THORPLANDS PRIMARY COMPUTING CURRICULUM & STRATEGY

Intent

We intend for our Computing Curriculum to be aspirational, enabling and inclusive, as well as ambitious and innovative. We intend for our Computing Curriculum at Thorplands Primary School to:

- Empower children to gain and develop the knowledge, skills, understanding and confidence that will equip them for an ever-changing and evolving digital world;
- Ensure every child develops a long-term understanding of computing in order for them to be able to use technology responsibly, effectively and safely;
- Develop responsible and confident digital citizens who play an active, safe part in the digital world and who leave our primary phase equipped with an armoury of transferrable digital skills.
- Teach pupils how to use computational thinking to think critically; including know how to use algorithms, debug, ask questions and find patterns.
- Provide our children with the necessary tools to gain access to all levels of employment and professions of the future.
- We intend for our Computing Curriculum to teach children the knowledge and skills of how to stay safe online now and in the future.

By teaching the national curriculum, through our scheme of 'Teach Computing' we aim to ensure all pupils:

- Are confident in using code and can understand and apply the fundamental principles and concepts of computer science, including logic, algorithms and data representation.
- When coding, can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- Able to connect with others responsibly and are competent, confident and creative users of information and communication technology.

For further information, please refer to the NPAT Computing Narrative Document.

Implementation

We collaborated as a trust alongside, Teach Computing to develop units so that it builds up alongside our curriculum. The computing curriculum through Teach Computing. As a working party, we designed the curriculum to work with other subjects to show how computing can impact the learning through the curriculum. The lessons will focus on the curriculum skills of information technology, digital literacy and computer science.

We have developed our computing curriculum alongside the expertise of the Denbigh School Computing Hub; consequently, Computing at Thorplands Primary School is taught through the Teach Computing Curriculum, which is aligned to match the scope and ambition of the National Curriculum.

The Computing Curriculum is sequenced coherently to ensure that substantive and disciplinary knowledge builds through six distinct strands which are:

1. Creating Media - A
2. Programming - A
3. Computing Systems and Networks
4. Data and Information
5. Creating Media - B
6. Programming - B

with online behaviours underpinning all of these strands.

Our Core Computing Curriculum covers 10 main areas of study:

1. Networks
2. Creating Media
3. Data & Information

4. Design & Development
5. Computing Systems
6. Impact of Technology
7. Algorithms
8. Programming
9. Effective Use of tools
10. Safety & Security

Pupils are taught computing for an hour a week. It is taught through whole-class interactive teaching with pupils challenged and scaffolded as appropriate when working on a given computing concept, principle or content.

Early Years Foundation Stage

At Thorplands Primary School, we believe that the Early Years Foundation Stage is crucial in securing the solid foundations that children are going to continue to build upon. Children interact with technology from the very beginning, beginning their programming learning journey by using Beebots to create and execute simple algorithms.

The most relevant statements for computing are taken from the following areas of learning:

- Personal, Social and Emotional Development
- Physical Development
- Understanding the World
- Expressive Arts and Design

Computing			
Three and Four-Year-Olds	Personal, Social and Emotional Development		• Increasingly follow rules, understanding why they are important.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

<u>Key Stage 1</u>

As the children enter Key Stage One at Thorplands Primary School and begin to learn new skills linked to Digital Literacy, Information Technology and Computer Science, we recognise that they all have unique starting points, therefore differing ICT abilities. This is especially true when some children have access to ICT equipment at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. In Key Stage 1 the children will learn to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following instructions, such as Scratch and Beebots. They will be shown how to use a range of technology purposefully to create, manipulate and retrieve digital content as well as to recognise common uses of information technology beyond school. Importantly, they will be taught to use technology safely and respectfully, keeping personal information private and identifying

where to go for help and support when they have concerns about content. Each of these fundamental skills will be taught through the year linked directly to the teach computing scheme.

