

Computing Curriculum



Curriculum Vision and Rationale

In Computing the key threshold concepts are:

Computer systems and networks

- Pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programs.

Creating media

- To use express, develop ideas to create programs, systems and a range of content.

Data and information

- Developing an understanding of databases and their uses

Programming

- Developing an understanding of algorithms, problem solving, logic and sequences.

These key threshold concepts are built into the curriculum and over each year group. These concepts are revisited each year and build upon knowledge and ensure progression across the key stages. Teachers use these concepts and the overviews found in the medium terms plans to help teach and plan computing lessons.

Intent

Throughout the study of computing our pupils should receive a high-quality computing education that equips them to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. Through the key threshold concepts, 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. Our school's curriculum drivers are communication, aspiration and respect. Computing 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. In terms of our school curriculum drivers, computing has links to aspiration through the reference to computational skills and careers relating to these. For respect, computing includes online safety which builds on our online safety school code (kindness, genuine news, personal information and being secure). This is also built on in communication online in the computing systems and network units.

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Implementation

Computing is adapted from the 'Teach Computing' Curriculum (NCCE) and covers all aspects of the National Curriculum. This scheme was chosen as it has been created by subject experts and based on the latest pedagogical research. It provides an innovative progression framework where content (concepts, knowledge, skills and objectives) has been organised into key threshold concepts that are revisited frequently allowing pupils retrieval to build a schema of knowledge. These topics aim to build on their computing skills to be able to use a computer efficiently, understand how a computing system functions, use a variety of programs to solve different purposes and understand how technology works, including how to stay safe. These lessons are scaffolded and relevant to the needs of the learners. Teachers are free to use other year group's lessons to adapt for the needs of SEN and EAL. Computing is taught on fortnightly basis. Equipment required for these lessons (chromebooks, Beebots etc.) are available for all learners to have equal and appropriate usage.

Impact

The impact of computing will be shown through pupil voice where learners are able to discuss what they have learnt in computing; making connections, using subject specific vocabulary, understanding how it is beneficial and applications in the modern world. Assessment grids on FFT are completed for each unit, this will show an overall progression for learners and highlight areas that need further coverage. As the curriculum is taught fortnightly, the concepts in each topic are visited regularly to aid knowledge being embedded in the long-term memory of our learners. As each concept is taught within a breadth of different contexts, and the vocabulary that is used is consistent across the school, it gains meaning and contributes to the development of schemas of knowledge. Pupils' work (being produced digitally in KS2) demonstrates that computing is taught at an age appropriate standard across each year group, with opportunities planned in for pupils showing a swift understanding.

EYFS

EYFS no longer has a specific technology section in the framework. All of EYFS have access to technology in school. This is utilised throughout their curriculum to help develop an understanding of the purpose of technology as well as how this is useful in daily lives. Children gain awareness of various types of technology and explore the different parts.

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Long Term Curriculum Overview

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|--------|---|--|--|--|--|--|
| EYFS | On going access through the school environment and general curriculum delivery. | | | | | |
| Year 1 | Computer systems and networks – Technology around us | Programming A – Moving a robot Beebots | Creating media – Digital writing | | Creating media – Digital painting | Programming B – Introduction to animation Scratch Jr |
| Year 2 | Computing systems and networks – IT around us | Programming A – Robot algorithms Beebots | Data and information – Pictograms | Creating media – Making music | | Programming B – Scratch Jr Quizzes |
| Year 3 | Computing systems and networks – Connecting computers | Programming A – Sequence music Scratch | | Data and information – Branching databases | Creating media – Desktop publishing | Programming B – Events and actions Scratch |
| Year 4 | Computing systems and networks – Internet | Programming A – Repetition in shapes Turtle logo | Data and information – Data logging | Creating media – Audio editing | Programming B – Repetition in games Scratch | |
| Year 5 | Computing systems and networks – Systems and searching | Programming B – Selection in quizzes scratch | | Programming A – Selection in physical computing Crumbles | | Creating media – Vector drawing |
| Year 6 | Computing systems and networks – Communication | Programming A – Variables in games Scratch | Data and information – Spreadsheets | Programming B – (Physical) Sensing movement Microbits | | Creating media – Web page creation |