

Computing Overview – EYFS, Key Stage 1 and Key Stage 2

| | | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|-------------|-----------|---|-----------------------------|-------------------------------------|----------------------------------|--------------------------------|------------------------------------|
| EYFS | Reception | Learning how to use equipment – Listening centre, Bee bots, computers, iPads and the interactive whiteboard | Walkie talkies for messages | Mister Maker app to create art | Bee bots to plan a route/journey | Arcimboldo art (mouse control) | Old and new toys |
| Key Stage 1 | Year 1 | Online safety and exploring Purple Mash | | Lego builders & Maze explorers | | Animated story books | |
| | Year 2 | Coding | | Online safety & Effective searching | | Creating pictures | |
| Lower Key | Year 3 | Coding | | Email safety | | Presenting | |
| | Year 4 | | Coding | | Online safety | | Effective searching & Making music |
| Upper Key | Year 5 | Coding | | Online safety & 3D modelling | | Game creator | |
| | Year 6 | | Online safety & Networks | | Coding | | Quizzing |

Early Years Foundation Stage - Related to Computing

| Physical Development | The World |
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| Moving and Handling Early Learning Goal Children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing | Technology Early Learning Goal Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. |

| | Topic | Topic | Topic | Topic | Topic | Topic |
|--------|---|-----------------------------|--------------------------------|----------------------------------|--------------------------------|------------------|
| Year R | Learning how to use equipment – Listening centre, Bee bots, computers, iPads and the interactive whiteboard | Walkie talkies for messages | Mister Maker app to create art | Bee bots to plan a route/journey | Arcimboldo art (mouse control) | Old and new toys |

National Curriculum – Computing

Purpose of study

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

The national curriculum for computing aims to ensure that all pupils:

- 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.

National Curriculum - Key stage 1

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.

| | Online safety | Lego builders and Maze explorers | Animated story books |
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| Year 1 | <ul style="list-style-type: none"> • To log in safely. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources. • To become familiar with the icons and types of resources available in the Topics section. • To start to add pictures and text to work. • To explore the Tools and Games section of Purple Mash. • To learn how to open, save and print. • To understand the importance of logging out. | <ul style="list-style-type: none"> • To compare the effects of adhering strictly to instructions to completing tasks without complete instructions. • To follow and create simple instructions on the computer. • To consider how the order of instructions affects the result. • To understand the functionality of the direction keys. • To understand how to create and debug a set of instructions (algorithm). • To use the additional direction keys as part of an algorithm. • To understand how to change and extend the algorithm list. • To create a longer algorithm for an activity. • To set challenges for peers. • To access peer challenges set by the teacher as 2Dos. | <ul style="list-style-type: none"> • To introduce e-books and the 2Create a Story tool. • To add animation to a story. • To add sound to a story, including voice recording and music the children have composed. • To work on a more complex story, including adding backgrounds and copying and pasting pages. • To share e-books on a class display board. |

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| Year 2 | Coding | Online safety & Effective searching | Creating pictures |
| | <ul style="list-style-type: none"> • To understand what an algorithm is. • To create a computer program using an algorithm. • To create a program using a given design. • To understand the collision detection event. • To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence. • To understand that different objects have different properties. • To understand what different events do in code. • To understand the function of buttons in a program. • To understand and debug simple programs. | <ul style="list-style-type: none"> • To know how to refine searches using the Search tool. • To use digital technology to share work on Purple Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. • To understand how we should talk to others in an online situation. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To identify the steps that can be taken to keep personal data and hardware secure. • To understand the terminology associated with searching. • To gain a better understanding of searching on the Internet. • To create a leaflet to help someone search for information on the Internet. | <ul style="list-style-type: none"> • To learn the functions of the 2Paint a Picture tool. • To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). • To recreate Pointillist art and look at the work of pointillist artists such as Seurat. • To learn about the work of Piet Mondrian and recreate the style using the lines template. • To learn about the work of William Morris and recreate the style using the patterns template. • To explore surrealism and eCollage. |

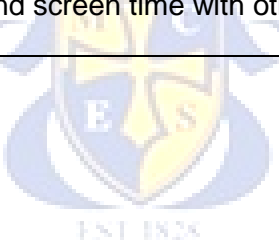
National Curriculum - Key stage 2

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.

