# Computing at Wilbarston

## Computing: The Curriculum

Computing plays a central role within the curriculum at Wilbarston and is fundamental to our wider trust mission of creating aspirational and knowledge-rich pupils. Pupils will secure an understanding of the use of technology as well as staying safe and making the correct choices.

The Computing curriculum is sequenced coherently so useful knowledge builds through three distinct strands; Digital Literacy, Information Technology and Computer Science. As a result, pupils will accumulate the essential knowledge, cultural capital and computational thinking.

Computer Science: algorithms and programming, data and systems
Information Technology: digital artefacts and computing contexts
Digital Literacy: Mechanics, searching for and selecting information and E-Safety

These disciplines are substantial and provide a secure foundation that enables pupils to succeed in the next stage of their education. By the end of the Computing curriculum at Wilbarston, children will know how to better understand the tools that software and algorithms can use to implement strategic problem solving in their lives.

### At the end of Foundation:

As children enter Key Stage 1, their first year re-examines and deepens the knowledge explored in EYFS. This begins with the vocabulary and the understanding of what technology is around us and how they explore the digital world. This work is primarily modelling by the teacher, showing them how to ask questions and to explore something with a critical eye. The use of computational thinking is central to all learning. Talk forms a large part of learning sessions and sessions are planned to develop purposeful talk. As the children enter Key Stage 1, they will have begun to develop a schema of knowledge that can be added to, such as sequencing, where more complex skills such as decision-making, problem solving and repetition can be added.

### At the end of Key Stage 1:

Children's knowledge is supported through opportunities to experience their own use of technology and technology used in school, such as interacting with digital content, debugging simple programs as well as creating and following explicit and unambiguous instructions. This continues with a broader understanding of how technology is used in the world which provides the start of foundational knowledge, which is further explored in Year 2, cementing their disciplinary knowledge through specific computational skills, such as logical reasoning. At the end of Key Stage 1, children will be able to understand and use simple algorithms and begin to implement them through the use of simple devices, such as a robot.

### At the end of Key Stage 2:

Due to the strong Computational Thinking focus in EYFS and Key Stage 1, children are now able to access more of a range of software tools to create and debug algorithms and code. Computing enables children to make sense of their world. However, in Key Stage 2 it also provides opportunities, which have a transformational effect on a pupil's perception of themselves and their relationship with learning – this enables students to develop a connection and understanding of the world and their place within it. At the end of Key Stage 2, children will use concepts such as selection, repetition and decisions to implement algorithms into more complex settings, such as in a website or in a technological product. The children will be able to evaluate their decisions with considerations for the user of their program and use feedback to improve their algorithms.

## Implementation:

There are three main elements to the Wilbarston Computing Curriculum:
- **Digital Literacy:** The skills, knowledge and understanding needed in order to participate fully and safely in an increasingly digital world. This includes using technology safely and respectfully, keeping personal information private, identifying where to go for help and support when they have concerns about content or contact on the internet or other online technologies.
- **Information Technology:** The purposeful use of existing programs to develop products and solutions.
- **Computer Science:** How computers and computer systems work, and how they are designed and programmed.

Overall, the Wilbarston Computing curriculum creates exciting learning opportunities that helps us to better understand how to use computational thinking and creativity to understand and change the world. This is fundamental in providing a secure foundation for pupil's learning which can be developed further into secondary school and further education.

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## Assessment
We use a multi-faceted approach to assessment within Computing.
- Retrieval practice to take place at the beginning of every lesson to ensure hierarchical and cumulative knowledge has 'stuck'.
- Assessment for learning to check composite knowledge has been retained is used within each lesson through skilful use of questioning and live feedback
- The Purple Mash website will show the progress of learning and component knowledge across the class with images, pupil voice plus a description of the task to showcase the learning on the Computing days.

## Cultural Capital
Enrichment, extra-curricular computing events, is an essential part of the Wilbarston Computing Curriculum which provides pupils with extended time to focus and deepen their learning.

We use a multi-faceted approach to enrichment within Computing:
- External specialists
- Inspirational visits from professionals in the field
- Immersion days such as Apprentice Day
- Immersion weeks such as STEAM Week

We provide opportunities for new experiences by going to computing events and to be able to challenge themselves by embracing new opportunities.

