

| Year 1 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| | | | | Relevant Switched on Computing Unit(s) | |
| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | |
| Problem Solving | C.1.1.1. Understand what Algorithms are. | The pupil can understand that goals can be achieved by following a sequence of steps. The pupil can understand that simple, real-world problems, such as making a pizza or a smoothie, can be solved by following a sequence of steps in order. (E.g. In 1.1, recognise that the Blue-Bot can get to its destination through following a sequence of steps. In 1.2, understand that the steps of a recipe should be followed in cookery.) | The pupil can understand algorithms as sequences of instructions in everyday contexts. The pupil can take real-world problems and then plan a sequence of steps to solve these. The problems could be moving a Blue-Bot from one point to another, or making some simple food items like a sandwich, smoothie or overnight oats. (E.g. In 1.1, recognise a set of directions as an algorithm. In 1.2, recognise the steps of a recipe as an algorithm.) | The pupil can appreciate the need for precise and unambiguous instructions in algorithms. The pupil can use increasingly precise and unambiguous instructions in creating sequences of instructions. These should typically be for real-world problems such as recipes or moving a Blue-Bot. (E.g. In 1.1, know that instructions for a Blue-Bot need to be precise. In 1.2, know that the steps of a recipe need to be precise and unambiguous.) | 1.1: We are treasure hunters 1.2: We are TV chefs |
| | C.1.1.2 Understand how algorithms are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. | The pupil can program floor turtles using individual instructions according to a plan. The pupil can program a Blue-Bot, or similar floor robot, one instruction at a time, pressing the movement buttons, then Go, then clearing at each step. (E.g. In 1.1, give the Blue-Bot single instructions.) | The pupil can program floor turtles using sequences of instructions to implement an algorithm. The pupil can create a Blue-Bot (or similar) program using a number of steps in order before pressing the Go button. The length of the pupil's programs might increase over the year. (E.g. In 1.1, create a Blue-Bot program, implementing the complete algorithm for their solution.) | The pupil can appreciate that programming a digital device involves commands in a formal language. The pupil can show some understanding of Blue-Bot instructions being taken from a very specific, clearly defined language, in which each command produces a certain, predictable output. There should be some sense of the pupil developing an understanding of a programming language as a way in which people can give commands to digital devices. (E.g. In 1.1, recognise that the Blue-Bot only accepts a small number of different commands.) | 1.1: We are treasure hunters |
| Programming | C.1.2.1. Create and debug simple programs. | The pupil can give instructions, one at a time, to a floor turtle. The pupil can create a program for a Blue-Bot by entering instructions one at a time, literally stepping through their code as they do. This level of interaction allows the pupil to correct bugs in their programs as they arise. (E.g. In 1.1, give the Blue-Bot instructions one at a time.) | The pupil can give a sequence of instructions to a floor turtle. The pupil can create a Blue-Bot program using a sequence of instructions before running it using the Go button. The length of the pupil's programs might be expected to increase over the course of the year. (E.g. In 1.1, give the Blue-Bot a complete program.) | The pupil can give a sequence of instructions to a floor turtle, correcting mistakes. The pupil can run programs on a Blue-Bot as a quite lengthy sequence of instructions. The pupil can work out where bugs are in their program, reset the Blue-Bot and enter corrected code. Typically, the pupil will need to have some way to record their programs before entering them, such as a whiteboard, Blue-Bot instruction cards or the Blue-Bot app. (E.g. In 1.1, give the Blue-Bot a complete program, and then debug this to correct any errors.) | 1.1: We are treasure hunters |
| | C.1.3.1. Use logical reasoning to predict the behaviour of simple programs. | The pupil can make predictions about what a program will do. The pupil can make a prediction of what they think a program will do next. This could be a program (perhaps for a Blue-Bot) that they or their peers have written, or it could be a familiar piece of software (including computer games). The pupil could use an audio recorder or video camera to capture their predictions. (E.g. In 1.1, predict what another pupil's Blue-Bot program will do when run.) | The pupil can give explanations for what they think a program will do. The pupil can explain to the teacher, and to peers, what they think a program will do. This could be a program they or their peers have written, or it could be a familiar piece of software (including computer games). The pupil could use an audio recorder or video camera to capture their explanations. (E.g. In 1.1, explain what their own or another pupil's program will do before it is run.) | The pupil can give logical explanations for what they think a program will do. The pupil should be able to give carefully reasoned explanations of what a program will do under given circumstances, including some attempt at explaining why it does what it does. The program could be one they themselves have written or it could be a computer game or a familiar piece of software. The pupil could use an audio recorder or video camera to record their explanation. (E.g. In 1.1, give a logical explanation for what a Blue-Bot program will do and defend that explanation when questioned.) | 1.1: We are treasure hunters |
| Creating content | C.1.1.1. Use technology purposefully to organise, store and retrieve digital content. | The pupil can store content on digital devices. The pupil can use a range of digital technologies to store digital content. These might include laptop computers, tablets, smartphones, digital cameras, video cameras and audio recorders. Projects might include videoing one another cooking, creating content for an eBook or an audiobook, creating a greetings card. (E.g. In 1.2, film a pupil cooking. In 1.3, save their artwork. In 1.4, modify content and save their eBook. In 1.5, record audio and save their work. In 1.6, save their work in popplet, spreadsheets and Google Forms.) | The pupil can store content on digital devices. The pupil can use a range of digital technologies to store digital content. These might include laptop computers, tablets, smartphones, digital cameras, video cameras and audio recorders. Projects might include videoing one another cooking, creating content for an eBook or an audiobook, creating a greetings card. (E.g. In 1.2, film a pupil cooking. In 1.3, save their artwork. In 1.4, modify content and save their eBook. In 1.5, record audio and save their work. In 1.6, save their work in popplet, spreadsheets and Google Forms.) | The pupil can use digital technology to organise, store and retrieve content The pupil can use a range of digital technologies to store, access and organise digital content. Typically, they can use a laptop computer, tablet or smartphone to help organise content, such as by moving this between one document and another or by moving content within the file system or on a document. Projects might include videoing one another cooking, developing an eBook or an audiobook, creating a greetings card. (E.g. In 1.2, film and upload a pupil cooking. In 1.3, save their artwork and retrieve it. In 1.4, open their eBook, import images sourced online to their eBook and save. In 1.5, record audio, import it to the computer and save their work. In 1.6, open, modify, add images to and save their popplets; fill in Google Forms.) | 1.2: We are TV chefs 1.3: We are digital artists 1.4: We are publishers 1.5: We are rhythmic 1.6: We are detectives |
