# Computing
# Curriculum Map

| | 0-3 Preschool | 3-4 EYFS 1 | Reception EYFS 2 | Links to KS1 Curriculum |
|---|---|---|---|---|
| EYFS area of Learning | **Understanding the World** | | | |
| **Fundamental Knowledge** | Seeks to acquire basic skills in turning on and operating some ICT equipment.<br><br>Operates mechanical toys, e.g., turns the knob on a wind-up toy or pulls back on a friction car. | Investigate a simple program on a computer.<br><br>Use ICT hardware to interact with age-appropriate computer software. | Use a simple program on a device for a purpose.<br><br>Recognise and select technology for a particular purpose | Create and debug simple programs using logical reasoning to predict the behaviour of simple programs.<br><br>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.<br><br>Use technology safely and respectively, 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 technology |
| **Early Learning Goal** | ***There are no early learning goals that directly relate to computing objectives, though it is still expected that children will be introduced to appropriate technology and use it within their provision*** | | | |

# Computing
# Curriculum Map

| Year 1 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions<br>• create and debug simple programs<br>• use logical reasoning to predict the behaviour of simple programs<br>• use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>• recognise common uses of information technology beyond school<br>• 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. | | | | | |
| **Year 1** | **Computing Systems and Networks: Technology Around Us** | **Creating Media: Digital Painting** | **Programming: Moving a Robot** | **Data and Information: Grouping Data** | **Creating Media: Digital Writing** | **Programming: Programming Animations** |
| **Knowledge** | Identify technology.<br>Know main parts or a computer, be able to switch it on and log in.<br>Use a mouse in different ways.<br>Use a keyboard to type on a computer and to edit text.<br>Know rules for using technology responsibly | Know what different freehand tools do.<br>Use the shape and line tools.<br>Make careful choices when painting a digital picture.<br>Explain why I chose the tools I used.<br>Use a computer on my own to paint a picture.<br>Compare painting a picture on a computer and on paper. | Know what a given command will do.<br>Follow and give directions.<br>Combine forwards and backwards commands to make a sequence.<br>Combine four direction commands to make sequences.<br>Plan a simple program.<br>Find more than one solution to a problem. | Label objects.<br>Know that objects can be counted.<br>Describe objects in different ways.<br>Count objects with the same properties.<br>Compare groups of objects.<br>Answer questions about groups of objects. | Use a computer to write.<br>Add and remove text on a computer.<br>Identify that the look of text can be changed on a computer.<br>Make careful choices when changing text.<br>Explain why I used the tools that I chose.<br>Compare typing on a computer to writing on paper. | Choose a command for a given purpose.<br>Know that a series of commands can be joined together.<br>Identify the effect of changing a value.<br>Know that each sprite has its own instructions.<br>Design the parts of a project.<br>Use my algorithm to create a program. |
| **Curriculum Links** | Year 2 Computing: IT Around Us | Year 1 Computing: Digital Writing | Year 2 Computing: Programming animations | Year 2 Maths: Statistics<br>Year 2 Computing: Pictograms | Year 1 Computing: Digital Painting | Year 1 Computing: Moving a Robot |

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# Curriculum Map

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| | | | | | Year 2 Computing: Digital Photography | Year 2 Computing: Robot Algorithms |
| **Assessment** | Formative assessment opportunities indicated in each lesson plan. | | | | | |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education: https://teachcomputing.org/primary-enrichment | | | | | |
| **Vocabulary** | technology | tools | command | object | font | program |

# Computing
# Curriculum Map

| Year 2 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions<br>• create and debug simple programs<br>• use logical reasoning to predict the behaviour of simple programs<br>• use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>• recognise common uses of information technology beyond school<br>• 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. | | | | | |
| | **Computing Systems and Networks: IT Around Us** | **Creating Media: Digital Photography** | **Programming: Robot Algorithms** | **Data and Information: Pictograms** | **Creating Music: Digital Music** | **Programming: Programming Quizzes** |
| **Knowledge** | Know the uses and features of information technology, in and beyond school.<br>Explain how information technology helps us.<br>Explain how to use information technology safely.<br>Know that choices are made when using information technology. | Use a digital device to take a photograph.<br>Make choices when taking a photograph.<br>Describe what makes a good photograph.<br>Know how photographs can be improved.<br>Use tools to change an image. | Describe a series of instructions as a sequence.<br>Know what happens when we change the order of instructions.<br>Use logical reasoning to predict the outcome of a program.<br>Know that programming projects can have code and artwork.<br>Design an algorithm.<br>Create and debug a program that I have written. | Know that we can count and compare objects using tally charts.<br>Know that objects can be represented as pictures.<br>Create a pictogram.<br>Select objects by attribute and make comparisons.<br>Know that we can present information using a computer | Experiment with sound using a computer.<br>Use a computer to create a musical pattern.<br>Create music for a purpose.<br>Review and refine our computer work. | Know that a sequence of commands has a start and an outcome.<br>Create a program using a given design.<br>Change a given design.<br>Create a program using own design.<br>Decide how own project can be improved. |

