

Computing at Antingham & Southrepps - We are Programmers

Our Curriculum Drivers:

Aspirations	To have high aspirations for my future and know all of the available opportunities open to me
Independence	To have the independence to be able to reach my full potential and take responsibility
Mental and Physical Health	To value my own self-worth to be the best I can be
Resilience	To have the courage to bounce back from failure or challenges and grow as an individual

INTENT

Through our computing curriculum at Antingham and Southrepps Primary School and Nursery we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our pupils to be able to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they study computing. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computer science lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. We want our pupils to have a breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

IMPLEMENTATION

We use Kapow for Computing to support our teaching where children are taught once a week by their class teacher. There are five key areas which we return to in each year group making it clear to see prior and future learning and how what we are teaching fits into their wider learning journey.

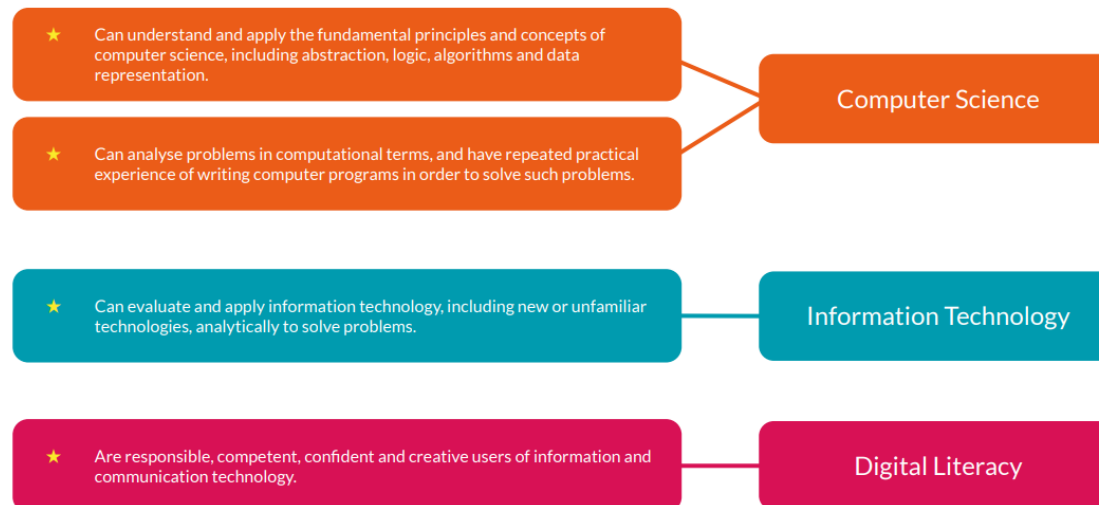
Our Five Areas:

1. **Computing systems and networks** - Identifying hardware and using software, while exploring how computers communicate and connect to one another
2. **Programming** - Understanding that a computer operates on algorithms, and learning how to write, adapt and debug code to instruct a computer to perform set tasks.
3. **Creating Media** - Learning how to use various devices — record, capture and edit content such as videos, music, pictures and photographs
4. **Data Handling** - Ensuring that information is collected, recorded, stored, presented and analysed in a manner that is useful and can help to solve problems.
5. **Online Safety** - 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.