| | C.1.1.2. Use technology purposefully to create and manipulate digital content. | The pupil can create content on a digital device. The pupil can create their own original digital content using handheld devices. These would typically be smartphones or tablets but digital cameras, video cameras and audio recorders might be used. Projects might include videoing one another cooking or making recordings for an audiobook. (E.g. In 1.2, film digital video. In 1.3, paint and draw digitally. In 1.4, create some elements of an eBook. In 1.5, play and record digital audio.) | The pupil can create original content using digital technology. The pupil can create their own original digital content using a range of technologies. These might include laptop computers, tablets, smartphones, digital cameras, video cameras and audio recorders. Projects might include videoing one another cooking, developing an eBook or an audiobook, creating a greetings card. Look for some indication of the pupil's creativity in this work. (E.g. In 1.2, film digital video. In 1.3, create an original painting. In 1.4, create an eBook including images and original text. In 1.5, create and record original digital audio. In 1.6, create data tables and trees.) | The pupil can create and edit original content using digital technology. The pupil can create and edit their own original digital content using a range of technologies. Content-creation technology might include laptop computers, tablets, smartphones, digital cameras, video cameras and audio recorders, although editing is likely to take place on laptops or tablets. Projects might include videoing one another cooking, developing an eBook or an audiobook, creating a greetings card. Look for some indication of the pupil's creativity in this work as well as evidence that they have edited content. (E.g. In 1.2, film digital video and edit it on a computer. In 1.3, create and edit an original painting thoughtfully inspired by the artists studied. In 1.4, create a well-designed eBook including images, audio and original text. In 1.5, create and record original digital audio, and edit in using GarageBand's tools. In 1.6, create searchable data tables and trees with working filters.) | 1.2: We are TV chefs 1.3: We are digital artists 1.4: We are publishers 1.5: We are rhythmic 1.6: We are detectives |

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| E-Safety | C.1.1.1. Use technology safely and respectfully. | <p>The pupil can acknowledge the need to stay safe when using technology.</p> <p>The pupil can understand that they need to be kept safe when using technology. E.g. They should be required to use filtered Safe Search when looking for images on the web.</p> <p>(E.g. In 1.3 and 1.4 they can keep safe when searching for images.)</p> | <p>The pupil can keep themselves safe while using digital technology.</p> <p>The pupil can understand that they need to keep safe when using digital technology. E.g. They should know to use filtered Safe Search when looking for images on the web and that they should close the lid of a laptop (or turn over a tablet) and alert an adult if they come across unsuitable content.</p> <p>(E.g. In 1.3 and 1.4, close their laptop (or turn over their tablet) and tell a teacher if they find inappropriate images. In)</p> | <p>The pupil can keep safe and show respect to others while using digital technology.</p> <p>The pupil can understand that they need to keep safe when using digital technology. E.g. They should know to use filtered Safe Search when looking for images on the web and close the lid of a laptop (or turn over a tablet) and alert an adult if they find inappropriate images. They should know to respect others' rights, including privacy and intellectual property when using computers, so should not look at someone else's work or copy it without permission.</p> <p>(E.g. In 1.3 and 1.4, close their laptop (or turn over their tablet) and tell a teacher if they find inappropriate images and only copy images where they have permission to do so.)</p> | <p>1.3: We are digital artists 1.4: We are publishers</p> |
| | C.1.1.2. Keeping personal information private. | <p>The pupil can understand that some information should be kept private.</p> <p>The pupil should understand that some information is personal and should only be shared by those who they or their parents trust. E.g. The pupil should recognise that audio or video recordings they make in school are personal.</p> <p>(E.g. In 1.2, 1.3, 1.4 and 1.6, know that some personal information and images should be kept private.)</p> | <p>The pupil can understand that information on the Internet can be seen by others.</p> <p>The pupil should be aware that information stored on the web or transmitted via the Internet is available to other people. E.g. They should know that the images they find online can be found by others too, and that the queries they type in can be seen by those who run the search engine they use and the school's network.</p> <p>(E.g. In 1.2, 1.3, 1.4 and 1.6, know that some personal information and images should be kept private, and understand what should not be posted online.)</p> | <p>The pupil can start to understand what information about themselves should be kept private.</p> <p>The pupil should understand that personal information should be kept private: it should not be posted online to a public audience and should only be shared privately with those who the pupil (or their parents) would trust. E.g. The pupil should recognise that audio or video recordings they make in school should not normally be posted online.</p> <p>(E.g. In 1.2, 1.3, 1.4 and 1.6, know clearly what personal information and images should be kept private, and understand clearly what should not be posted online.)</p> | <p>1.2: We are TV chefs 1.3: We are digital artists 1.4: We are publishers 1.6: We are detectives</p> |
| | C.1.1.3. Identify where to go for help and support when they have concerns about content or contact on the Internet or other online technologies. | <p>The pupil can understand what to do if they see disturbing content online at school.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils. They should know to tell their teacher if this happens in school.</p> <p>(E.g. In 1.3 and 1.4, know to close their laptop lid or turn their tablet over and tell a teacher if they find inappropriate images.)</p> | <p>The pupil can understand what to do if they see disturbing content online at home or at school.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils. They should know to tell their teacher or their parents/carers if this happens.</p> <p>(E.g. In 1.3 and 1.4, know to close their laptop lid or turn their tablet over and tell a teacher or their parents/carers if they find inappropriate images.)</p> | <p>The pupil can understand what to do if they have concerns about content or contact online.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils; if someone they don't trust contacts them online; if someone makes inappropriate contact online. They should know to tell their teacher or their parents/carers if this happens, and be aware that they could talk to another trusted adult or to an agency such as Childline about this.</p> <p>(E.g. In 1.3 and 1.4, know to close their laptop lid or turn their tablet over and tell a teacher, their parents/carers or another trusted adult if they find inappropriate images.)</p> | <p>1.3: We are digital artists 1.4: We are publishers</p> |
| Using IT beyond school | C.1.2.1. Recognise common uses of information technology beyond school. | <p>The pupil can name some uses of IT beyond school.</p> <p>The pupil can mention some of the ways in which IT is used beyond school. Examples could be watching videos, creating paintings, typing stories, listening to music or audiobooks, sending messages.</p> <p>(Examples could include video in 1.2, art in 1.3, eBooks in 1.4, music in 1.5 and data in 1.6.)</p> | <p>The pupil can show an awareness of how IT is used for communication beyond school.</p> <p>The pupil can mention some of the ways in which IT is used to communicate beyond school. E.g. They might know that some people use social media such as Facebook, email, video calls or online greetings to say happy birthday to their friends.</p> <p>(E.g. In 1.6 recognise online collaboration tools such as Google Forms and the Google Suite.)</p> | <p>The pupil can show an awareness of how IT is used for a range of purposes beyond school.</p> <p>The pupil can name a number of purposes for which IT is used beyond school. E.g. They might know that modern TVs use digital technology, that books are often available in a digital format, that music is often recorded using computers and that people often communicate using computers these days.</p> <p>(E.g. In 1.2, know that TV uses digital technology. In 1.3, be aware that art can be created digitally. In 1.4, be aware of eBooks and their digital features. In 1.5, be aware that audio can be recorded, edited and produced digitally. In 1.6, be aware that digital technology enables data to be managed more efficiently, such as with police databases.)</p> | <p>1.2: We are TV chefs 1.3: We are digital artists 1.4: We are publishers 1.5: We are rhythmic 1.6: We are detectives</p> |

| Year 2 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | Relevant Switched on Computing Unit(s) |
