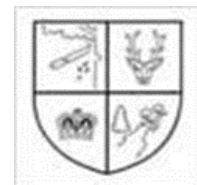# COMPUTING SUBJECT CURRICULUM POLICY

CURRICULUM INTENT STATEMENT:

At TWS the curriculum is designed so that it builds on children's prior learning, provides hands on and enriching experiences, allows the children to develop aspirations, resilience and independence and become articulate, creative individuals.

Every child is recognised as a unique individual. We celebrate and welcome differences within our school and the local and wider community. We are respectful of everyone. We provide a creative and linked curriculum that enables children to make connections, embed learning and build on their knowledge. Children are given opportunities outside of the National Curriculum that enhances and enriches their learning, giving them real life experiences and allowing them to think in enterprising ways.

We believe that childhood should be a happy, investigative and enquiring time where there are no limits to curiosity and there is a thirst for new experiences and knowledge.

Children will leave Thomas Willingale School and Nursery with high aspirations and a strong sense of belonging, they will have the confidence and skills to articulate themselves, make decisions, make connections and self-reflect enabling them to be lifelong learners.

Curriculum Drivers			
Oracy	**Environment/Community**	**Independence**	**Positive Growth**
To ensure all children have the skill set to be able to express and articulate themselves accurately, confidently and fluently so that they are able to take on any challenge.	Our children will play an active part in the local and wider community, utilising our rich surroundings within their learning and supporting how our community develops.	Through engaging and inspiring learning that we provide, we want our children to become more independent learners, be proactive and strategic and transfer their skills to different areas of learning.	To instil a positive mind-set which allows children to build aspirations, empathy towards others and opportunities for their future lives; it supports their resilience so that they take chances, learn from failures and deepen their skillset and understanding.

Curriculum Intent Model

- **Curriculum drivers** shape our curriculum breadth. They are derived from an exploration of the background of our students, our beliefs about high quality education and values. They are used to ensure we give our students appropriate and ambitious curriculum opportunities.

COMPUTING SUBJECT CURRICULUM POLICY
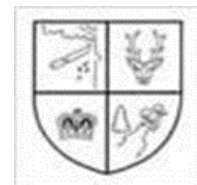
- **Cultural capital** gives our children the vital background knowledge required to be informed and thoughtful members of our community who understand and believe in British Values.
- **Curriculum breadth** is shaped by our drivers, cultural capital, subject topics and our ambition for students to study the best of what has been thought and said by many generations of academic scholars.
- Our curriculum distinguishes between subject topics and threshold concepts**. Subject topics**
  are the specific aspect of subjects that are studied.
- **Threshold concepts** tie together the subject topics into meaningful schema. The same concepts are explored in a wide breadth of topics. Through this 'forwards and backwards engineering' of the curriculum, students return to the same concepts over and over and gradually build understanding on them.
- For each of the threshold concepts three **Milestones,** each of which include the procedural and semantic knowledge students need to understand the threshold concepts, provides a progression model.
- **Knowledge categories** in each subject give students a way of expressing their understanding of the threshold concepts.
- **Knowledge webs** help students to relate each topic to previously studied topics and to form strong, meaningful schema.
- **Cognitive science** tells us that working memory is limited and that cognitive load is too high is students are rushed through content. This limits the acquisition of long term memory. Cognitive science also tells us that in order for students to become creative thinkers, or have a greater depth of understanding they must first master the basics, which takes time.
- Within in each milestone, students gradually progress in their procedural fluency and semantic strength through three cognitive domains: basic, advancing and deep. The goal for students is to display sustained mastery at the 'advancing' stage of understanding by the end of each milestone and for the most able to have a greater depth of understanding at the deep stage. The time scale for sustained mastery or greater depth is, therefore two years of study.
- As part of our progression model we use a different pedagogical style in each of the cognitive domains of basic, advancing and deep. This is based on the research of Sweller,

Kirscher and Rosenshine who argue for direct instruction in the early stages of learning, and discovery based approaches later. We use direct instruction in the basic domain and problem based discovery in the deep domain. This is called the reversal effect.