Key Stage 2

As children progress through their learning journey into Key Stage Two, they will continue to develop depth in their knowledge and skills over the duration of each of their computing topics. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught. The implementation of the curriculum also ensures a balanced coverage of computer science, information technology and digital literacy. The children will have experiences of all three strands in Key Stage 2, but the subject knowledge imparted becomes increasingly specific and in depth, with more complex skills being taught, ensuring that learning is built upon. At Thorplands children are given opportunities to explore tools such as crumble kits, Scratch, and data loggers.

Long Term Map:

Computing	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	***Embedded unit*** Creating Media: **Digital Writing** *e.g., link to History (Queen Elizabeth)*	Computer Systems and Networks: **Technology Around Us**	***Embedded unit*** Creating Media: **Digital Painting** *e.g., link to Art (different media painting)*	Programming A: **Moving a Robot** *(Beebots)*	***Embedded unit:*** Data and Information: **Grouping Data** *e.g., link to Science (identifying and naming common plants)*	Programming B: **Introduction to Animation** *(Scratch Jr)*
Year 2	***Embedded unit*** Creating Media: **Digital Photography** *e.g., link to Art (drawing Inspired by architecture)*	Computer Systems and Networks: **IT Around Us**	***Embedded unit*** Creating Media: **Making Music** *e.g., link to History (music for Christopher Columbus or Neil Armstrong journeys)*	Programming A: **Robot Algorithms** *(Beebots)*	***Embedded unit:*** Data and Information: **Pictograms**	Programming B: **An introduction to Quizzes** *(Scratch Jr)*
Year 3	***Embedded unit*** Basic skills/word processing. e.g., link to wider curriculum or English.	Computer Systems and Networks: **Connecting Computers**	***Embedded unit*** Creating Media: **Animation** *e.g., link to History (the Romans)*	Programming A: **Sequence in Music** *(Scratch)*	***Embedded unit:*** Creating Media: **Desktop Publishing** *e.g., link to Science (parts of a plant)*	Programming B: **Events and Actions** *Scratch*
Year 4	***Embedded unit*** Creating Media: **Photo Editing** *e.g., link to History (Vikings)*	Computer Systems and Networks: **The Internet**	***Embedded unit*** Creating Media: **Audio Editing**	Programming A: **Repetition in shapes** (Logo)	***Embedded unit*** Data and Information: **Branching Databases** *e.g., link to Science (classifications and keys)*	Programming B: **Repetition in Games** *(Scratch)*
Year 5	***Embedded unit*** Creating Media: **Vector Drawing** *e.g., link to History*	Computer Systems and Networks: **Sharing information**	***Embedded unit*** Data and Information: Flat file databases *e.g., link to History (WW1)*	Programming A: **Selection in Physical Computing** (Crumbles)	***Embedded unit*** Creating Media: **Video Editing** *e.g., link to RE (stories of faith) or link to Art (sculpture)*	Programming B: **Selection in Quizzes** *(Scratch)*
Year 6	***Embedded unit*** Creating Media: **3D Modelling**	Computer Systems and Networks: **Communication**	***Embedded unit*** Creating Media: **Web Page Design**	**Programming A: Variables in Games (Scratch)**	***Embedded unit*** Programming B: **Sensing** (Micro:bits)	Data and Information: **Spreadsheet** *e.g., link to End of Term party/event/summer fayre*

Online Safety

Online safety will be at the core of all learning. This will be taught explicitly through both the computing curriculum and through the PSHE/RSE curriculum, it will also be referenced and taught contextually within the computing units of work. The Computing Lead works closely with the PSHE lead to ensure full coverage of online safety. Additionally we work annually with Simon Aston, the Local Authority Online Safety Office as well as other age-appropriate workshops. We take part in internet safety day. We also follow the curriculum from National Online Safety | Keeping Children Safe Online in Education.

Impact

Our curriculum aims to expand the children's knowledge and the understanding of the role technology has in school and around the world. Learners will develop a respect for technology and its uses, know how to use technology safely, develop their problem-solving skills through enquiry and hopefully develop a love of computing.

We measure the impact primarily through the pupils' work to show evidence and impact of learning. Other methods of assessment we use to evaluate the impact of our curriculum on our intended learning outcomes are:

- Retrieval quizzes,
- Pupil voice

- Staff surveys
- Learning walk
- Summative assessments