South Kilworth
Computing Curriculum Framework

A high-quality computing education equips pupils 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. The core of computing is computer science, in which 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. Computing also 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.
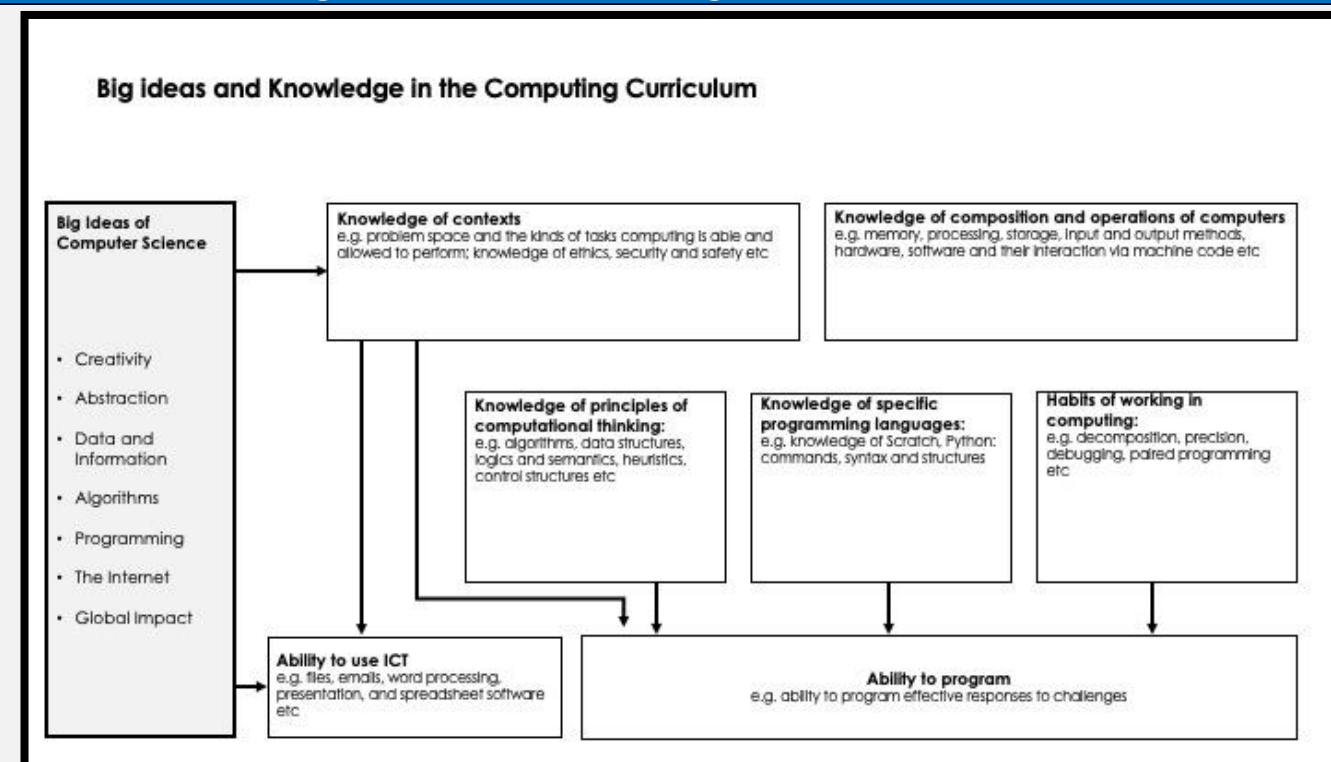
Aims:

Our aim is to ensure our children:
- ✓ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- ✓ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- ✓ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ✓ are responsible, competent, confident and creative users of information and communication technology

Big Ideas and Knowledge

The Big Ideas of Computer Science:
- Creativity
- Abstraction
- Data Information
- Algorithms
- Programming
- The Internet
- Global Impact

Big ideas and Knowledge in the Computing Curriculum

EYFS

EYFS Framework : Computing
Through effective teaching and learning children will be given the opportunity to play and explore, participate in active learning and create and think critically.
Children at the expected level of development will:

- ✓ Use a range of technology in their play, both functioning and model devices, e.g. electronic toys as part of continuous provision e.g bee bots , remote control cars
- ✓ Use digital devices to photograph their own work
- ✓ Explore a broken device or model device to discover how it functions
- ✓ Give precise instructions verbally to make something happen including use of directional language
- ✓ Use a device to record voices or videos e.g. tablet , talking tins
- ✓ Use a paint or graphics package to create digital art
- ✓ Be familiar with a variety of input devices, e.g. tablet , keyboard and mouse

