

## Level Expected at the End of EYFS

We have selected the Early Learning Goals that link most closely to the Computing National Curriculum.

### Understanding the World (Technology)

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

#### Key Stage 1 National Curriculum Expectations

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 2 National Curriculum Expectations

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.

Year	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
1	<p><u>Computer Skills</u></p> <p>This unit will teach children the basic computer skills that they will need in order to be able to use a desktop or laptop computer. Children will learn how to use a computer mouse or a trackpad and how to switch on and shut down a computer. They will apply their mouse or trackpad skills by launching applications, manipulating windows and opening and saving files and folders. The children will then practise their clicking skills and learn how to drag objects, either using a mouse or trackpad.</p>	<p><u>Painting</u></p> <p>This Painting unit will teach the children basic painting skills in a painting application on a computer or tablet device. Children will use a simple painting program to paint with different colours and brushes, create shapes, fill areas, undo and redo and add text.</p>	<p><u>Online Safety</u></p> <p>This unit is aimed at teaching basic online safety and digital literacy skills. In this unit, children learn about the potential dangers in the online world and what basic steps we all need to take in order to have positive digital experiences. The first lesson, which is intended to be taught at the start of the school year, focuses on why it is important for children to name their creative work. They go on to learn about using a search engine safely to find pictures. Children learn the SMART rules and look at what information should be kept safe when using the Internet. The lessons then explore the positives and potential negatives of online communication, such as email, and children will develop the skills to recognise potential dangers and act accordingly to keep themselves and others safe.</p>	<p><u>Word Processing</u></p> <p>This Word Processing Skills unit will teach children basic typing and word processing skills. Children will learn how to type with two hands, use the shift, space and enter key properly, and edit work by using the backspace, delete and arrow keys. Children will then go on to learn how to use undo and redo and to select and format text.</p>	<p><u>Programming Toys</u></p> <p>In this unit about programming toys, children will be introduced to the principles of programming through unplugged tasks and the use of Bee-Bots (or similar programmable toys). They will be introduced to algorithms as a set of step-by-step instructions given to a device, will learn how to debug simple algorithms and how to use logical reasoning to predict how a program will behave.</p>	<p><u>Scratch Junior</u></p> <p>This unit introduces children at Key Stage 1 to the principles of coding, using the age-appropriate Scratch Jr software. A more accessible version of the popular Scratch Programming and aimed at age 5-7, Scratch Jr is available as a free app for Apple, Amazon and Android tablets. The platform encourages basic understanding of algorithms and how to create precise instructions for visual working programs. It begins to develop a sense of creating, debugging and logical reasoning, which are required for further programming at KS2.</p>