| Problem Solving | C.2.1.1. Understand what algorithms are. | <p>The pupil can understand algorithms as sequences of instructions in everyday contexts.</p> <p>The pupil can recognise common sequences of instructions as examples of algorithms. These might include simple recipes, but might also be procedures followed in class, instructions for moving around the school or simple arithmetic operations.</p> <p>(E.g. In 2.1, recognise directions as an algorithm. In 2.3, think of the steps to taking and editing photographs as an algorithm.)</p> | <p>The pupil can understand algorithms as sequences of instructions or sets of rules in everyday contexts.</p> <p>The pupil can recognise that common sequences of instructions or sets of rules can be thought of as algorithms. Examples could include recipes, spelling rules, simple arithmetic operations or number patterns.</p> <p>(E.g. In 2.1, recognise sets of directions as algorithms. In 2.2, recognise that the rules of a game are an algorithm. In 2.3, think of the steps to taking and editing photographs as an algorithm.)</p> | <p>The pupil can appreciate that some algorithms are more efficient than others.</p> <p>The pupil can think about everyday algorithms, such as classroom rules or procedures, or arithmetic operations, and look for easier or faster ways to get things done. The pupil can create programs for computers and look for other ways to do the same thing, deciding which way would be better.</p> <p>(E.g. In 2.1, look for more efficient ways to solve the problem. In 2.2, consider how other rules would make these games better or worse. In 2.3, think of other ways the photography project could be carried out more efficiently.)</p> | <p>2.1: We are astronauts 2.2: We are games testers 2.3: We are photographers</p> |
| | C.2.1.2. The pupil can understand how algorithms are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. | <p>The pupil can program in ScratchJr using sequences of instructions to implement an algorithm.</p> <p>The pupil can create ScratchJr programs using sequences of instruction blocks, perhaps planning these first. The pupil's programs should become longer as the year progresses.</p> <p>(E.g. In 2.1, create a ScratchJr program to move a rocket sprite to another planet, perhaps with sound and animation. In 2.2 understand that computer games in Scratch are made up of precise instructions for the computer to follow)</p> | <p>The pupil can program on screen using sequences of instructions to implement an algorithm.</p> <p>The pupil can create programs as sequences of instructions when programming on screen. Their program could be written using simple programming apps (such as ScratchJr), perhaps using pre-prepared blocks and sprites.</p> <p>(E.g. In 2.1, program sprites in ScratchJr to solve the problems given to them. In 2.2, recognise how the Scratch games implement sets of rules.)</p> | <p>The pupil can understand that the same algorithm can be implemented in multiple programming languages.</p> <p>The pupil can recognise that an algorithm can be implemented in more than one programming language, e.g. comparing Blue-Bots to ScratchJr. The pupil should be able to explain some of the differences between these languages.</p> <p>(E.g. In 2.1, recognise that the rocket sprite in ScratchJr can be programmed in a similar way to a Blue-Bot, but with far greater functionality. In 2.2, realise that these games could be implemented using other computer systems.)</p> | <p>2.1: We are astronauts 2.2: We are games testers</p> |
| Programming | C.2.2.1. Create and debug simple programs. | <p>The pupil can create a program for a sprite in ScratchJr.</p> <p>The pupil can write a program to control a sprite in ScratchJr using a sequence of instructions to move it from one place to another or to trace out a simple shape or route. Expect the pupil's programs to increase in length and complexity as the year progresses.</p> <p>(E.g. In 2.1, create a program for the rocket sprite in ScratchJr.)</p> | <p>The pupil can create a simple program on screen, correcting any errors.</p> <p>The pupil can create a simple program on screen (e.g. using ScratchJr) with a particular goal or purpose in mind (e.g. moving a sprite from one place to another).</p> <p>The pupil can debug any errors in their own code.</p> <p>(E.g. In 2.1, create their own program for the rocket sprite in ScratchJr, correcting any errors.)</p> | <p>The pupil can create more complex programs on screen, correcting any errors.</p> <p>The pupil can create more complex programs on screen (e.g. using ScratchJr) with a particular goal or purpose in mind (e.g. enabling manual control of a rocket sprite, making a simple scripted animation or modifying someone else's program).</p> <p>(E.g. In 2.1, correctly complete the more complex programming challenges, such as programming the planets to move and enabling manual control of the rocket sprite. In 2.2, remix the Scratch games provided to improve them.)</p> | <p>2.1: We are astronauts 2.2: We are games testers</p> |
| | C.2.3.1. Use logical reasoning to predict the behaviour of simple programs. | <p>The pupil can give explanations for what they think a program will do.</p> <p>The pupil should explain to the teacher, or to their peers, what they think a program will do. This could be a program they or their peers have written, or it could be a familiar piece of software (including computer games). The pupil could use an audio recorder or video camera to capture their explanations.</p> <p>(E.g. In 2.1, predict what their own or their peers' programs will do. In 2.2, predict what happens in the games.)</p> | <p>The pupil can give logical explanations for what they think a program will do.</p> <p>The pupil can give logical explanations of what a program will do under given circumstances, including some attempt at explaining why it does what it does. The program could be one they have written or it could be a computer game or a familiar piece of software. The pupil could use an audio recorder or a video camera to record their explanations.</p> <p>(E.g. In 2.1, give logical explanations for what their own or their peers' programs will do. In 2.2, give logical explanations for what happens in the games.)</p> | <p>The pupil can work out some of the underlying algorithm by experimenting with a program while it runs.</p> <p>The pupil can take a simple game or piece of application software and reverse engineer at least some of the steps or rules that were present in the underlying algorithm. (E.g. When lives reach zero and health drops to zero, show game over and stop the game.)</p> <p>(E.g. In 2.2, experiment with the games provided and attempt to recreate the underlying algorithm, typically as a set of rules, such as the movement of the shark in the fishing game or the computer's logic in Nim.)</p> | <p>2.1: We are astronauts 2.2: We are games testers</p> |
| Creating content | C.2.1.1. Use technology purposefully to organise, store and retrieve digital content. | <p>The pupil can store and retrieve content on digital devices.</p> <p>With a given purpose, the pupil can use a range of digital technologies to retrieve and store digital content. Technologies will typically include laptop computers, tablets and smartphones with access to the Internet, but the pupil might also be expected to use digital cameras, video cameras and audio recorders (or the equivalent apps on a tablet or smartphone). Projects might include digital photography, searching for images online and creating image-based presentation slides.</p> <p>(E.g. In 2.3 and 2.6, take digital photographs. In 2.4, save and open presentation files. In 2.5, film stop-motion video.)</p> | <p>The pupil can store, organise and retrieve content on digital devices for a given purpose.</p> <p>With a given purpose, the pupil can use a range of digital technologies to retrieve, organise and store digital content. Technologies will typically include laptop computers, tablets and smartphones with access to the Internet, but the pupil might also be expected to use digital cameras, video cameras and audio recorders (or the equivalent apps on a tablet or smartphone). Projects might include digital photography, searching for images online and creating image-based presentation slides.</p> <p>(E.g. In 2.3, review, reject and rate the photographs they have taken. In 2.4, retrieve information and images from websites into presentations, and save their work. In 2.5, film a working stop-motion video. In 2.6, use questions to sort and classify objects; take, upload and organise photographs; add information to a map.)</p> | <p>The pupil can show some understanding that different types of information are all stored in a digital format on computers.</p> <p>The pupil can give some explanation of how information is stored on computers and other digital devices, recognising that information must always be stored as sequences of numbers, irrespective of the original form of that information.</p> <p>(E.g. In 2.3 and 2.5, recognise that digital photographs and videos are made of pixels, and that editing effects are just sets of rules applied to the pixels. In 2.4, understand that online documents such as Google Sheets are saved online in data servers rather than on the devices they use. In 2.6, recognise that digital photographs can contain metadata to show where they were taken, etc.)</p> | <p>2.3: We are photographers 2.4: We are safe researchers 2.5: We are animators 2.6: We are zoologists</p> |