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| **Curriculum Links** | Year 1 Computing: Technology Around Us<br>Year 3 Computing: Connecting Computers | Year 1 Computing: Digital Writing<br>Year 2 Computing: Digital Music | Year 1 Computing: Robot Algorithms<br>Year<br>Year 2: Programming Quizzes | Year 1 Computing: Grouping Data<br>Year 3 Computing: Branching Databases<br>Year 3 Maths: Statistics | Year 2 Computing: Digital Photography<br>Year 3 Computing: Stop-frame Animations | Year 2 Computing: Robot Algorithms<br>Year 3 Computing: Sequencing Sound |
| **Assessment** | Formative assessment opportunities indicated in each lesson plan. | | | | | |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education: https://teachcomputing.org/primary-enrichment | | | | | |
| **Vocabulary** | Information technology, debug, property, code | | | | | |

# Computing
# Curriculum Map

| Year 3 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br>• 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<br>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<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<br>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | | | | | |
| | **Computing Systems and Networks: Connecting Computers** | **Creating Media: Stop-frame Animations** | **Programming: Sequencing Sound** | **Data and Information: Branching Databases** | **Creating Media: Desktop Publishing** | **Programming: Events and Actions in Programs** |
| **Knowledge** | Know how digital devices function.<br>Identify input and output devices.<br>Recognise how digital devices can change the way we work.<br>Know how a computer network can be used to share information. | Know that animation is a sequence of drawings or photographs.<br>Relate animated movement with a sequence of images.<br>Plan an animation.<br>Identify the need to work consistently and carefully.<br>Review and improve an animation. | Explore a new programming environment.<br>Identify that commands have an outcome.<br>Know that a program has a start.<br>Know that a sequence of commands can have an order. | Create questions with yes/no answers.<br>Identify the attributes needed to collect data about an object.<br>Create a branching database.<br>Know why it is helpful for a database to be well structured.<br>Plan the structure of a branching database. | Know how text and images convey information.<br>Know that text and layout can be edited.<br>Choose appropriate page settings.<br>Add content to a desktop publishing publication. | Know how a sprite moves in an existing project.<br>Create a program to move a sprite in four directions.<br>Adapt a program to a new context.<br>Develop program by adding features.<br>Identify and fix bugs in a program. |

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| | Explore how digital devices can be connected.<br>Know the physical components of a network. | Evaluate the impact of adding other media to an animation. | Change the appearance of my project.<br>Create a project from a task description. | Independently create an identification tool. | Consider how different layouts can suit different purposes.<br>Consider the benefits of desktop publishing. | Design and create a maze-based challenge. |
| **Curriculum Links** | Year 2 Computing: IT Around Us<br>Year 4 Computing: The Internet | Year 2 Computing: Digital Music<br>Year 3 Computing: Desktop Publishing | Year 2 Computing: Programming Quizzes:<br>Year 3 Computing: Events and Actions in Programs | Year 2 Computing: Pictograms<br>Year 4: Data Logging | Year 3 Computing: Stop-Frame Animations.<br>Year 4: Audio Productions | Year 3 Computing: Sequencing Sound<br>Year 4: Repetition in Shapes |
| **Assessment Tasks** | Formative assessment opportunities indicated within each lesson plan.<br>Summative assessment quizzes:<br>Y3 - Computer Systems and Networks - Connecting Computers (office.com) | | | Y3 - Data - Branching Databases (office.com) | | Y3 - Programming B - Events and actions in programs (office.com) |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education:<br>https://teachcomputing.org/primary-enrichment | | | | | |
| **Vocabulary** | Input, input device, attributes | | | | | |