- As part of our progression model we use tasks in curriculum books which shows our curriculum expectations. Teacher assessment is then recorded twice yearly.

Definition of Computing

Computing is concerned with how computers and computer systems work, and how they are designed and programmed. Pupils studying computing will gain an understanding of computational systems of all kinds, whether or not they include computers. Computational thinking provides insights into many areas of the curriculum, and influences work at the cutting edge of a wide range of disciplines. It incorporates techniques and methods for solving problems and advancing knowledge, and includes a distinct way of thinking and working that sets it apart from other disciplines. Computing is a practical subject, in which invention and resourcefulness are encouraged. The ideas of computing are applied to understanding real-world systems and creating purposeful products.

Aims of the Teaching of Computing

At Thomas Willingale School and Nursery, our aims are to:

- Provide a relevant, challenging and enjoyable curriculum for Computing.

- Meet the requirements of the National Curriculum Programmes of Study for Computing.

- Use Computing as a tool to enhance learning across the curriculum.

- Respond to new developments in technology and ensure our teaching remains current.

- Equip pupils with the confidence, creativity and capability to use technology effectively throughout their lives.

- Enrich learning in other subject areas through purposeful use of Computing.

- Develop pupils' understanding of how to use technology safely, respectfully and responsibly.

The **National Curriculum for Computing** also aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including logic, algorithms, data representation and communication.

- Can analyse problems in computational terms and gain repeated practical experience of writing computer programs to solve such problems.

- Can evaluate and apply information technology, including unfamiliar and emerging technologies, to solve problems analytically.

- Become responsible, competent, confident and creative users of information and communication technology.

Early Years Foundation Stage (EYFS)

In EYFS, children are provided with a **broad, play-based experience of IT and computing** across a variety of contexts, including **off-computer activities**. Computing is not just about using computers; the learning environment incorporates **real-world IT scenarios**, often through role play.

Children develop **confidence, control, and language skills** through activities such as:

- 'Programming' each other using directional language to locate toys or objects

- Creating artwork with **digital drawing tools**

- Controlling **programmable toys**

Outdoor exploration is also valued. Using **digital recording devices**—such as video recorders, cameras, and microphones—supports children in developing **communication and observation skills**.

Key Stage 1 (KS1) – Learning Objectives

By the end of KS1, pupils should be taught to:

- **Understand algorithms** and how they are implemented as programs on digital devices, recognizing that programs execute by following a sequence of instructions

- **Write and test simple programs**

- **Use logical reasoning** to predict the behaviour of simple programs

- **Organise, store, manipulate, and retrieve data** in a range of digital formats

- **Communicate safely and respectfully online**, keeping personal information private, and understand common uses of information technology beyond school

Key Stage 2 (KS2) – Learning Objectives

By the end of KS2, pupils should be taught to:

- **Design and write programs** that accomplish specific goals, including controlling or simulating physical systems, and 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; generate appropriate inputs and predicted outputs to test programs

- **Use logical reasoning** to explain how algorithms work and to detect and correct errors in algorithms and programs

- **Understand computer networks**, including the internet; know how networks provide services such as the World Wide Web and the opportunities they offer for communication and collaboration

- Describe **how internet search engines find and store data**; use search engines effectively; critically evaluate digital content; respect individuals and intellectual property; and use technology responsibly, securely, and safely

- **Select, use, and combine a variety of software** (including internet services) on a range of digital devices to accomplish goals, including **collecting, analysing, evaluating, and presenting data and information**

IMPLEMENTATION

Curriculum Delivery

At Thomas Willingale School and Nursery, we follow the Kapow Primary Computing scheme of work, which ensures that pupils meet the end of key-stage attainment targets outlined in the National Curriculum.

The Kapow Primary scheme is structured around three core strands which run throughout the Computing curriculum:

- **Computer Science** – developing understanding of algorithms, logic, programming and problem-solving.

- **Information Technology** – enabling pupils to use a wide variety of applications and devices to collect, organise, create and present information.