2	<p><b><u>Online Safety</u></b></p> <p>In this unit, children learn about how what they do online leaves a trail called a digital footprint. They will look at how to improve the efficiency of their online searches, the types of websites that are best for children to access when looking for information, as well as how to identify inappropriate content and the actions they should take if they do. Children will be introduced to the term 'cyberbullying' and look at how they should communicate online and deal with instances of people being unkind via digital means.</p>	<p><b><u>Turtle Logo</u></b></p> <p>This unit has two main aims, to enable children to create, test and debug algorithms, and preparing children to use the language of Turtle Logo. The children begin by giving and following instructions to move forward and make quarter turns, followed by walking different rectilinear shapes. The language is extended to use the main Turtle Logo commands. Children will create, text and debug algorithms for shapes and routes around school in preparation for using the commands in online programs such as Turtle Logo/Logo Interpreter or MSWLogo.</p>	<p><b><u>Programming Turtle &amp; Scratch</u></b></p> <p>This Programming Turtle Logo and Scratch unit will teach children to create and debug algorithms. Following on from the earlier Year 2 unit on Preparing for Turtle Logo, the children use the basic commands in Logo to move and draw using the turtle on screen, and then further develop algorithms using the "repeat" command. These skills are then developed by teaching children to create algorithms in Scratch using a selection of blocks.</p>	<p><b><u>Computer Art</u></b></p> <p>This 'Computer Painting' unit will teach children key skills that will support progression within the KS1 Computing curriculum. The children will have the opportunity to learn about reproducing the painting styles of great artists using computer programs. Each lesson focuses upon a different artist and their particular style. The children will use this as inspiration for mastering specific techniques within design-based software. The lessons do not specify any particular software to be used, though it is worth checking that whatever you are using will allow the children to meet the success criteria. At the end of the unit children will have the opportunity to use a mixture of the styles and skills learnt within this topic to produce their own computer-painted masterpiece!</p>	<p><b><u>Using the Internet</u></b></p> <p>This unit introduces children to using the Internet safely and with a purpose. Children are shown how to search the Internet using one word; how to make sense of the returned results; how to use "for kids" to return more suitable results; how to follow links and return to the search results. Children are encouraged to use a range of search engines, including Google, Bing and Yahoo, and some more child-friendly engines like Kidrex. (Note: many of the child-friendly searches use Google.) The children then learn to blog safely and responsibly. The focus of the lessons is less on the technical aspects, which will vary according to which blogging site is used, and more on how to blog in a safe and responsible way, looking at how to blog well, and how to post and respond to comments effectively.</p>	<p><b><u>Presentation Skills</u></b></p> <p>This unit is intended as the first unit of the academic year. Lessons 1 and 6 focus on important computer skills needed for safe and effective computer use and introduce some further skills concerning the use of folders, searching for files and printing. Lessons 2-5 introduce children to presentations and teach the skills needed to create a simple presentation. While many schools have Microsoft PowerPoint, there are alternatives. Impress is part of Apache OpenOffice and is free, as is Google Slides, part of Google Drive, which is available with a gmail address. Schools with Apple computers can also use Keynote, as well as MacOs versions of PowerPoint or Impress, or Google Slides. There are simpler presentation applications designed for children which may be used, although they may not have all the features, particularly for the later units.</p>
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3	<p><b><u>Online Safety</u></b></p> <p>In this unit, children are introduced to email and other forms of online communication. They will look at how to write and send emails, as well as how to decide if an email is safe to open. They will build on their existing knowledge of cyberbullying and how to deal with unkind behaviour online. The use and importance of privacy settings is introduced and children will discuss the types of information we should not share online. They will build on the idea of a digital footprint by thinking about how the adverts they see online are targeted at them. Children will finish the unit by using the knowledge they have gained to plan a party using online communication methods.</p>	<p><b><u>Word Processing</u></b></p> <p>This is the third word processing unit, following the units in Years 1 and 2, aimed at teaching basic word-processing skills to children. In this unit, children will learn to use various features for formatting text. Lessons focus on some important computer skills and introduces children to screenshots and the Snipping Tool, and secure use of passwords.