# Computing
# Curriculum Map

| Year 4 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br>• 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<br>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<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.<br>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | | | | | |
| | **Computing Systems and Networks: The Internet** | **Creating Media: Audio Production** | **Programming: Repetition in Shapes** | **Data and Information: Data Logging** | **Creating Media: Photo Editing** | **Programming: Repetition in Games** |
| **Knowledge** | Know how networks physically connect to other networks.<br>Know how networked devices make up the internet.<br>Know how websites can be shared via the World Wide Web (WWW)<br>Know how content can be added and accessed | Know that sound can be recorded.<br>Know that audio recordings can be edited.<br>Know the different parts of creating a podcast project.<br>Apply audio editing skills independently. | Know that accuracy in programming is important.<br>Create a program in a text-based language.<br>Know what 'repeat' means.<br>Modify a count-controlled loop to produce a given outcome. | Know that data gathered over time can be used to answer questions.<br>Use a digital device to collect data automatically.<br>Know that a data logger collects 'data points' from sensors over time. | Know that the composition of digital images can be changed.<br>Know that colours can be changed in digital images.<br>Know how cloning can be used in photo editing.<br>Know that images can be combined. | Develop the use of count-controlled loops in a different programming environment.<br>Know that in programming there are infinite loops and count controlled loops.<br>Develop a design that includes two or more |

# Computing
# Curriculum Map

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| | on the World Wide Web (WWW).<br>Know how the content of the WWW is created by people.<br>Evaluate the consequences of unreliable content. | Combine audio to enhance my podcast project.<br>Evaluate the effective use of audio. | Decompose a task into small steps.<br>Create a program that uses count-controlled loops to produce a given outcome. | Know how a computer can help us analyse data.<br>Know the data needed to answer questions.<br>Use data from sensors to answer questions. | Combine images for a purpose.<br>Evaluate how changes can improve an image. | loops which run at the same time.<br>Modify an infinite loop in a given program.<br>Design and create a project that includes repetition. |
| **Curriculum Links** | Year 3 Computing: Connecting Computers<br>Year 5 Computing: Systems and Searching | Year 3 Computing: Desktop Publishing<br>Year 4 Computing: Photo Editing | Year 3 Computing: Events and Actions in Programs<br>Year 4 Computing: Repetition in Games | Year 4 Science: Electricity<br>Year 4 Science: Sound<br>Year 3 Computing: Branching Databases<br>Year 5 Computing: Flat-file Databases | Year 4 Computing: Audio Production<br>Year 5 Computing: Video Production | Year 4 Computing: Repetition in Shapes<br>Year 5 Computing: Selection in Physical Computing |
| **Assessment Tasks** | Formative assessment opportunities indicated within each lesson plan.<br>Summative assessment quizzes:<br>Y4 - Computer Systems and Networks - The Internet (office.com) | | Y4 - Programming A - Repetition in Shapes (office.com) | | | |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education: https://teachcomputing.org/primary-enrichment | | | | | |
| **Vocabulary** | Network, internet, world wide web, data, count controlled loop, infinite loop, repetition | | | | | |

# Computing
# Curriculum Map

| Year 5 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br>• 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<br>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<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.<br>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | | | | | |
| | **Computing Systems and Networks: Systems and Searching** | **Creating Media: Video Production** | **Programming: Selection in Physical Computing** | **Data and Information: Flat-file Databases** | **Creating Media: Introduction to Vector Graphics** | **Programming: Selection in Quizzes** |
| **Knowledge** | Know that computers can be connected to form systems.<br>Know the role of computer systems in our lives.<br>Experiment with search engines.<br>Know how search engines select results.<br>Know how search results are ranked. | Know what makes a video effective.<br>Identify digital devices that can record video.<br>Capture video using a range of techniques.<br>Create a storyboard.<br>Know that video can be improved through reshooting and editing.<br>Consider the impact of the choices made when | Control a simple circuit connected to a computer.<br>Write a program that includes count-controlled loops.<br>Know that a loop can stop when a condition is met.<br>Know that a loop can be used to repeatedly check whether a | Use a form to record information.<br>Compare paper and computer-based databases.<br>Outline how you can answer questions by grouping and then sorting data.<br>Know that tools can be used to select specific data. | Know that drawing tools can be used to produce different outcomes.<br>Create a vector drawing by combining shapes.<br>Use tools to achieve a desired effect.<br>Know that vector drawings consist of layers. | Know how selection is used in computer programs.<br>Relate that a conditional statement connects a condition to an outcome.<br>Know how selection directs the flow of a program.<br>Design a program which uses selection. |