| | Coding | Email safety | Presenting |
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| Year 3 | <ul style="list-style-type: none"> • To understand what a flowchart is and how flowcharts are used in computer programming. • To understand that there are different types of timers and select the right type for purpose. • To understand how to use the repeat command. • To understand the importance of nesting. • To design and create an interactive scene. | <ul style="list-style-type: none"> • To think about different methods of communication. • To open and respond to an email using an address book. • To learn how to use email safely. • To add an attachment to an email. • To explore a simulated email scenario. | <ul style="list-style-type: none"> • To understand the uses of PowerPoint. • To create a page in a presentation. • To add media to a presentation. • To add animations to a presentation. • To add timings to a presentation. • To use the skills learnt to design and create an engaging presentation. |

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| Year 4 | Coding | Online safety | Effective searching & Making music |
| | <ul style="list-style-type: none"> To begin to understand selection in computer programming. To understand how an IF statement works. To understand how to use co-ordinates in computer programming. To understand the 'repeat until' command. To understand how an IF/ELSE statement works. To understand what a variable is in programming. To use a number variable. To create a playable game | <ul style="list-style-type: none"> To understand how children can protect themselves from online identity theft. To understand that information put online leaves a digital footprint or trail and that this can aid identity theft. To identify the risks and benefits of installing software including apps. To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. To identify appropriate behaviour when participating or contributing to collaborative online projects for learning. To identify the positive and negative influences of technology on health and the environment. To understand the importance of balancing game and screen time with other parts of their lives. | <ul style="list-style-type: none"> To locate information on the search results page. To use search effectively to find out information. To assess whether an information source is true and reliable. To identify and discuss the main elements of music. To understand and experiment with rhythm and tempo. To create a melodic phrase. To electronically compose a piece of music. |



| | Coding | Online safety & 3D modelling | Game creator |
|--|---|--|--|
| | <ul style="list-style-type: none"> • To begin to simplify code. • To create a playable game. • To understand what a simulation is. • To program a simulation using 2Code. • To know what decomposition and abstraction are in computer science. • To take a real-life situation, decompose it and think about the level of abstraction. • To understand how to use friction in code. • To begin to understand what a function is and how functions work in code. • To understand what the different variables types are and how they are used differently. • To understand how to create a string. • To understand what concatenation is and how it works. | <ul style="list-style-type: none"> • To gain a greater understanding of the impact that sharing digital content can have. • To review sources of support when using technology and children's responsibility to one another in their online behaviour. • To know how to maintain secure passwords. • To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. • To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. • To learn about how to reference sources in their work. • To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. • To ensure reliability through using different methods of communication. • To be introduced to 2Design and Make and the skills of computer aided design. • To explore the effect of moving points when designing. • To design a 3D Model to fit certain criteria. • To refine and print a model. | <ul style="list-style-type: none"> • To plan a game. • To design and create the game environment. • To design and create the game quest. • To finish and share the game. • To self and peer evaluate. |

Year
6

| | Online safety & Networks | Coding | Quizzing |
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| | <ul style="list-style-type: none"> • To identify benefits and risks of mobile devices broadcasting the location of the user/device. • To identify secure sites by looking for privacy seals of approval. • To identify the benefits and risks of giving personal information. • To review the meaning of a digital footprint. • To have a clear idea of appropriate online behaviour. • To begin to understand how information online can persist. • To understand the importance of balancing game and screen time with other parts of their lives. • To identify the positive and negative influences of technology on health and the environment. • To learn about what the Internet consists of. • To find out what a LAN and a WAN are. • To find out how the Internet is accessed in school. • To research and find out about the age of the Internet. • To think about what the future might hold. | <ul style="list-style-type: none"> • To design a playable game with a timer and a score. • To plan and use selection and variables. • To understand how the launch command works. • To use functions and understand why they are useful. • To understand how functions are created and called. • To use flowcharts to create and debug code. • To create a simulation of a room in which devices can be controlled. • To understand how user input can be used in a program. • To understand how 2Code can be used to make a text-adventure game. | <ul style="list-style-type: none"> • To create a picture-based quiz for young children. • To learn how to use the question types within 2Quiz. • To explore the grammar quizzes. • To make a quiz that requires the player to search a database. • To make a quiz to test your teachers or parents. |