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| |  |  | | --- | --- | | **Computing Intent:** In Computing we teach the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. We will build on this knowledge and understanding so that pupils use information technology to create programs, systems and a range of content. We will focus on being safe whilst working in a digital environment and understand the digital footprint we leave. The curriculum will develop pupil’s digital literacy – so that they able to use, and express themselves at a level suitable for the future workplace and as active participants in a digital world. | | |  |  | | | | | | |
| National Curriculum KS1 Subject Content Pupils should be taught :  **Key stage 1**   * 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. | | | | | |
|  | Autumn | | Spring | | Summer |
| Year 1 /2  Cycle A | **Online Safety: Self-Image and Identity / Online Relationship** (2) [Computing systems and networks – IT around us](https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us) (6) | | **Online Safety: Online Bullying / Managing Online Information** (2) [Creating media – Digital photography](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography) (6) | | **Health, Wellbeing and Lifestyle /Privacy and Security** (2)  [Creating media – Digital writing](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing) (6) |
| Key Knowledge and Skills | * I can recognise the uses and features of information technology. * I can identify the uses of information technology in the school. * I can identify information technology beyond school. * I can explain how information technology helps us. * I can explain how to use information technology safely. * I can recognise that choices are made when using information technology. | | * I can use a digital device to take a photograph. * I can explain the process of taking a good photograph. * I can describe what makes a good photograph. * I can decide how photographs can be improved. * I can use tools to change an image. * I can recognise that photos can be changed. | | * I can use a computer to write. * I can add and remove text on a computer. * I can change text on a computer. * I can make careful choices when changing text. * I can say what tool I used to change the text. * I can compare typing on a computer to writing on paper. |
| National Curriculum KS1 Subject Content Pupils should be taught :  **Key stage 1**   * 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. | | | | | |
|  | Autumn | Spring | | Summer | |
| Year 1 /2  Cycle B | **Online Safety: Self-Image and Identity / Online Relationship** (2)  [Digital Painting](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting) (6) | **Online Safety: Online Bullying / Managing Online Information** (2)  [Technology around us](https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us) (6) | | **Online Safety: Health, Wellbeing and Lifestyle /Privacy and Security** (2**)**  [Moving a Robot](https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot) (6) | |
| Key Knowledge and Skills | * I can describe what different freehand tools do. * I can use the shape tool and the line tools. * I can make careful choices when painting a digital picture. * I can explain why I chose the tools I used. * I can use a computer on my own to paint a picture. * I can compare painting a picture on a computer and on paper. | * I can explain technology as something that helps us. * I can identify a computer and its main parts. * I can use a mouse in different ways. * I can use a keyboard to type on a computer. * I can use the keyboard to edit text. * I can identify rules to keep us safe and healthy when we are using technology in and beyond the home. | | * I can explain what a given command will do. * I can give directions for others to follow and follow instructions given to me to demonstrate instructions given to a floor robot. * I can combine ‘forwards’ and ‘backwards’ commands to make a sequence. * I can experiment with ‘turn’ and ‘move’ commands to move a robot. * I can plan a program of simple, sequenced commands. * I can use two different programs to get to the same place. | |
| **Key stage 2**   * 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. | | | | | |
|  | Autumn | Spring | | Summer | |
| Year 3 /4  Cycle A | **Online Safety: Self-Image and Identity /**  **Online Relationships (2)**  [Computing systems and networks – The Internet](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet) (6) | **Online Safety: Online Bullying /**  **Managing Online Information (2)**  [Programming A – Repetition in shapes](https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes) (6) | | **Online Safety: Health, Wellbeing and Lifestyle /**  **Privacy and Security (2)**  [Creating media – Photo editing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing) (6) | |
| Key Knowledge and Skills | * I can describe how networks physically connect to other networks. * I can recognise how networked devices make up the internet. * I can explain how websites can be shared via the World Wide Web (WWW). * I can describe how content can be added and accessed on the World Wide Web (WWW). * I can recognise how the content of the WWW is created by people. * I can evaluate the consequences of unreliable content. | * I can identify that accuracy in programming is important. * I can create a program in a text-based language. * I can explain what ‘repeat’ means and identify repetition in everyday tasks. * I can modify a count-controlled loop to produce a given outcome. * I can decompose a task into small steps and identify ‘chunks’ of actions in the real world. * I can create a program that uses count-controlled loops to produce a given outcome. | | * I can explain that the composition of digital images can be changed. * I can explain that colours can be changed in digital images. * I can explain how cloning can be used in photo editing. * I can explain that images can be combined. * I can create a project that is a combination of other images. * I can evaluate how changes can improve an image. | |