## Career Professional Development
We develop strong subject knowledge amongst all staff which is achieved through; comprehensive middle leadership development, a focus on developing all teachers' subject knowledge and Computing pedagogy. All staff benefit from implementing the high-quality planning resources provided by the Trust yet amended to meet the needs of all pupils.

Below is a summary of the CPD activities bespoke to Computing:

- Skill specific videos to support teachers
- 1-1 meetings with teachers to highlight key concepts of lesson plans
- Bespoke mentoring programme for non-specialist class teachers
- Twilight Computing CPD
- External training, including National Online Safety, Teach Computing, STEM Community, Barefoot Computing and National Centre for Computing Education.

**Computing Overview**
**Academic Year 2023-2024**

| | Autumn Term 1 | Autumn Term 2 | Spring Term 1 | Spring Term 2 | Summer Term 1 | Summer Term 2 | Cross Curricular |
|---|---|---|---|---|---|---|---|
| Robins R/1 | Unit 1.1 Online Safety Unit 1.2 Grouping and Sorting | Unit 1.3 Pictograms Unit 1.4 Lego Builders | Unit 1.5 Maze Explorers | Unit 1.6 Animated Stories | Unit 1.7 Coding Unit 1.8 Spreadsheets | Unit 1.9 Tech outside school | **Units that link to the maths curriculum:** • 1.2: Grouping and Sorting • 1.3 Pictograms • 2.4 Questioning • 3.6 Branching Databases • 3.8 Graphing • 5.4 Databases • 6.9 Spreadsheets • All years: Spreadsheet units **Units that could be part of English lessons:** • 3.7: Simulations • 4.4 Writing for Different Audiences • 5.8 Word Processing **Any of the data handling units suggested in the maths section.** • 1.6 Animated stories • 2.6 Creating Pictures • 2.8 Presenting Ideas • 3.9 Presenting • 4.6 Animation • 5.5 Game Creator • 5.7 Concept maps • 6.7 Quizzing |
| Snowy Owls 2/3 | Unit 2.1 Coding Crash Course Unit 3.1 Coding Crash Course | Unit 3.2 Online Safety Unit 3.3 Spreadsheets | Unit 3.4 Touch Typing Unit 3.8 Graphing | Unit 3.5 Email | Unit 3.6 Branching databases Unit 3.7 Simulations | Unit 3.9 Presenting | |
| Flamingos 4 | Unit 3.1 Coding Crash Course Unit 4.1 Coding Crash Course | Unit 4.1 Coding Unit 4.7 Effective Searching | Unit 4.2 Online Safety Unit 4.3 Spreadsheets | Unit 4.4 Writing for different audiences | Unit 4.5 Logo Unit 4.6 Animation | Unit 4.8 Hardware Investigators Unit 4.9 Making Music | |
| Red Kites 5/6 | Unit 5.1 Coding Crash Course Unit 6.1 Coding Crash Course | Unit 6.2 Online Safety Unit 5.4 databases | Unit 5.3 Spreadsheets | Unit 6.4 Blogging | Unit 5.5 Game Creator | Unit 5.7 Concept maps | |

# All Unit Summary

## Early Years (Reception)

Rather then a scheme with set lessons, the early years resources are designed to integrate into the day-to-day routine and set-up of an early years setting with opportunities for using Mini Mash or Purple Mash as part of the Early Years curriculum to support children in working towards early learning goals.

In addition, there are units of suggested ideas that focus on computing skills specifically, that can also be provided as opportunities for learning as part of the topics in other areas to give children a sound basis to explore topics using technology and to be ready for progressing through the Computing curriculum. These are as follows and are designed to be integrated and linked to wider early years curriculum areas. These have been loosely classified into the three streams but there is overlap between all three streams.

| Mouse and Trackpad Skills | Keyboard Skills | Drawing skills | Robots | Sounds | Photography |
|---|---|---|---|---|---|
| Technology Around Us | Hardware | Safety and Privacy | Quizzes | Using Purple Mash with an Individual Login | |