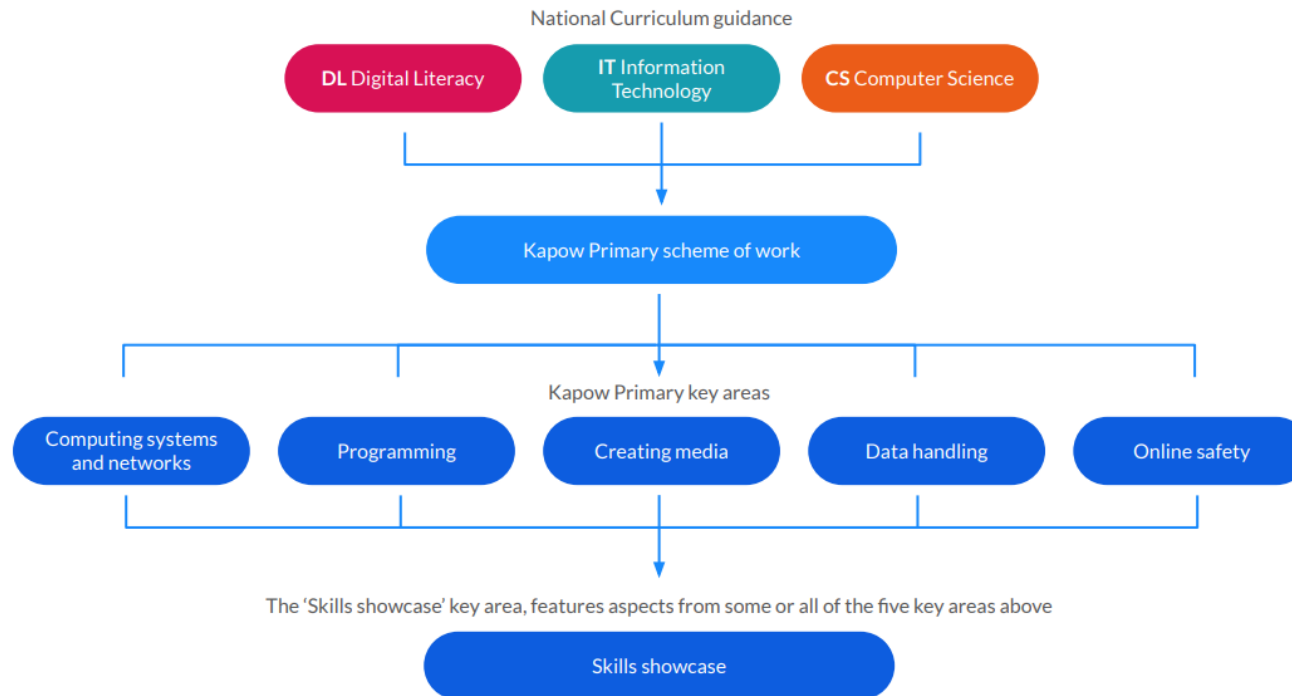
How does Kapow Primary's scheme of work align with the National Curriculum?

Our scheme of work fulfils the statutory requirements outlined in the **National Curriculum (2014)**. The National Curriculum Programme of Study for Computing aims to ensure that all pupils:

We have identified these three strands which run throughout our scheme of work:



How is the Computing scheme of work organised?



IMPACT

- Children **will be confident users of technology, able to use it to accomplish a wide variety of goals, both at home and in school.**
- Children will have a secure and comprehensive knowledge of the implications of technology and digital systems. This is important in a society where technologies and trends are rapidly evolving.
- Children will be able to apply the British values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.

MILESTONES

Years 1 & 2	Years 3 & 4	Years 5 & 6
• Control motion by specifying the number of steps to travel, direction and turn. • Add text strings, show and hide objects and change the features of an object. • Select sounds and control when they are heard, their duration and volume. • Control when drawings appear and set the pen colour, size and shape. • Specify user inputs (such as clicks) to control events. • Specify the nature of events (such as a single event or a loop). • Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?). • From Year 3 onwards.	• Use specified screen coordinates to control movement. • Set the appearance of objects and create sequences of changes. • Create and edit sounds. Control when they are heard, their volume, duration and rests. • Control the shade of pens. • Specify conditions to trigger events. • Use IF THEN conditions to control events or objects. • Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). • Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables.	• Set IF conditions for movements. Specify types of rotation giving the number of degrees. • Change the position of objects between screen layers (send to back, bring to front). • Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. • Combine the use of pens with movement to create interesting effects. • Set events to control other events by 'broadcasting' information as a trigger. • Use IF THEN ELSE conditions to control events or objects. • Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions. • Use lists to create a set of variables. • Use the Boolean operators () < () () = () () > () ()and() ()or()

• From Year 3 onwards. • Participate in class social media accounts. • Understand online risks and the age rules for sites. • Use a range of applications and devices in order to communicate ideas, work and messages. • Use simple databases to record information in areas across the curriculum.	• Use the Reporter operators $() + ()$ $() - ()$ $() * ()$ $() / ()$ to perform calculations. • Contribute to blogs that are moderated by teachers. • Give examples of the risks posed by online communications. • Understand the term 'copyright'. • Understand that comments made online that are hurtful or offensive are the same as bullying. • Understand how online services work. • Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally. • Devise and construct databases using applications designed for this purpose in areas across the curriculum.	Not() to define conditions. • Use the Reporter operators $() + ()$ $() - ()$ $() * ()$ $() / ()$ to perform calculations. Pick Random () to () Join () () Letter () of () Length of () () Mod () This reports the remainder after a division calculation Round ()() of (). • Collaborate with others online on sites approved and moderated by teachers. • Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. • Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder. • Understand the effect of online comments and show responsibility and sensitivity when online. • Understand how simple networks are set up and used. • Choose the most suitable applications and devices for the purposes of communication. • Use many of the advanced features in order to create high quality, professional or efficient communications. • Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.
--	---	---