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| National Curriculum KS2 Subject Content Pupils should be taught :  **Key stage 2**   * 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. | | | |
|  | Autumn | Spring | Summer |
| Year 3 /4  Cycle B | **Online Safety: Self-Image and Identity /**  **Online Relationships (2)**  [**Desktop Publishing**](https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktop-publishing) **(6)** | **Online Safety: Online Bullying /**  **Managing Online Information (2)**  [**Connecting computers**](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers) **(6)** | **Online Safety: Health, Wellbeing and Lifestyle /**  **Privacy and Security (2)**  [**Sequence sounds**](https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music) **(6)** |
| Key Knowledge and Skills | * I can recognise how text and images convey information. * I can recognise that text and layout can be edited. * I can choose appropriate page settings and explain what ‘page orientation’ means. * I can add content to a desktop publishing publication. * I can explain how different layouts can suit different purposes. * I can recognise the benefits of desktop publishing. | * I can explain how digital devices function. * I can identify input and output devices. * I can recognise how digital devices can change the way that we work. * I can explain how a computer network can be used to share information. * I can explore how digital devices can be connected and recognise that a computer network is made up of a number of devices. * I can recognise the physical components of a network and identify how devices in a network are connected together. | * I can explore a new programming environment and identify the objects in a Scratch project (sprites, backdrops). * I can identify that commands have an outcome. * I can explain that a program has a start, how to start a program in different ways and to create a sequence of connected commands. * I can recognise that a sequence of commands can have an order. * I can change the appearance of my project. * I can create a project from a task description and identify and name the objects I will need for a project. |
| **Key stage 2**   * 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. | | | |
|  | Autumn | Spring | Summer |
| Year 5/6  Cycle A | **Online Safety: Self-Image and Identity /**  **Online Relationships (2)**  [**Computing systems and networks - Systems and searching**](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information) **(6)** | **Online Safety: Online Bullying /**  **Managing Online Information (2)**  [**Vector drawing**](https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing) **(6)** | **Online Safety: Health, Wellbeing and Lifestyle /**  **Privacy and Security (2)**  [**Variables**](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information) **in games (6)**  **Oak Video Lessons** |
| Key Knowledge and Skills | * I can explain that computers can be connected together to form systems. * I can recognise the role of computer systems in our lives. * I can identify how to use a search engine. * I can describe how search engines select results. * I can explain how search results are ranked. * I can recognise why the order of results is important, and to whom. | * I can identify that drawing tools can be used to produce different outcomes. * I can create a vector drawing by combining shapes. * I can use tools to achieve a desired effect and use the zoom tool to help me add detail to my drawings. * I can recognise that vector drawings consist of layers and that each added object creates a new layer in the drawing. * I can group objects to make them easier to work with and copy part of a drawing by duplicating several objects. * I can apply what I have learned about vector drawings to create a vector drawing for a specific purpose. | * I can define a ‘variable’ as something that is changeable and identify examples of information that is variable. * I can explain why a variable is used in a program. * I can choose how to improve a game by using variables. * I can design a project that builds on a given example. * I can use my design to create a project and create the artwork for my project. * I can evaluate my project and identify ways that my game could be improved. |
| National Curriculum KS1 Subject Content Pupils should be taught :  **Key stage 2**   * 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. | | | |
|  | Autumn | Spring | Summer |
| Year 5/6  Cycle B | **Online Safety: Self-Image and Identity /**  **Online Relationships (2)**  **Data and information - Introduction to Spreadsheets (6)**  **Oak Video Lessons** | **Online Safety: Online Bullying /**  **Managing Online Information (2)**  **Computing Systems and Networks -** [**Sharing Information**](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information) **(6)**  **Oak Video Lessons** | **Online Safety: Health, Wellbeing and Lifestyle /**  **Privacy and Security (2)**  [**Creating media - Video production**](https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing) **(6)** |
| Key Knowledge and Skills | * I can enter data into a spreadsheet. * I can apply an appropriate format to a cell. * I can construct a formula in a spreadsheet. * I can calculate data using different operations. * I can apply a formula to calculate the data I need to answer questions. * I can use a chart to show the answer to questions. | * I can describe that a computer system features inputs, processes, and outputs. * I can identify tasks that are managed by computer systems. * I can make use of a web search to find specific information. * I can recognise the role of web crawlers in creating an index. * I can give examples of criteria used by search engines to rank results * I can describe some of the ways that search results can be influenced | * I can explain what makes a video effective and recognise that video is a visual media format. * I can use a digital device to record video. * I can capture video using a range of techniques. * I can create a storyboard and outline the scenes of my video. * I can identify that video can be improved through reshooting and editing. * I can consider the impact of the choices made when making and sharing a video. |