- **Digital Literacy** – ensuring that pupils can connect, communicate and collaborate safely, respectfully and responsibly in an increasingly digital world.

These strands are organised into five key areas:

1. **Computer systems and networks**

2. **Programming**

3. **Creating media**

4. **Data handling**

5. **Online safety**

This cyclical structure enables pupils to revisit and build on prior learning, progressively deepening their knowledge and skills as they move through the school.

Where meaningful, units- called the 'skills showcase' are designed to link with other curriculum areas such as science, art and music, allowing children to develop transferable skills and experience genuine cross-curricular learning.

Lessons incorporate a **variety of teaching strategies**, including:

- Independent tasks

- Paired and group work

- 'Unplugged' activities

- Digital activities

- Meet the end-of-key-stage expectations outlined in the National Curriculum for Computing.

Inclusion and Equal Opportunities

We believe that **all children have the right to access IT and Computing**. We recognise that in every class there are pupils with **diverse learning needs**, which may extend beyond the standard provision

for their age group. If these needs are not addressed, they could create **barriers to learning**. This includes:

- More able pupils

- Pupils with **SEND** (Special Educational Needs and Disabilities)

- Pupils with **EAL** (English as an Additional Language)

All pupils are provided with **equal learning opportunities**, regardless of **social class, gender, culture, race, disability, or learning difficulties**. Our aim is to enable all children to develop **positive attitudes towards others**.

Teachers must **consider these requirements** and plan, where necessary, to support individuals or groups of pupils, enabling them to **participate effectively** in all curriculum and assessment activities. Special arrangements may be implemented to support pupils during teaching activities.

Adapted guidance is provided for every lesson, ensuring that all pupils can access learning. Additionally, opportunities are available to **stretch and challenge pupils' learning** when appropriate.

Resources are also made available to support **SEN pupils** and **gifted and talented pupils**, ensuring that all children can achieve their full potential.

Staff Support and Professional Development (CPD opportunities)

Strong subject knowledge is essential for delivering an effective Computing curriculum. To support this:

- Each unit includes **teacher videos** to develop subject knowledge and support ongoing **CPD**.

- Additional opportunities are available via **Kapow webinars** with computing subject specialists.

- Staff also receive **training on emerging technologies**, including **Artificial Intelligence (AI)**, ensuring they can teach pupils about AI tools, responsible use, and ethical considerations.

- Ongoing support is provided to ensure that **all staff feel confident** delivering the Computing curriculum and can promote pupil progression effectively.

Digital Leaders and Online Safety

We have **two Digital Leaders from every class**, who support computing sessions by:

- Turning on and setting up technology

- Assisting other pupils during lessons

- Participating in school-wide computing activities, such as **Internet Safety Week**

Pupils are encouraged to **speak to trusted adults** regarding online safety, which is reinforced regularly throughout the year. Every academic year begins with a focus on this topic. Additionally, **external experts** are invited to deliver online safety sessions, further supporting pupils' understanding of safe and responsible technology use.

Artificial Intelligence (AI) Awareness

- Pupils will explore AI in a **safe and age-appropriate way**.

- They will learn to **recognise AI-generated content** and evaluate its accuracy.

- Pupils will be taught about **responsible and ethical use of AI**, including issues of bias, privacy, and copyright.

- AI learning opportunities will be integrated into **cross-curricular projects** where relevant.

Timetabling

Computing is **timetabled weekly**, with some year groups receiving **double sessions fortnightly** to allow deeper engagement and practical application of skills.

Resources and Access

The school recognises the importance of maintaining, updating, and developing computing resources to ensure consistent, compatible systems that effectively deliver the objectives of the National Curriculum and support the use of IT, computer science, and digital literacy across the school. Teachers are required to inform the Computing Subject Leader immediately if any faults are identified.

The school's computing network infrastructure and equipment are organised so that:

- Every teacher from EYFS to Year 6 has a computer in their classroom and a laptop connected to the school network; an interactive whiteboard is available in each classroom.

- Internet access is available in all classrooms.