Our Progression in Skills

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science	Hardware						
Information technology	Learning how to operate a camera to take photographs of meaningful creations or moments	Learning how to explore and tinker with hardware to find out how it works	Understanding what a computer is and that it's made up of different components	Understanding what the different components of a computer do and how they work together	Learning about the purpose of routers	Learning that external devices can be programmed by a separate computer	Learning about the history of computers and how they have evolved over time
Digital literacy	Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary	Understanding that computers and devices around us use inputs and outputs, identifying some of these	Recognising that buttons cause effects and that technology follows instructions	Drawing comparisons across different types of computers		Learning the difference between ROM and RAM	Using the understanding of historic computers to design a computer of the future
	- Learning how to operate a camera - Recognising that a range of technology is used in places such as homes and schools - Learning what a keyboard is and how to locate relevant keys - Learning what a mouse is and developing basic mouse skills such as moving and clicking	- Learning where keys are located on the keyboard - Learning how to operate a camera	- Learning how we know that technology is doing what we want it to do via its output. - Using greater control when taking photos with tablets or computers - Developing confidence with the keyboard and the basics of touch typing	Learning what a server does		- Recognising how the size of RAM affects the processing of data - Understanding the fetch, decode, execute cycle	- Understanding and identifying barcodes, QR codes and RFID - Identifying devices and applications that can scan or read barcodes, QR codes and RFID - Acknowledging that corruption can happen within data during transfer (for example when downloading, installing, copying and updating files)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science	Computational thinking						
Information technology	Using logical reasoning to read simple instructions and predict the outcome	Learning that decomposition means breaking a problem down into smaller parts	- Articulating what decomposition is - Decomposing a game to predict the algorithms used to create it	Using decomposition to explain the parts of a laptop computer	Solving unplugged problems by decomposing them into smaller parts	Decomposing animations into a series of images	Decomposing a program into an algorithm
Digital literacy		Using decomposition to solve unplugged challenges	Using decomposition to decompose a story into smaller parts	Using decomposition to explore the code behind an animation	Using decomposition to understand the purpose of a script of code	Decomposing a program without support	Using past experiences to help solve new problems
		- Using logical reasoning to predict the behaviour of simple programs - Developing the skills associated with sequencing in unplugged activities - Learning that an algorithm is a set of step by step instructions used to carry out a task, in a specific order - Follow a basic set of instructions - Assembling instructions into a simple algorithm	- Learning what abstraction is - Learning that there are different levels of abstraction - Explaining what an algorithm is - Following an algorithm - Creating a clear and precise algorithm - Learning that computers use algorithms to make predictions - Learning that programs execute by following precise instructions - Incorporating loops within algorithms	- Using repetition in programs - Understanding that computers follow instructions - Using an algorithm to explain the roles of different parts of a computer - Using logical reasoning to explain how simple algorithms work - Explaining the purpose of an algorithm - Forming algorithms independently	- Using decomposition to help solve problems - Identifying patterns through unplugged activities - Using past experiences to help solve new problems - Using abstraction to identify the important parts when completing both plugged and unplugged activities - Creating algorithms for a specific purpose	- Predicting how software will work based on previous experience - Writing more complex algorithms for a purpose	Writing increasingly complex algorithms for a purpose