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| | C.2.1.2. Use technology purposefully to create and manipulate digital content. | <p>The pupil can create original content for a given purpose using digital technology.</p> <p>For a given purpose, the pupil can create their own original digital content using a range of technologies. Content-creation technology might include laptop computers, tablets, smartphones with network connections, digital cameras, video cameras and audio recorders. Projects might include digital photography, creating image-based presentation slides, composing an email and creating simple charts. Look for some indication of the pupil's creativity in this work.</p> <p>(E.g. In 2.3, take original digital photographs. In 2.4, create their own presentation. In 2.5, film a stop-motion video. In 2.6, take photographs and create charts.)</p> | <p>The pupil can create and edit original content for a given purpose using digital technology.</p> <p>The pupil can create and edit their own original digital content using a range of technologies. Content-creation technology might include laptop computers, tablets, smartphones with network connections, digital cameras, video cameras and audio recorders, although editing is likely to take place on laptops or tablets. Projects might include digital photography, creating image-based presentation slides, composing an email and creating simple charts. Look for some indication of the pupil's creativity in this work and evidence that they have edited content.</p> <p>(E.g. In 2.3, take and edit original digital photographs. In 2.4, create and edit their own presentation. In 2.5, film and edit a stop-motion video. In 2.6, take and edit photographs and create and edit charts.)</p> | <p>The pupil can create and edit original content for a given purpose using digital technology and paying attention to the intended audience.</p> <p>The pupil can create and edit their own original digital content using a range of technologies. Content-creation technology might include laptop computers, tablets, smartphones with network connections, digital cameras, video cameras and audio recorders, although editing is likely to take place on laptops or tablets. Projects might include digital photography, creating image-based presentation slides, composing an email and creating simple charts. Look for some indication of the pupil's creativity in this work and evidence that they have edited content. The pupil should be able to explain how they have taken into account the needs of their intended audience.</p> <p>(E.g. In 2.3, take and edit original digital photographs, thinking about their artistic merits. In 2.4, create, edit and deliver their own presentation, thinking about how to explain their research clearly to their audience. In 2.5, film a stop-motion video, and edit it to make the stop-motion plausible and to make it entertaining. In 2.6, take and edit photographs and create and edit charts, thinking about how to present information most effectively.)</p> | <p>2.3: We are photographers 2.4: We are safe researchers 2.5: We are animators 2.6: We are zoologists</p> |
| E-Safety | C.2.1.1. Use technology safely and respectfully. | <p>The pupil can keep safe while using digital technology.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology. E.g. They should know that not all games are suitable for pupils, that they should close the lid of a laptop (or similar action) if they find inappropriate images and that files attached to some emails can cause harm.</p> <p>(E.g. In 2.2, know that some games are not appropriate for pupils. In 2.4, know what to do if they encounter inappropriate content.)</p> | <p>The pupil can keep safe and show respect to others while using digital technology.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology. E.g. They should know to use filtered SafeSearch when looking for images on the web and that they should close the lid of a laptop (or similar action) if they find inappropriate images. They should know to respect others' rights, including privacy and intellectual property when using computers, so should not look at someone else's work or copy it without permission and acknowledgement. They should observe age restrictions on computer games.</p> <p>(E.g. In 2.2, observe age restrictions when playing games out of school. In 2.3, ask before taking photos of others. In 2.4, know what to do if they encounter inappropriate content; acknowledge the source of information they use, learn about SafeSearch filters when using search engines. In 2.6, know not to post images with metadata to the open web.)</p> | <p>The pupil can stay safe and act respectfully and responsibly when using digital technology.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology. E.g. They should know to use filtered SafeSearch when looking for images on the web and that they should close the screen (or similar action) if they find inappropriate images. They should know to respect others' rights, including privacy and intellectual property when using computers, so should not look at someone else's work or copy it without permission and acknowledgement. They should know that emails can have files attached that could harm their computer. They should know that digital photos sometimes contain hidden (metadata) that can reveal where the photo was taken. They should observe age restrictions on computer games.</p> <p>(E.g. In 2.2, observe age restrictions when playing games out of school and think about how long they should spend playing games. In 2.3, ask before taking photos of others and not upload these. In 2.4, know what to do if they encounter inappropriate content; acknowledge the source of information they use; only use Creative Commons licensed media, understand about advances search settings and SafeSearch filters in search engines. In 2.6, know not to post images with metadata to the open web.)</p> | <p>2.2: We are games testers 2.3: We are photographers 2.4: We are safe researchers 2.6: We are zoologists</p> |
| | C.2.1.2. Keeping personal information private. | <p>The pupil can understand that information on the Internet can be seen by others.</p> <p>The pupil should be aware that information stored on the web, or transmitted via the Internet, is available to other people. E.g. They should know that photos they take and upload can be seen by anyone who has the right username and password, by those who operate the computers on which they're stored, those running the school network and possibly others too.</p> <p>(E.g. In 2.2 and 2.6, know that photos they take and upload could be seen by others.)</p> | <p>The pupil can understand that they should not share personal information online.</p> <p>The pupil should understand that personal information should be kept private: it should not be posted online to a public audience and should only be shared privately with those who they (or their parents) would trust. E.g. The pupil should recognise that photos they take in school should not normally be posted to the open web. They should know that photos taken with smartphones often contain hidden information about where the photo was taken.</p> <p>(E.g. In 2.2 and 2.6, know that photos of themselves or other people should not normally be uploaded to the open web. In 2.6, know that photos can contain metadata (such as geotagging) revealing where they were taken.)</p> | <p>The pupil can show some understanding of broader issues around online privacy.</p> <p>The pupil should show some awareness of other issues around privacy. The pupil might discuss how digital photos can contain hidden information about where they were taken (metadata) or be searched for faces. They can show they are aware that information on computers is likely to remain available for a very long time and cannot easily be removed. They might discuss how their use of the web, searches and email can be monitored by those who provide the services and those who run computer networks, including at school.</p> <p>(E.g. In 2.3 and 2.6, consider facial recognition, geotagging and the permanence of online information.)</p> | <p>2.2: We are games testers 2.4: We are safe researchers 2.6: We are zoologists</p> |
