# Computing

## Curriculum Overview:

At Spalding St Paul's Primary School, we want all of our children to be **PROUD** of all their achievements and successes across all curriculum subjects.

Our curriculum enables children to achieve their own **PERSONAL EXCELLENCE** through a well-tailored programme designed for all to access.
Our curriculum is designed for children to show **RESPECT** for what they are learning, themselves, others, beliefs and the world around them.
Our curriculum gives children a range of **OPPORTUNITIES** to develop their knowledge, skills and understanding.
Our curriculum is **UNIQUELY** designed to incorporate our diverse school, our community and the world we live in.
Our curriculum enables children to **DISCOVER** key skills and knowledge to help them become lifelong learners.

| Intent | Implementation | Impact |
|---|---|---|
| **Early years Foundation Stage:** In EYFS the framework is organised across 7 areas of learning rather than subject areas. As part of this document we have planned how the skills taught across EYFS feed into the national curriculum and which statements from the 2020 Development Matters are prerequisite skills for computing within the National Curriculum. <br><br> **KS1 and KS2:** In KS1 and KS2 the computing curriculum has been designed to cover all of the skills, knowledge and understanding as set out in the National Curriculum. The National Curriculum states that '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. <br><br> To ensure that pupils develop a secure knowledge that they can build on, our computing curriculum has been mapped out using our Key Concepts. <br><br> When covering each of these strands, the content will be carefully organised by each year group through our subject overview. <br><br> Content knowledge, vocabulary and skills will then be planned for at a greater level of detail in the Year group Frameworks. <br><br> Computing is delivered through subject specific teaching organised into blocks under a theme. Meaningful links with other subjects are made to strengthen connections and understanding for pupils. | The Early years Foundation Stage (EYFS) follows the 'Development Matters' in the EYFS guidance. In EYFS computing is taught as part of 'Personal, Social and Emotional Development ' and 'Expressive Arts and Design' and will be seen as part of the continuous and adult lead provision across the classroom, not as a discrete subject. <br><br> In KS1 and KS2, computing is taught as a discreet subject every week to allow time to embed skills in the subject. <br><br> All learning will start by revisiting prior knowledge. This will be scaffolded to support children to recall previous learning and make connections. Staff will model explicitly the subject-specific vocabulary, knowledge and skills relevant to the learning to allow them to integrate new knowledge into larger concepts. <br><br> Learning will be supported through the use of knowledge organisers that provide children with scaffolding that supports them to retain new facts and vocabulary in their long-term memory. Knowledge organisers are used for pre-teaching, to support home learning and also as a part of daily review. | Impact is measured through regular learning walks, lesson visits, work scrutiny and pupil voice. <br><br> Work will show that a range of topics are being covered as well as progression across each unit of work in every year group and across year groups. <br><br> Children will be able to talk about the skills and knowledge they have acquired, through pupil voice, and will be engaged in lessons and want to find out more. <br><br> Teachers will use Assessment for Learning to ensure all lessons are relevant and will help to plan for next steps. <br><br> Subject coordinators will be given regular time to ensure resources are kept up to date, to monitor their subject across the school, create action plans and impact reports and to provide subject feedback to SLT as appropriate. |

| Breadth of Study |
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## Breadth of Study EYFS:

| Three and Four Year-Olds | Personal, Social and Emotional Development | • Remember rules without needing an adult to remind them. |
|---|---|---|
| | 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. <br> • Know and talk about the different factors that support their overall health and wellbeing:- sensible amounts of 'screen time'. |
| | Physical Development | • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. |
| | 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. <br> • 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. |

## Breadth of study Key Stage 1:

Children 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

## Breadth of study Key Stage 2:

Children 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

| Key Concepts | | | | |
|---|---|---|---|---|
| Computing systems and network | Programming | Data and Information | Creating Media | Internet Safety |
| Understand how networks can be used to retrieve and share information, and how they come with associated risks | Create software to allow computers to solve problems. | — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios | Select and create a range of media including text, images, sounds, and video | Understand risks when using technology, and how to protect individuals and systems |

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **Computing systems and** | -Use technology purposefully to create, organise, store, manipulate and retrieve digital content | | -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 | | -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 | |
| **Programming** | -Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions<br><br>-Create and debug simple programs<br><br>-Use logical reasoning to predict the behaviour of simple programs | | -Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br><br>-Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>-Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs | | -Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br><br>-Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>-Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs | |
| **Data and Information** | -Recognise common uses of information technology beyond school | | -Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<br><br>-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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<br><br>-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 | |
| **Creating Media** | -Recognise common uses of information technology beyond school | | -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 | | -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 | |
| **Internet Safety** | -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 | | -Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact | | -Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact | |

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| | *Computer Systems and Network* | *Creating Media* | *Programming A* | *Data and information* | *Creating Media* | *Programming B* |
| **Year 1** | Technology around us | Digital painting | Moving a robot | Grouping data | Digital writing | Programming animations |
| **Year 2** | Information technology around us | Digital photography | Robot algorithms | Pictograms | Making music | Programming quizzes |
| **Year 3** | Connecting computers | Stop-frame animation | Sequencing sounds | Branching databases | Desktop publishing | Events and actions in programs |
| **Year 4** | The internet | Audio editing | Repetition in shapes | Data logging | Photo editing | Repetition in games |
| **Year 5** | Sharing information | Video editing | Selection in physical computing | Flat-file databases | Vector drawing | Selection in quizzes |
| **Year 6** | Internet communication | Webpage creation | Variables in games | Introduction to spreadsheets | 3D modelling | Sensing |