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| | Know why the order of results is important, and to whom. | making and sharing a video. | condition has been met.<br>Design a physical project that includes selection.<br>Create a program that controls a physical computing project. | Know that computer programs can be used to compare data visually.<br>Use a real-world database to answer questions. | Group objects to make them easier to work with.<br>Apply knowledge about vector drawings. | -To create a program which uses selection<br>-To evaluate my program. |
| **Curriculum Links** | Year 4 Computing: The Internet<br>Year 6 Computing: Communication and Collaboration | Year 4 Computing: Photo Editing | D&T: NC - *apply their understanding of computing to program, monitor and control their products.*<br>Kapow units: Monitoring Devices (Y5) & Navigating the World (Y6)<br>Year 4 Computing: Repetition in Games<br>Year 5 Computing: Selection in Quizzes | Year 4 Computing: Data Logging<br>Year 6 Computing: Spreadsheets<br>Year 4 Science: Electricity and Sound | Year 5 Computing: Video Production<br>Year 6 Computing: Web Page Creation | Year 5 Computing: Selection in Physical Computing<br>Year 6 Computing: Variables in Games |
| **Assessment Tasks** | Formative assessment opportunities indicated within each lesson plan.<br>Summative assessment quizzes:<br>Y5 - Computer Systems and Networks - Systems and searching (office.com) | | | Y5 - Data - FlatFile Databases (office.com) | | Y5 - Programming B - Selection in Quizzes (office.com) |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education: https://teachcomputing.org/primary-enrichment | | | | | |

# Computing
# Curriculum Map

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|---|---|
| **Vocabulary** | Computer network, computer system, condition, Condition controlled loop, selection |

# Computing
# Curriculum Map

| Year 6 | Autumn 1 (1.1) | Autumn 2 (1.2) | Spring 1 (1.3) | Spring 2 (1.4) | Summer 1 (1.5) | Summer 2 (1.6) |
|---|---|---|---|---|---|---|
| **National Curriculum** | • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br>• 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<br>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<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.<br>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | | | | | |
| | **Computing Systems and Networks: Communication and Collaboration** | **Creating Media: Web Page Creation** | **Programming: Variables in Games** | **Data and Information: Spreadsheets** | **Creating Media: 3D Modelling** | **Programming: Sensing Movement** |
| **Knowledge** | Know the importance of internet addresses.<br>Know how data is transferred across the internet.<br>Know how sharing information online can help people to work together. | Review an existing website and consider its structure.<br>Plan the features of a web page.<br>Consider the ownership and use of images (copyright).<br>Recognise the need to preview pages. | Define a 'variable' as something that is changeable.<br>Know why a variable is used in a program.<br>Choose how to improve a game by using variables.<br>Design a project that builds on a given example. | Create a data set in a spreadsheet.<br>Build a data set in a spreadsheet.<br>Know that formulas can be used to produce calculated data.<br>Apply formulas to data.<br>Create a spreadsheet to plan an event. | Know that you can work in three dimensions on a computer.<br>Know that digital 3D objects can be modified.<br>Know that objects can be combined in a 3D model. | Create a program to run on a controllable device.<br>Know that selection can control the flow of a program.<br>Update a variable with a user input.<br>Use a conditional statement to compare a variable to a value. |

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| | Evaluate different ways of working together online.<br>Know how we communicate using technology.<br>Evaluate different methods of online communication. | Outline the need for a navigation path.<br>Know the implications of linking to content owned by other people. | Use my design to create a project.<br>Evaluate my project. | Choose suitable ways to present data. | Create a 3D model for a given purpose.<br>Plan my own 3D model.<br>Create my own digital 3D model. | Design a project that uses inputs and outputs on a controllable device.<br>Develop a program to use inputs and outputs on a controllable device. |
| **Curriculum Links** | Year 5 Computing: Systems and Searching | Year 5 Computing: Introduction to Vector Graphics | Year 5 Computing: Selection in Quizzes | Year 5 Computing: Flat-file Databases | Year 6 Computing: Web Page Creation | Year 6 Computing: Variables in Games |
| **Assessment Tasks** | Formative assessment opportunities indicated within each lesson plan.<br>Summative assessment quizzes:<br>Y6 - Computer Systems and Networks - Communication and Collaboration (office.com) | | Y6 - Programming A - Variables in games (office.com) | Y6 - Data - Introduction to Spreadsheets (office.com) | | |
| **Enriching Experiences** | National and international enrichment opportunities curated by the National Centre for Computing Education:<br>https://teachcomputing.org/primary-enrichment | | | | | |
| **Vocabulary** | Domain name, variable, Output, output devices | | | | | |