| | C.2.1.3. Identify where to go for help and support when they have concerns about content or contact on the Internet or other online technologies. | <p>The pupil can understand what to do if they see disturbing content online at home or at school.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils. They should know to tell their teacher or their parents/carers if this happens.</p> <p>(E.g. In 2.4, know to close their laptop lid or turn their tablet over and tell a teacher or their parents/carers if they find inappropriate content.)</p> | <p>The pupil can understand what to do if they have concerns about content or contact online.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils; if someone they don't trust contacts them online; if someone makes inappropriate contact online. They should know to tell their teacher or their parents/carers if this happens, and be aware that they could talk to another trusted adult or to Childline about this.</p> <p>(E.g. In 2.4, know to close their laptop lid or turn their tablet over and tell a teacher, their parents/carers, another trusted adult or an agency such as Childline if they find inappropriate content.)</p> | <p>The pupil can have a range of strategies for dealing with concerns over content or contact online.</p> <p>The pupil should know to close their laptop lid or turn their tablet over if they find content, such as inappropriate images, which might disturb them or other pupils; if someone they don't trust contacts them online; if someone makes inappropriate contact online. They should know to tell their teacher or their parents/carers if this happens, and be aware that they could talk to another trusted adult or to Childline about this. They should be aware that they can report inappropriate contact or content to those running websites, but that it would normally be best to ask a parent/carer or teacher to help them in doing so.</p> <p>(E.g. In 2.2, know that concerns about content or comments on the Scratch website can be reported to community moderators.)</p> | <p>2.2: We are games testers 2.4: We are safe researchers</p> |

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| Using IT beyond school | C.2.2.1. Recognise common uses of information technology beyond school. | <p>The pupil can show an awareness of how IT is used for communication beyond school.</p> <p>The pupil can mention some of the ways in which IT is used to communicate beyond school. E.g. The pupil might know that adults can share work and discuss ideas in online communities; that photos can be shared easily using digital technology; that the web is made up of information shared by people and organisations; that people use email for a range of purposes and in a variety of contexts.</p> <p>(E.g. In 2.2, recognise that people can share work and discuss ideas using online communities. In 2.3, recognise that people share photographs using digital technology. In 2.4, recognise that people publish useful information on the web. In 2.6, recognise that surveys can be filled in online, and how data can be communicated online.)</p> | <p>The pupil can show an awareness of how IT is used for a range of purposes beyond school.</p> <p>The pupil can name a number of purposes for which IT is used beyond school. The pupil might know that adults can share work and discuss ideas in online communities; that photos can be taken, edited and shared easily using digital technology; that the web is made up of information shared by people and organisations; that people use email for a range of purposes and in a variety of contexts; that scientists use computers when collecting and analysing data.</p> <p>(E.g. In 2.1 and 2.2, recognise that people can share work and discuss ideas using online communities. In 2.3, recognise that people take, edit and share photographs using digital technology. In 2.4, recognise that people publish useful information on the web. In 2.5, recognise that videos can be edited digitally to great effect. In 2.6, recognise that scientists use a range of digital technologies when collecting and analysing data.)</p> | <p>The pupil can consider when digital technology leads to improvements or has the potential to make things worse.</p> <p>The pupil can take a critical stance towards technologies, considering ways in which it has improved things and balancing these with possible disadvantages. They might compare board games and computer games; digital photography with traditional film; using the library with accessing the web; sending a letter with sending an email.</p> <p>(E.g. In 2.1, think about the role of digital technology in the Apollo 11 and 13 space missions. In 2.2, compare physical games and computer games. In 2.3, compare film and digital photography. In 2.4, compare using a library to using the web for research. In 2.5, look at the history of computer animation, and compare flipbook animation to stop-motion animation. In 2.6, look at how data can be contributed to and worked on across the world, for example national bug surveys.)</p> | <p>2.1: We are astronauts 2.2: We are games testers 2.3: We are photographers 2.4: We are safe researchers 2.5: We are animators 2.6: We are zoologists</p> |
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| Year 3 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | Relevant Switched on Computing Unit(s) |
| Problem Solving | C.3.1.1. Design, write and debug programs that accomplish specific goals. | <p>The pupil can design and implement some aspects of a program using a block language, which can run automatically without user interaction.</p> <p>A typical program might be an animation to tell a joke or part of a story, or perhaps be linked to a curriculum topic studied by the pupils. The program could use movement and on-screen dialogue. Do not expect pupils at this level to control interaction between two sprites.</p> | <p>The pupil can design and write a program using a block language, without user interaction.</p> <p>A typical program might be a scripted animation for a joke, part of a story, or linked to another area of the curriculum. Programs could use pre-built sprites or ones designed by the pupil. Expect programs to include movement and dialogue; they may also include sound effects and some use of costumes to allow for animated movement. There may be more than one sprite in the animation.</p> | <p>The pupil can design, write and debug a program using a block language, without user interaction.</p> <p>At this level, expect the pupil to have successfully debugged their animation programs, which would typically include movement, on-screen dialogue, sound, costume changes and multiple sprites. Animations could be linked to curriculum topics, or simply tell jokes or a story. The pupil should be able to explain what bugs they found and how they fixed these.</p> | 3.1: We are programmers 3.2: We are bug fixers |
| | C.3.1.2. Controlling or simulating physical systems. | <p>The pupil can understand that physical systems can be simulated on screen.</p> <p>The pupil can identify where a physical system has been simulated on screen, e.g. a ball bouncing on a bat or a car moving around a track. Simulations may be linked to topics in other curriculum areas, including science. Computer games often include simulations of physical systems; the pupil should be able to identify when this is the case.</p> | <p>The pupil can explore simulations of physical systems on screen.</p> <p>The pupil can experiment with some on-screen simulations of physical systems, perhaps linked to topics from other curriculum areas, e.g. a ball bouncing on a bat or a car moving around a track. Many computer games include elements of computer simulations. The pupil can discuss what they have learned from using the simulation.</p> | <p>The pupil can develop their own simulations of a simple physical system on screen.</p> <p>The pupil can develop simulations of simple physical systems, e.g. a simple tennis game or a racing car moving around a track. Do not expect the pupil to have a full understanding of underlying physics. The pupil can discuss the limitations of their simulation.</p> | 3.1: We are programmers 3.2: We are bug fixers |