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science	Programming						
Information technology	Following instructions as part of practical activities and games and learning to debug when things go wrong	Programming a Bee-bot/Virtual Bee-bot to follow a planned route	Using logical thinking to explore software, predicting, testing and explaining what it does	Using logical thinking to explore more complex software; predicting, testing and explaining what it does	Understanding that websites can be altered by exploring the code beneath the site	Programming an animation	Debugging quickly and effectively to make a program more efficient
Digital literacy	Learning to give simple instructions	Learning to debug instructions when things go wrong	Using an algorithm to write a basic computer program	Incorporating loops to make code more efficient	Coding a simple game	Iterating and developing their programming as they work	Remixing existing code to explore a problem
	- Learning that an algorithm is a set of instructions to carry out a task, in a specific order - Experimenting with programming a Bee-bot/Blue-bot and learning how to give simple commands - Learning to debug instructions, with the help of an adult, when things go wrong	- Developing a how-to video to explain how the Bee-bot works. - Learning to debug an algorithm in an unplugged scenario	- Learning what loops are - Incorporating loops to make code more efficient	- Remixing existing code - Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected	- Using abstraction and pattern recognition to modify code - Incorporating variables to make code more efficient - Remixing existing code - Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected	- Beginning to use nested loops (loops within loops) - Debugging their own code - Writing code to create a desired effect - Using a range of programming commands - Using repetition within a program - Amending code within a live scenario	- 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 - Altering a website's code to create changes

Kapow Primary™	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science	Using software						
Information technology	Using a simple online paint tool to create digital art	- Using a basic range of tools within graphic editing software - Taking and editing photographs - Understanding how to create digital art using an online paint tool - 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 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	- Building a web page and creating content for it - Designing and creating a webpage for a given purpose - Use Google online software for documents, presentations, forms and spreadsheets. - Work collaboratively with others	- Using logical thinking to explore software more independently, making predictions based on their previous experience - Using a software programme (Sonic Pi or Scratch) to create music - Using video editing software or animation 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 - Planning, recording and editing a radio play - Creating and editing sound recordings for a specific purpose - Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions to create a video advert - Using design software TinkerCAD to design a product - Creating a website with embedded links and multiple pages
Digital literacy							

Kapow Primary™	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science	Using email and the internet						
Information technology	Participating in group image searches, led by the teacher	- Searching and downloading images from the internet safely - Understanding that we are connected to others when using the internet	- Understanding that personal information should not be shared on the internet. - Learning how to be respectful to others when sharing content online.	- Learning to log in and out of an email account - Writing an email including a subject, 'to' and 'from' - Sending an email with an attachment - Replying to an email - Identifying useful terms and phrases for search engines	- Understanding why some results come before others when searching - Understanding that information on the internet is not all grounded in fact	- Developing searching skills to help find relevant information on the internet - Understanding how apps can access our personal information and how to alter the permissions.	Understanding how search engines work
Digital literacy	Using data						
	- Representing data through sorting and categorising objects in unplugged scenarios - Representing data through pictograms - Exploring branch databases through physical games	- Introduction to spreadsheets - Representing data in tables, charts and pictograms - Sorting data and creating branching databases - Identifying where digital content can have advantages over paper when storing and manipulating data	- Collecting and inputting data into a spreadsheet - Interpreting data	- Understanding the vocabulary associated with databases: field, record, data - Learning about the pros and cons of digital versus paper databases - Sorting and filtering databases to easily retrieve information - Creating and interpreting charts and graphs to understand data	Designing a weather station which gathers and records sensor data	Understanding how data is collected	- Understanding how barcodes, QR codes and RFID work - Gathering and analysing data in real time - Creating formulas and sorting data within spreadsheets

Kapow Primary	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer science							
Information technology	Recognising that a range of technology is used in places such as homes and schools	Logging in and out and saving work on their own account	Understanding that personal information should not be shared on the internet.	Learning to be a responsible digital citizen; understanding their responsibilities to treat others respectfully and recognising when digital behaviour is unkind	Recognising what appropriate behaviour is when collaborating with others online	Learning about how permissions work and how to change them	Understanding the importance of secure passwords and how to create them, along with two-step authentication
Digital literacy	Learning to log in and log out	Understand the importance of a password	Learning how to be respectful to others when sharing content online.	Learning about cyberbullying	Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others	Identifying possible issues with online communication	Using search engines safely and effectively
	When using the internet alongside an adult, or independently, learning what to do if they come across something that worries them or makes them feel uncomfortable	- 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 - Recognising when someone has been unkind online - Learning some top tips for staying safe online - Understanding how we 'share' information on the internet		- Learning that not all emails are genuine, recognising when an email might be fake and what to do about it - Learning that not all information on the internet is factual - Understanding who personal information should/ should not be shared with	Learning about different forms of advertising on the internet.	- Considering the effects of screen-time on physical and mental wellbeing - Learning about online bullying and where to seek advice	- Recognising that updated software can help to prevent data corruption and hacking - Considering their digital footprint and online reputation and future implications they may have - Learning about how to collect evidence and report online bullying concerns