Key Stage One

Pupils should be taught to:
- ✓ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- ✓ create and debug simple programs
- ✓ use logical reasoning to predict the behaviour of simple programs
- ✓ use technology purposefully to create, organise, store, manipulate and retrieve digital content
- ✓ recognise common uses of information technology beyond school
- ✓ use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Key Stage Two

Pupils should be taught to:
- ✓ design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; 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
- ✓ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- ✓ understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- ✓ use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- ✓ select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- ✓ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Teach Computing Curriculum https://teachcomputing.org/curriculum is used as a progressive framework for teaching and learning using the following themes:

Computing Systems and Networks   …   Creating Media   …   Data and Information   …   Programming

e-safety

The internet and online technology provides new opportunities for young people's learning and growth, but it can also expose them to new types of risks. **e-safety** forms a fundamental part of our safeguarding and is re-introduced at the start of each academic year, taught throughout the curriculum and forms part of a focused week linked to our PSHE curriculum to ensure coverage and awareness for all pupils.

Teaching Sequence			
EYFS and Year 1 Cycle A and Technology Weeks	**Computing 1A:** Computing Systems and Networks – Technology Around Us https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us	**Computing 2A:** Creating Media – Digital Painting https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting	**Computing 3A:** Creating Media – Digital Writing https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing
EYFS and Year 1 Cycle B and Technology Weeks	**Computing 1B:** Data and Information – Grouping Data https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data	**Computing 2B:** Programming – Moving a Robot https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot	**Computing 3B:** Programming – Introduction to Animation https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation
Years 2, 3 and 4 Cycle A	**Computing 1A:** Computing Systems and Networks – IT Around Us https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us	**Computing 3A:** Creating Media – Making Music https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music	**Computing 5A:** Programming – Robot Algorithms https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms
Technology Weeks	**Computing 2A:** Creating Media – Digital Photography https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography	**Computing 4A:** Data and Information – Pictograms https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms	**Computing 6A:** Programming – Introduction to Quizzes https://teachcomputing.org/curriculum/key-stage-1/programming-b-an-introduction-to-quizzes
Years 2 and 3 Cycle B	**Computing 1B:** Computing Systems and Networks – Connecting Computers https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers	**Computing 3B:** Creating Media – Desktop Publishing https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktop-publishing	**Computing 5B:** Programming – Sequence in Music https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music
Technology Weeks	**Computing 2B:** Creating Media – Animation https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation	**Computing 4B:** Data and Information – Branching Databases https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases	**Computing 6B:** Programming – Events and Actions https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions

Years 5 and 6 Cycle A	**Computing 1A:** Computing Systems and Networks – The Internet https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet	**Computing 3A:** Creating Media – Photo Editing https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing	**Computing 5A:** Programming – Repetition in Shapes https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes
Technology Weeks	**Computing 2A:** Creating Media – Audio Editing https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing	**Computing 4A:** Data and Information – Data Logging https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging	**Computing 6A:** Programming – Repetition in Games https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games
Years 4, 5 and 6 Cycle B	**Computing 1B:** Computing Systems and Networks – Sharing Information https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information	**Computing 3B:** Creating Media – Video Editing https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing	**Computing 5B:** Programming – Selection in Physical Computing https://teachcomputing.org/curriculum/key-stage-2/programming-a-selection-in-physical-computing
Technology Weeks	**Computing 2B:** Creating Media – Vector Drawing https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing	**Computing 4B:** Data and Information – Flat-file Databases https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases	**Computing 6B:** Programming – Selection in Quizzes https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes
Years 4, 5 and 6 and 3 Cycle C	**Computing 1C:** Computing Systems and Networks – Communication https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-communication	**Computing 3C:** Creating Media – Web-Page Creation https://teachcomputing.org/curriculum/key-stage-2/creating-media-web-page-creation	**Computing 5C:** Programming – Variables in Games https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games
Technology Weeks	**Computing 2C:** Creating Media – 3-D Modelling https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling	**Computing 4C:** Data and Information – Spreadsheets https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets	**Computing 6C:** Programming – Sensing https://teachcomputing.org/curriculum/key-stage-2/programming-b-sensing