| | C.3.1.3. Solve problems by decomposing them into smaller parts | <p>The pupil can identify parts of a project.</p> <p>When working on a project, such as an animation, a video or a survey, the pupil can identify the different stages of the project and/or the resources they will need for their project. In video work, parts of a project might include identifying a subject; storyboarding the video; sourcing media; recording video; filming; editing; exporting.</p> | <p>The pupil can plan a project.</p> <p>Working with the teacher and, perhaps, other pupils, the pupil can develop an outline plan for a project in computing, involving multiple steps and resources, e.g. creating an animation, filming a video or conducting a survey. In video work, the plan might include identifying a subject; storyboarding the video; sourcing media; recording video; filming; editing; exporting.</p> | <p>The pupil can work with others to complete a project.</p> <p>In working on a project, such as an animation, a video or a survey, the pupil can contribute effectively to a team to accomplish the main project outcomes. In video work, the pupil could work with others to identify a subject; storyboard the video; source media; record video; film, edit and export.</p> | 3.1: We are programmers |
| Programming | C.3.2.1. Use sequence, selection and repetition in programs; work with variables. | <p>The pupil can understand that programs include sequences of instructions.</p> <p>The pupil can understand that programs are made up of sequences of instructions (ideally in code they have created themselves, but possibly that of their peers or programs they have been provided with). A typical program could be a scripted animation using movement and on-screen text. The pupil can look at a program on screen and list some of the instructions it includes.</p> | <p>The pupil can use sequence in programs.</p> <p>In on-screen programming, the pupil's program should include a sequence of commands or blocks in an appropriate order. A typical program could be a simple scripted animation, e.g. telling a joke, a story or explaining an idea taken from elsewhere on the curriculum. The pupil's program might include multiple sprites; instructions could include movement, on-screen text, sound and/or costume changes.</p> | <p>The pupil can use sequence and repetition in programs.</p> <p>In on-screen programming, the pupil can include sequences of commands or blocks. The pupil can include some repeating loops, typically using a 'forever' or 'while true' construction, or repetition for a fixed number of times. Programs could include simple animations (e.g. telling a joke, a story or explaining an idea taken from elsewhere on the curriculum) but could also include music as a sequence of steps to play notes or drawing as a sequence of steps to draw a shape.</p> | 3.1: We are programmers 3.2: We are bug fixers |
| | C.3.2.2. Work with various forms of input and output | <p>The pupil can understand that computers accept input and produce output.</p> <p>The pupil can identify the most common forms of input (e.g. keyboard and mouse/trackpad or touch screen) and output (screen and speakers) for a computer. The pupil can distinguish between input and output.</p> | <p>The pupil can write a program to produce output on screen.</p> <p>The pupil can create a program that produces output on screen, such as moving sprites or displayed text, e.g. a simple animation program.</p> | <p>The pupil can write a program to produce output on screen and through speakers/headphones.</p> <p>The pupil can write a program that produces output on screen (e.g. displayed text and moving sprites in a simple animation) as well as some sound (e.g. recorded audio, computer-generated music or sound effects for an animation program).</p> | 3.1: We are programmers 3.2: We are bug fixers |
| Logical thinking | C.3.3.1. Use logical reasoning to explain how some simple algorithms work. | <p>The pupil can predict what an algorithm will do.</p> <p>The pupil can explain what will happen when their algorithm is implemented as a program on a computer or when its instructions or rules are followed.</p> | <p>The pupil can explain a simple, sequence-based algorithm in their own words.</p> <p>The pupil can give an explanation for a simple algorithm based on a sequence of instructions. The algorithm could be one of their own, or a simple one with which they have been provided. The algorithms could be recorded graphically, e.g. as a storyboard.</p> | <p>The pupil can explain an algorithm using sequence and repetition in their own words.</p> <p>The pupil can give an explanation for a simple algorithm based on a sequence of instructions with some repetition (either 'forever' or for a fixed number of times). The algorithm could be one of their own, or a simple one with which they have been provided. The algorithms could be recorded graphically, such as a storyboard, or in other forms.</p> | 3.2: We are bug fixers |
| | C.3.3.2. Use logical reasoning to detect and correct errors in algorithms and programs. | <p>The pupil can spot errors in programs.</p> <p>When running a program, the pupil can identify that there is an error and can describe what went wrong. The programs can be the pupil's own or ones provided for them.</p> | <p>The pupil can use logical reasoning to detect errors in programs.</p> <p>The pupil can give well-thought-through reasons for errors they find in programs. Typically, the pupil can find errors by reasoning logically about the program code, but they might also be able to use logical reasoning to identify errors in programs when they are executed. The programs do not have to be written originally by the pupil.</p> | <p>The pupil can use logical reasoning to detect and correct errors in programs.</p> <p>The pupil can give well-thought-through reasons for errors they find in programs and explain how they have fixed these. The pupil can find and correct errors by reasoning logically about the program code, but they might also be able to use logical reasoning to identify errors in programs when executed and confirm that they have fixed these by testing the new version of their program. The programs do not have to be written originally by the pupil.</p> | 3.1: We are programmers 3.2: We are bug fixers |
| Wider Understanding | C.3.3.3. Understand computer networks including the Internet. | <p>The pupil can understand that computer networks transmit information.</p> <p>The pupil can understand that information of many different sorts can be transmitted through computer networks including the Internet. The pupil will understand that this is (generally) fast and reliable.</p> | <p>The pupil can understand that computer networks transmit information in a digital (binary) format.</p> <p>The pupil can explain that any information has to be converted to numbers before it can travel through computer networks. The pupil should understand that this conversion happens according to an agreed system or code.</p> | <p>The pupil can understand some ways in which information can be converted into a binary code.</p> <p>The pupil can explain that any information has to be converted to numbers before it can travel through computer networks; these numbers are represented as binary (on/off or high/low) signals. The pupil should understand that this conversion happens according to an agreed system or code, and that a number of different systems are, or have been, used.</p> | 3.5: We are co-authors 3.6: We are opinion pollsters |
| | C.3.4.1. Understand how networks can provide multiple services, such as the World Wide Web. | <p>The pupil can understand that email works through the Internet.</p> <p>The pupil can explain that email is sent and received via servers connected to the Internet.</p> | <p>The pupil can understand that email and videoconferencing are made possible through the Internet.</p> <p>The pupil should know that email messages are sent and received through servers connected to the Internet. The pupil should know that other systems also work through the Internet, but these services may be direct, peer-to-peer connections rather than via servers.</p> | <p>The pupil can understand that the Internet can provide a number of services in addition to the web.</p> <p>The pupil should demonstrate an understanding that the Internet plays host to a range of different services including, e.g. the web, email, videoconferencing, online gaming, file sharing and instant messaging.</p> | 3.5: We are co-authors 3.6: We are opinion pollsters |