</p>	<p><b><u>Drawing and Desktop Publishing</u></b></p> <p>This unit is aimed at developing children’s graphic and presentation skills by introducing drawing as opposed to painting. It also goes on to further children’s understanding of layouts using a desktop publishing application. Children will learn to draw, order, group and manipulate objects to make a picture. They will also learn to evaluate and create effective layouts, combining text and images. There are a number of different drawing applications used in primary schools. ‘Google Draw’ comes with any gmail account. Word processors/ presentation applications/desktop publishing packages have some of the features of drawing applications and can be used, but are not as good as a specific drawing application.</p>	<p><b><u>Programming Turtle &amp; Scratch</u></b></p> <p>This Programming Turtle Logo and Scratch unit will teach children to create and debug algorithms. Following on from the earlier Year 2 unit on Preparing for Turtle Logo, the children use the basic commands in Logo to move and draw using the turtle on screen, and then further develop algorithms using the “repeat” command. These skills are then developed by teaching children to create algorithms in Scratch using a selection of blocks.</p>	<p><b><u>Internet Research &amp; Communication</u></b></p> <p>This unit focuses on how to effectively search using keywords and how to safely communicate online. The lessons focused on Internet research will demonstrate the importance of word order when searching. They will also start to examine the results returned and how to distinguish between a reliable and unreliable website or webpage. Children will learn to save webpages in a browser, as well as in a file or folder. They will also understand how this can be shared with others. Children will identify ways of communicating online, how they can keep safe and the importance of being responsible while communicating online with others.</p>	<p><b><u>Presentation Skills</u></b></p> <p>This unit develops children’s use of presentation software. The first three lessons teach children new skills, following on from previous skills learnt; setting the theme, slide transitions, animating objects onto the slide, creating hyperlinks in the action settings and adding audio and video.</p>
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4	<p><b><u>Online Safety</u></b></p> <p>In this unit, children learn about preventing and dealing with cyberbullying; how to use search engines efficiently; how to avoid plagiarism online; and how to be a good digital citizen. The unit ends with children applying their new knowledge to design a character to be displayed around school to promote online safety.</p>	<p><b><u>Word Processing</u></b></p> <p>This is the fourth word processing unit, following the units in year 1, 2 and 3 aimed at teaching basic and word processing and text formatting skills. In this unit children will learn about formatting images and organising content into an effective layout. The first lesson focuses on formatting images and making them suitable for a poster advertising a cake sale. Throughout the rest of the unit, children will learn new skills and techniques and apply them to creating a range of different word documents (posters, letters to parents, job rotas, recipe cards and e-vouchers) which they will use during the cake sale project.</p>	<p><b><u>Animation</u></b></p> <p>This unit teaches children the basic principles and techniques of simple animation. Beginning with the history of animation, children research some of the early animation techniques used before the use of computers. The lessons then compare a range of free animation software and children incorporate the different techniques into their own animation. After experimenting, children are then given the opportunity to evaluate their experiences in the final lesson.</p>	<p><b><u>Programming Turtle Logo</u></b></p> <p>This Programming Turtle Logo unit will teach children how to create an algorithm to program a procedure. Lessons are designed to be used with online programs such as Turtle Logo/Logo Interpreter or MSWLogo. Children are reminded of the basic commands and how to repeat alongside a variable. The children are then shown how to program their own procedures, use colour and set the position of the turtle using coordinates. In the concluding lesson they use the arc command to create patterns using different shapes and randomly selected colours, which they are encouraged to share with the rest of the class.</p>	<p><b><u>Research: Mathematics Websites</u></b></p> <p>The children will use and assess a variety of websites designed to support children with Mathematical learning. As Year 4 are required to sit an online times tables assessment, this unit is designed to prepare them for this, by improving their keyboard skills e.g. speed, accuracy and ability to find certain keys under timed conditions.</p>	<p><b><u>Scratch</u></b></p> <p>This unit follows up the earlier units on programming Scratch on a computer/tablet. In this unit the children write quizzes by combining questions. While specific skills in Scratch are taught, the unit aims to teach children the wider programming skills of solving problems, testing, debugging, improving and evaluating.</p>
