achievement and is used to inform next steps. This information 'follows' the class year on year so that each teacher has a thorough and in depth understanding of the outcomes for each pupil and the class as a whole.

An example of the Assessment Tracker for Computing can be viewed by clicking on the icon below:



## Computing

### Curriculum Impact

The impact of our Computing curriculum is that pupils leave our school equipped with a range of skills to enable them to succeed in their secondary education and be active participants in the ever-increasing digital world.

The expected impact of our Computing curriculum is that children will:

- ★ Be critical thinkers and able to understand how to make informed and appropriate digital choices in the future.
- ★ Understand the importance that computing will have going forward in both their educational and working life and in their social and personal futures.
- ★ Understand how to balance time spent on technology and time spent away from it in a healthy and appropriate manner.
- ★ Understand that technology helps to showcase their ideas and creativity. They will know that different types of software and hardware can help them achieve a broad variety of artistic and practical aims.
- ★ Show a clear progression of technical skills across all areas of the National Curriculum – computer science, information technology and digital literacy.
- ★ Be able to use technology both individually and as part of a collaborative team.
- ★ Be aware of online safety issues and protocols and be able to deal with any problems in a responsible and appropriate manner.
- ★ Have an awareness of developments in technology and have an idea of how current technologies work and relate to one another.
- ★ Meet the end of key stage expectations outlined in the National Curriculum for Computing.