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| Creating content | C.3.1.1. Select, use and combine a variety of software (including Internet services) on a range of digital devices. | <p>The pupil can use some simple programs on a computer.</p> <p>The pupil can use a range of software on laptop or tablet computers, with support when necessary. Software might include video editing, email clients, videoconferencing (with the teacher or another adult), survey design software and spreadsheets.</p> | <p>The pupil can use a range of programs on a computer.</p> <p>The pupil can use a range of software on laptop or tablet computers with some degree of independence. Software might include video editing, diagnostic tools, email clients, videoconferencing (with the teacher or another adult), survey design software, spreadsheets and presentation software.</p> | <p>The pupil can use and combine a range of programs on a computer.</p> <p>The pupil can use multiple programs on laptop or tablet computers to achieve particular goals. For example, they might create a presentation and then email this to a classmate; create a survey using a survey design application, analyse the results in a spreadsheet and then make a presentation about their findings.</p> | <p>3.3: We are presenters</p> <p>3.4: We are who we are</p> <p>3.6: We are opinion pollsters</p> |
| | C.3.1.2. Design and create a range of programs, systems and content that accomplish given goals. | <p>The pupil can create content on a computer.</p> <p>The pupil can use software on a laptop or tablet to create digital content, with support if necessary. For example, they could shoot a video, create a presentation on a given topic or create an online survey.</p> | <p>The pupil can design and create content on a computer.</p> <p>The pupil can plan and execute a project in which they use software on a laptop or tablet to create digital content with some degree of independence. For example, they could plan and shoot a video, plan and create a presentation on a given topic or plan and then create an online survey.</p> | <p>The pupil can design and create content on a computer in response to a given goal.</p> <p>With a given goal, the pupil can plan and execute a project in which they use software on a laptop or tablet to create digital content with some degree of independence. For example, they could plan and shoot a video, plan and create a presentation on a given topic or plan and then create an online survey. They should evaluate how effectively they have met the requirements of the original goal.</p> | <p>3.3: We are presenters</p> <p>3.4: We are who we are</p> <p>3.6: We are opinion pollsters</p> |
| | C.3.1.3. Collecting, analysing, evaluating and presenting data and information. | <p>The pupil can collect information.</p> <p>The pupil can use computers to collect or access information. For example, they could shoot a video or conduct an online survey. They should be able to do this with appropriate support, if necessary.</p> | <p>The pupil can collect and present information.</p> <p>The pupil can use computers to collect information and present this to an audience. For example, they could shoot and then show a video or conduct an online survey and present the results. They should be able to do this with a degree of independence.</p> | <p>The pupil can collect, evaluate and present information.</p> <p>The pupil can use computers to collect and evaluate information and present this to an audience. For example, they could shoot, review and then show a video conduct an online survey, evaluate or summarise the results and present these. They should be able to do this independently for the most part.</p> | <p>3.3: We are presenters</p> <p>3.4: We are who we are</p> <p>3.6: We are opinion pollsters</p> |
| Searching | C.3.2.1. Use search technologies effectively. | <p>The pupil can search for information on a web page.</p> <p>The pupil can use skimming and scanning strategies, and their web browser's Find command, to find specific information on a web page.</p> | <p>The pupil can search for information within a single site.</p> <p>The pupil can use browser-specific tools (e.g. the Find command) and site-specific tools (such as the search tools for Wikipedia or YouTube) to locate particular information on a web page or within a website.</p> | <p>The pupil can use a standard search engine to find information.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively to search for particular information on the web.</p> | <p>3.5: We are co-authors</p> |
| | C.3.2.2. Appreciate how search results are selected and ranked. | <p>The pupil can understand that search engines make it easier to find content online.</p> <p>The pupil can use at least one search engine to find appropriate online content. The pupil should consider how much harder it would be to find online content without a search engine.</p> | <p>The pupil can understand that search engines select pages according to keywords found in the content.</p> <p>When using search engines, the pupil should demonstrate their understanding that the pages shown include the keywords they have specified. The pupil can use this knowledge by thinking of good keywords appropriate for what they are searching.</p> | <p>The pupil can understand that search engines rank pages according to relevance.</p> <p>The pupil can demonstrate their understanding that search engine results are ranked according to relevance, and that normally the top results on the first page are likely to be those most relevant to their query. If the pupil is unable to find good results on the first page, expect them to reconsider their keywords rather than looking at further pages of results.</p> | <p>3.5: We are co-authors</p> |
| E-Safety | C.3.1.1. Use technology safely, respectfully and responsibly. | <p>The pupil can use digital technology safely.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology.</p> | <p>The pupil can use digital technology safely and show respect for others when working online.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology. For example, they should show respect for others when filming and should not normally post videos online. If responding to online surveys, they should do so anonymously, thinking carefully about information they give out.</p> | <p>The pupil can demonstrate that they can act responsibly when using computers.</p> <p>The pupil can demonstrate that they act responsibly when using computers. For example, they should contribute positively to online communities, if allowed to do so, observing the terms and conditions. They should take care when filming others and should not post videos of others online. If responding to online surveys, they should do so anonymously, thinking carefully about information they give out.</p> | <p>3.3: We are presenters</p> <p>3.4: We are who we are</p> <p>3.5: We are co-authors</p> <p>3.6: We are opinion pollsters</p> |
| | C.3.1.2. Recognise acceptable/unacceptable behaviour. | <p>The pupil can give examples of things that they should or should not do when using digital technology.</p> <p>The pupil can give some examples of things they should or should not do when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; using the Command prompt; using email; filming or sharing video; using online survey tools.</p> | <p>The pupil can recognise unacceptable behaviour when using digital technology.</p> <p>The pupil can identify what would be unacceptable or inappropriate behaviour when using digital technology in a range of contexts. For example, they should know what would be unacceptable when using online communities, such as the Scratch website, or when shooting or publishing video. They should know what would be unacceptable use of the Command prompt, email or online survey tools.</p> | <p>The pupil can understand the difference between acceptable and unacceptable behaviour when using digital technology.</p> <p>The pupil can discuss the difference between acceptable and unacceptable behaviour when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; using the Command prompt; using email; filming or sharing video; using online survey tools.</p> | <p>3.5: We are co-authors</p> <p>3.6: We are opinion pollsters</p> |
| | C.3.1.3. Know a range of ways to report concerns and inappropriate behaviour. | <p>Know who to talk to about inappropriate behaviour in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult.</p> | <p>Know who to talk to about concerns and inappropriate behaviour in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school.</p> | <p>Know who to talk to about concerns and inappropriate behaviour at home or in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. They should also know that any concerns over inappropriate behaviour with digital technology at home can be discussed with their parents, with you or with another trusted adult. Pupils might also know that they can report inappropriate behaviour to those running websites, to Childline, to CEOP or to the police.</p> | <p>3.5: We are co-authors</p> <p>3.6: We are opinion pollsters</p> |