Our Unit Overviews

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
School Value	Be Positive	Take Part	Aim High	Be Respectful	Keep Trying	Challenge Yourself
Curriculum Drivers	Aspirations - To have high aspirations for my future and know all of the available opportunities open to me Independence - To have the independence to be able to reach my full potential and take responsibility Mental and Physical Health - To value my own self-worth to be the best I can be Resilience - To have the courage to bounce back from failure or challenges and grow as an individual					
Whole School Enhancement Events	International Day Halloween Harvest Festival World Peace Day School Council Elections	Pink Day Christmas Fair & Enterprise Project Black History Month Anti-Bullying Week Odd Socks Day	STEM Day World Book Day Children's Mental Health Week Safer Internet Day LGBT Week	Easter Bonnet Parade Aspirations Week Arts Week Sports Week	A&S Talent Show Christian Aid Week Wheels Week Sports Day Autism Awareness Week	Summer Fair & Enterprise Project Leavers & Prize Giving Art Exhibition Environmental Science Project
CYCLE A Year R & 1	Computing through continuous provision Computing systems and networks Improving mouse skills	Computing systems and networks Using a computer	Programming 1 All about instructions	Programming 2 Virtual Bee-Bots	Computing systems and networks Exploring hardware	Data handling Introduction to data Online safety
CYCLE B Year R & 1	Computing through continuous provision Computing systems and networks Improving mouse skills	Programming 1 Algorithms unplugged	Skills showcase Rocket to the moon	Programming 2 Programming Bee-Bots	Creating media Digital imagery	Data handling Introduction to data (year1 module) Online safety
CYCLE A Years 2 & 3	Computing systems and networks 1 Networks and the internet Online safety	Data handling International Space Station	Creating media Stop motion	Programming Programming: Scratch	Computing systems and networks 3 Journey inside a computer	Data handling Comparison cards databases
CYCLE A Years 4, 5 & 6	Computing systems and networks Collaborative learning Online safety	Skills showcase HTML	Creating media Website design	Creating media Stop motion animation	Programming Intro to Python	Data handling Bigdata 1
CYCLE B Years 2 & 3	Computing systems and networks 1 What is a computer? Online safety	Programming 1 Algorithms and debugging	Computing systems and networks 2 Word processing	Programming 2 Programming: Scratch Jr	Computing systems and networks 2 Emailing	Creating media Video trailers
CYCLE B Years 4, 5 & 6	Computing systems and networks Search engines Online safety	Programming 1 Further coding with Scratch	Computing systems and networks Bletchley Park	Data handling Mars Rover 1	Creating media History of Computers	Programming 1 Programming music
CYCLE C Years 4, 5 & 6	Skills showcase Mars Rover 2 Online safety	Programming 2 Computational thinking	Data handling Investigating Weather	Programming 2 Micro:bit	Skills showcase Inventing a product	Data handling Big data 2

ASPIRATIONS FOR THE FUTUE

Pupils develop an understanding of how subjects and specific skills are linked to future jobs. Here are some of the jobs you could aspire to do in the future as an Athlete:

Cyber security analyst	Software engineer	Systems analyst
Web designer/developer	UX designer	Game designer/developer
Forensic computer analyst	Database administrator	IT consultant

Our Feeder High Schools KS3 Year 7 Art Curriculum Snapshot

Cromer Academy	E-safety - Cyberbullying, Social Networking Sites & Nude selfies. How a computer works - hardware, software. How a computer works - CPU, binary conversions. Algorithms and basic programming.	E-safety - Cyberbullying, Social Networking Sites & Nude selfies. How a computer works - hardware, software. How a computer works - CPU, binary conversions. Algorithms and basic programming.	E-safety - Cyberbullying, Social Networking Sites & Nude selfies. How a computer works - hardware, software. How a computer works - CPU, binary conversions. Algorithms and basic programming.
North Walsham High School	TBC		
Aylsham High School	Computing programming extends their capability – the ability to solve problems using coding and other ICT solutions when and where appropriate. The programme covers the basics of computer science, digital literacy and information technology. Computer science looks at the basics of algorithms, binary and programming using Flowol, LOGO, Scratch and an introduction to coding with Python. Students will find out information using the internet and other large databases, model scenarios through the use of spreadsheets, and communicating through a variety of digital media. E-safety is also an important aspect of the digital literacy programme.		