# Progression Documents

# Computing

| Intent | Implementation | Impact |
|---|---|---|
| The 2014 National Curriculum for computing aims to ensure that all children:<br>• can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation<br>• can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems<br>• can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems<br>• are responsible, competent, confident and creative users of information and communication technology<br><br>At Spalding St Paul's Primary School we aim to give our children the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our children to be able to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they study computing. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computer science lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. We want our children to have a breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens. | At Spalding St Paul's Primary School computing is taught in discreet computing lessons. The computing curriculum is delivered through our own scheme of work based initially on the Teach Computing Curriculum.<br><br>Every lesson in our scheme has been individually planned so that it can be effectively taught using the infrastructure we have in place at school and so that it can meet the needs of all our children. Our scheme has been closely referenced against the 2014 National Curriculum attainment targets in order to ensure progression and coverage.<br><br>Having discreet lessons means that the children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Where appropriate, meaningful links will be made between the computing curriculum at the wider curriculum. In computing lessons, the children will use either the desktops or IPads in order to access a range of apps and software. Discreet computing lessons will focus on the curriculum skills of information technology, digital literacy and computer science. | Our Computing curriculum is high quality, well thought out and is planned to demonstrate progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:<br><br>• A reflection on standards achieved against the planned outcomes<br>• Children can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation<br>• Children can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems<br>• Children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems<br>• Children are responsible, competent, confident and creative users of information and communication technology<br>• A celebration of learning for each term which demonstrates progression across the school<br>• Pupil discussions about their learning |

## Breadth of Study

### 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

| Threshold 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 | |

| ICT OVERVIEW | | | | | | |
|---|---|---|---|---|---|---|
| | **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 |