- Laptops and iPads are available for use throughout the school day, both for computing lessons and cross-curricular activities.

- The school employs a computing technician who manages administrative and technical support.

- There is a link governor for Computing, who meets with the Computing Subject Lead annually to review provision.

Evidence of Learning

Pupils' digital work is **saved in their Microsoft Teams drive**, ensuring it is securely stored and easily accessible. Each pupil also maintains a **computing folder** for any **paper-based evidence** of their work.

Teachers update the **marking and feedback book** regularly to record progress, provide feedback, and track pupils' achievements in Computing.

The use of both digital and physical records supports pupils in:

- **Reflecting on their learning** and discussing their progress.

- **Accessing prior knowledge**, revisiting concepts, and building on previous learning.

- Providing **evidence of skills development** for teachers, pupils, and external reviewers

IMPACT

The impact of the **Kapow Primary Computing curriculum** is monitored through a combination of **formative and summative assessment opportunities**. Each lesson includes guidance to support teachers in **assessing pupils against the learning objectives**, and each unit contains a **unit quiz and knowledge catcher**, which can be used at the **start and/or end of the unit** to measure progress and understanding.

Following the implementation of the Computing curriculum, pupils at **Thomas Willingale School and Nursery** are expected to leave with a **broad range of digital skills**, enabling them to **succeed in secondary education** and become **confident, responsible participants in an increasingly digital world**.

The expected impact of following the Kapow Computing scheme of work is that children will:

- Be **critical thinkers**, able to make informed and appropriate digital choices.

- Understand the **importance of computing** for their future education, careers, and personal lives.

- Recognise the need to **balance time using technology with time away from screens** in a healthy and appropriate manner.

- Appreciate that technology can **showcase their creativity and ideas**, using a range of software and hardware to achieve both artistic and practical outcomes.

- Demonstrate a clear **progression of technical skills** across all areas of the National Curriculum: **computer science, information technology, and digital literacy**.

- Use technology **both independently and collaboratively** as part of a team.

- Show awareness of **online safety issues** and apply protocols to deal with problems responsibly and appropriately.

- Develop an understanding of **technological developments** and how current technologies work together.

Curriculum Aims and Purposes

The Computing curriculum offers pupils opportunities to:

- Develop an understanding of the **fundamental principles and concepts of computer science**.

- Enhance skills in **using hardware and software** for problem solving, recording, and expressive work.

- Receive a **high-quality computing education** that equips them to think logically and creatively.

- Understand **how digital systems work** and become **digitally literate individuals**.

- Explore their attitudes towards ICT, its value for themselves, others, and society, and their awareness of its advantages and limitations.

Computing Curriculum Policy 2025

Kapow Strands

1. Information Technology

- Use **search technologies effectively**.

- Select, use, and combine a variety of software on a range of digital devices to **design, create, and present data, systems, and content**.

- Acquire techniques such as **saving, copying, and checking accuracy**.

- Apply **mathematical skills** using ICT.

- Collect, analyse, evaluate, and present **first-hand data** effectively.

2. Computer Science

- **Design, write, and debug programs** to accomplish goals, including controlling or simulating physical systems.

- Use **sequence, selection, and repetition**, variables, and various forms of input/output.

- Apply **logical reasoning** to explain algorithms and correct errors.

- Understand **computer networks**, including the internet and services like the World Wide Web.

3. Online Safety / Digital Literacy

- Use networks for **communication and collaboration**.

- Evaluate and present **digital data responsibly**.

- Use technology **safely, respectfully, and responsibly**, including understanding acceptable behaviour and how to report concerns.

Balanced Technology Use

At Thomas Willingale Primary School and Nursery we promote a balanced approach to technology, encouraging pupils to engage in offline activities alongside their digital learning. Pupils are taught the importance of managing screen time responsibly and understanding that devices should complement—not replace—other learning, play, and social experiences. Lessons incorporate discussions about healthy technology habits, responsible use of smartphones and other devices, and reflecting on the impact of digital choices on wellbeing.