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5	<p><b><u>Online Safety</u></b></p> <p>In this unit, children will learn about email safety with a focus on preventing and dealing with spam. They will consider the importance of strong passwords and learn how to create them. Children will build on their knowledge of plagiarism and fair use of people’s work by learning how to write citations and references for websites they may use. They will scrutinise photographs that they see online and learn how easy it is to manipulate pictures and present them as reality.</p>	<p><b><u>Flowol</u></b></p> <p>This unit introduces children to flowcharts and how they are used to program and control devices. Children are taught to build sequences of instructions, control multiple outputs and structure algorithms with decisions and inputs. Although many external hardware interfaces can be attached and linked to a computer using Flowol, this unit is designed as an introduction to the software and the concepts of flowchart programming. Further learning can be extended by using external devices.</p>	<p><b><u>Radio Station</u></b></p> <p>This unit allows children to use software and digital devices for recording sound. Based around the theme of a Radio Station, it is designed to encourage a creative approach that includes interviewing, making adverts and using jingles. Other software is incorporated where children write scripts and design additional advertising for their Radio Station. Opportunities are included for children to present, listen, review and evaluate their own content as well as professional and commercial examples, plus those created by their peers.</p>	<p><b><u>Scratch:Developing Games</u></b></p> <p>This unit builds on the previous unit in Year 4 (Questions and Quizzes) using Scratch to build and edit algorithms for simple games. The unit is designed to help children develop their skills in writing their own algorithms as well as editing and debugging existing codes.</p>	<p><b><u>Strategic Searching Online</u></b></p> <p>In this unit, the children will learn to use search engines with increasing efficiency. They will learn how to refine their searches using various techniques, such as using Boolean operators and using keywords. Children will also learn to look for clues to decide if a website can be trusted and whether the information presented is reliable. They will also learn how search engines work and how their search returns are ranked in a particular order.</p>	<p><b><u>SketchUp Online</u></b></p> <p>In this unit the children extend their drawing skills to create 3D models based on using the software SketchUp. The free version of this is suitable for the unit. Children will learn how to create simple and complex 3D models. They will be able to add detail and manipulate 3D models using a variety of tools.</p>
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6	<p><b><u>Online Safety</u></b></p> <p>In this unit about online safety, children will be taking a more in depth look at a variety of online safety issues, most of which they will have been familiarized with in previous years. They will be introduced to the idea of the internet, as a type of media, and how it can shape our ideas about boys and girls through stereotypes. Children will be given ways to deal with online content that they find worrying or even believe to be dangerous.</p>	<p><b><u>Kodu Programming</u></b></p> <p>This unit introduces children to programming with Kodu, a simple visual programming language made specifically for creating games. The distinguishing features of Kodu are visual icons that are added together like building blocks to form instructions and game environments constructed by the user in a 3D scene editor. It is designed to be accessible by children and enjoyable by anyone. As well as on PC, Kodu is also available via Xbox 360, which adds appeal for many children.</p>	<p><b><u>Research: Websites</u></b></p> <p>In this unit, the children will use and evaluate a number of websites which are designed to assist children with their learning. The children will focus on the websites' ease of access, functionality and helpfulness in helping the children learn new skills or embed old ones. This builds on from the Year 4 unit which focuses on Maths-based sites and includes other sites designed to help with English-based skills.</p>	<p><b><u>Spreadsheets</u></b></p> <p>Children are given an understanding of spreadsheets and how they can be used. In the first five lessons, a different spreadsheet template is provided in which children learn skills in formatting and entering specific formulas. Lessons 4 and 5 include investigative skills in using the spreadsheet to solve specific problems. Examples include number calculations, sports league tables, test scores, and budget planning. The final lesson allows an open-ended task for pupils to design their own spreadsheet, with ideas and direction provided for particular purposes. This final lesson can also be used for some pupils to return to or complete any previous spreadsheet tasks which may not have been finished.</p>	<p><b><u>Film Making</u></b></p> <p>This aim of this unit is to allow children to explore various aspects of film-making. In doing so, they must choose and use appropriate software in order to complete tasks such as writing a script, researching information, filming and editing. As well as using digital devices for recording (video camera or tablet), children work through pre- and post-production stages, planning good-quality interviews for a documentary and completing the process with use of video editing software such as Windows Movie Maker.</p>	<p><b><u>Scratch: Animated Stories</u></b></p> <p>This unit builds on the previous unit in Year 5 (Scratch: Developing Games) as well as prior units introducing Scratch in Year 2 and Year 4. The unit is designed to help children in continuing to develop their skills in writing their own algorithms as well as editing and debugging existing codes. New skills are introduced to structure code and animate characters and scenes, gradually building to create a short animated story.</p>
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