This guidance supports pupils' mental and physical health in line with the school's Health & Safety policies and reinforces the principles of responsible digital citizenship taught throughout the Computing curriculum. Parents are encouraged to support this approach by modelling healthy device use at home.

Language and Communication

Pupils will:

- Develop **systematic writing skills** and presentation abilities.

- Use **technical vocabulary** appropriately.

- Read and extract information from **non-fiction sources**.

Values and Attitudes

Pupils will:

- Work collaboratively, listening and respecting the ideas of others.

- Recognise **ownership of ideas** and the value of information held in IT systems.

- Understand **information security** and safe handling of digital data.

- Be **creative and persistent**, critically evaluating their own and others' use of ICT.

- Recognise the **strengths and limitations of ICT** and apply it appropriately.

Features of Progression

Teaching ensures children progress:

- From **single to combined forms of information**, matching presentation to audience.

- From **personal to collaborative ICT use**, communicating with others.

- From **replicating real-world activities to modelling new scenarios** using ICT.

- From **everyday to technical vocabulary**, and from limited to wider ICT applications.

- From **simple tasks to complex problem-solving**, including organising information in interactive structures.

- From **initial exploration to systematic analysis and design**.

Building on Children's Earlier Experiences

Pupils come with **varying computing experiences**, often influenced by home access. The curriculum ensures that **all pupils develop the full range of IT capabilities**, with teachers observing and tailoring tasks to **support individual learning needs**.

Role of the Computing Subject Leader

The Computing Subject Leader is responsible for the implementation of the Computing Policy across the school. Key responsibilities include:

- Supporting all staff (including teaching assistants) in teaching, planning, and assessment of Computing.

- Monitoring classroom teaching and planning to ensure consistency and progression.

- Reviewing pupils' progression by examining work from a range of abilities.

- Keeping up-to-date with technological developments and sharing information with colleagues.

- Leading staff training on new initiatives and attending relevant in-service training.

- Demonstrating enthusiasm for Computing and encouraging staff to share this enthusiasm.

- Keeping parents and governors informed about the implementation of Computing in the school.

- Liaising with staff to set, monitor, and improve targets.

- Helping staff use assessment to inform future planning.

Role of the Class Teacher

Individual class teachers are responsible for ensuring that pupils have opportunities to learn Computing and apply their skills across the curriculum. Teachers are expected to:

- Plan and deliver the National Curriculum for Computing effectively.

- Set high expectations for all pupils, including those with SEN, disabilities, EAL, or from diverse social and cultural backgrounds.

- Ensure continued progression in pupils' learning and understanding.

- Create effective and engaging learning environments.

Specific responsibilities include:

- Securing pupil motivation and engagement.

- Providing equality of opportunity using a range of teaching approaches and techniques.

- Using appropriate assessment methods to monitor progress.

- Setting suitable learning targets for all pupils.

- Maintaining up-to-date assessment records in the Impact section.

Health and Safety

The school recognises the health and safety considerations involved in pupils' use of IT and Computing. Measures in place include:

- Electrical safety checks:

    o All fixed electrical appliances are tested yearly.

    o All portable electrical equipment is tested by an external contractor every twelve months.

- Personal equipment: Staff are advised not to bring their own electrical equipment into school. If necessary, equipment must be PAT tested before use. This also applies to any equipment brought in by visitors for workshops or activities.

- Equipment checks: All staff must visually check electrical equipment before use and take any damaged equipment out of use. Damaged items should be reported to the Computing Technician for repair or disposal.

- Classroom safety: Trailing leads must be secured behind equipment, and liquids must not be taken near computers.

- E-safety: Guidelines for safe online practice are outlined in the school's E-safety policy and Code of Conduct policies.

Security

The school takes IT and Computing security seriously. Measures include:

- The Computing Technician is responsible for regularly updating antivirus software.

- All use of IT and Computing must adhere to the school's E-safety policy and Code of Conduct.

- Parents are made aware of the E-learning Code of Conduct at school entry.

- Pupils and parents are informed of the school rules for responsible use of technology