| | C.3.1.X. Be discerning in evaluating digital content. | <p>The pupil can make choices about which web page they consider most useful.</p> <p>When given a list of web pages, the pupil can decide which they think will be most useful for their purpose or to answer a question they have.</p> | <p>The pupil can use email and videoconferencing in class.</p> | <p>The pupil can decide whether digital content is relevant for a given purpose or question.</p> <p>The pupil can form a judgement about whether a web page or other digital content is appropriate for finding out the answer to a question they have or for a given purpose.</p> | <p>3.5: We are co-authors</p> <p>3.6: We are opinion pollsters</p> |
| C.3.1.4. Understand the opportunities networks offer for communication and collaboration. | <p>The pupil can use email to communicate with a classmate.</p> | <p>The pupil can use email and videoconferencing in class.</p> | <p>The pupil can use email and videoconferencing effectively for a given purpose.</p> | <p>3.5: We are co-authors</p> <p>3.6: We are opinion pollsters</p> | |

| Year 4 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | Relevant Switched on Computing Unit(s) |
| Problem Solving | C.4.1.1. Design, write and debug programs that accomplish specific goals. | <p>The pupil can design and implement some elements of a program using a block language to a given brief, including simple interaction.</p> <p>The pupil can plan and partially implement a program in Scratch or MakeCode (or similar) in which the user has to provide some input, perhaps as an answer to a question on screen, or by using key presses or the mouse.</p> | <p>The pupil can design and write a program using a block language to a given brief, including simple interaction.</p> <p>The pupil can write a program in Scratch or MakeCode (or similar) in which the user has to provide some input, perhaps as an answer to a question on screen, or by using key presses or the mouse. The program could be a simple game or a set of questions and typed responses.</p> | <p>The pupil can design, write and debug a program using a block language to a given brief, including simple interaction.</p> <p>The pupil can write a program in Scratch or MakeCode (or similar) in which the user has to provide some input, perhaps as an answer to a question on screen, or by using key presses or the mouse. The pupil can debug their code thoroughly, explain what bugs they found and what they needed to do to correct these.</p> | <p>4.1: We are software developers</p> <p>4.2: We are makers</p> |
| | C.4.1.2. Controlling or simulating physical systems. | The pupil can implement some elements of a simulation on screen. | The pupil can develop their own simulation of a simple physical system on screen. | The pupil can develop their own simulation of a physical system on screen including interactivity. | 4.2: We are makers |
| | C.4.1.3. Solve problems by decomposing them into smaller parts. | <p>The pupil can identify different ways to tackle a project.</p> <p>Given a particular project, the pupil can scope a number of alternative approaches to tackling it.</p> | <p>The pupil can work with others to plan a project.</p> <p>Given a particular project, the pupil can work as part of a team to plan how to accomplish their goal, breaking the project down into a set of tasks. Examples of projects could include creating an educational game or monitoring the weather.</p> | <p>The pupil can work collaboratively to complete a project according to an agreed plan.</p> <p>Given a particular project, the pupil can work as part of a team to plan how to accomplish their goal, breaking the project down into a set of tasks. They should use this plan to accomplish their project as a team. Examples of projects could include creating an educational game or monitoring the weather.</p> | <p>4.1: We are software developers</p> <p>4.2: We are makers</p> <p>4.6: We are meteorologists</p> |
| Programming | C.4.2.1. Use sequence, selection and repetition in programs; work with variables. | <p>The pupil can use sequence in programs.</p> <p>In on-screen programming, the pupil's program should include a sequence of commands or blocks in an appropriate order. A typical program could be a simple scripted animation or a musical composition.</p> | <p>The pupil can use sequence and repetition in programs.</p> <p>The pupil's program, typically written in Scratch, or similar, should include sequences of commands or blocks and some repetition. Repetition would typically be for a fixed number of times, but might also include exit conditions (e.g. repeat...until...). Programs might include simple music or a simple game.</p> | <p>The pupil can use sequence, selection and repetition in programs.</p> <p>The pupil's program, typically written in Scratch, or similar, should include sequences of commands or blocks, some repetition and selection. Repetition might include exit conditions (e.g. repeat...until...). Selection would normally be of an if...then type. At this level, expect the pupil to be able to combine repetition with selection. Programs might include a simple game and an on-screen simulation or prototype.</p> | <p>4.1: We are software developers</p> <p>4.2: We are makers</p> <p>4.3: We are musicians</p> <p>4.5: We are artists</p> |
| | C.4.2.2. Work with various forms of input and output. | <p>The pupil can write a program to produce output on screen.</p> <p>The pupil can write a program in which sprites move on screen and/or text is displayed on screen.</p> | <p>The pupil can write a program that accepts keyboard input and produces on-screen output.</p> <p>In Scratch (or similar), the pupil can write a program that displays a question, accepts typed input and responds in an appropriate way to what is typed. This might be used as the basis for a dialogue program or a simple maths game.</p> | <p>The pupil can write a program that accepts keyboard or other input and produces output on screen and through speakers.</p> <p>In Scratch (or similar), the pupil could write a program that displays a question on screen or reads a question aloud, accepts a typed answer and then shows appropriate output on screen and plays an appropriate effect through the speakers. Alternatively, or additionally, the pupil could create a simple computer game, using the keyboard or mouse for input and the screen and speakers for output.</p> | <p>4.1: We are software developers</p> <p>4.2: We are makers</p> <p>4.3: We are musicians</p> <p>4.5: We are artists</p> <p>4.6: We are meteorologists</p> |
| Logical thinking | C.4.3.1. Use logical reasoning to explain how some simple algorithms work. | <p>The pupil can explain a simple, sequence-based algorithm in their own words.</p> <p>Given an algorithm using a sequence of steps, the pupil can give a coherent, logically reasoned explanation of what it does and how it works. The algorithm could be linked to an animation or music.</p> | <p>The pupil can explain an algorithm using sequence and repetition in their own words.</p> <p>Given an algorithm using both sequence and repetition, the pupil can give a coherent, logically reasoned explanation of what it does and how it works. Repetition is likely to be 'forever' or for a set number of times, although end conditions (e.g. repeat...until...) could be used.</p> | <p>The pupil can explain an algorithm using sequence, repetition and selection in their own words.</p> <p>Given an algorithm using sequence, repetition and selection, the pupil can give a coherent, logically reasoned explanation of what it does and how it works. Repetition is likely to be using end conditions (e.g. repeat...until...), and selection is likely to be simply if...then.</p> | <p>4.1: We are software developers</p> <p>4.6: We are meteorologists</p> |
| | C.4.3.2. Use logical reasoning to detect and correct errors in algorithms and programs. | <p>The pupil can use logical reasoning to detect errors in programs.</p> <p>The pupil can give well-thought-through reasons for errors they find in programs. Typically, the pupil can find errors by reasoning logically about the program code, but they might also be able to use logical reasoning to identify errors in programs when they are executed. The programs do not have to be written originally by the pupil.</p> | <p>The pupil can use logical reasoning to detect and correct errors in programs.</p> <p>The pupil can give well-thought-through reasons for errors they find in programs and explain how they have fixed these. The pupil can find and correct errors by reasoning logically about the program code; they might also be able to use logical reasoning to identify errors in programs when executed and confirm that they have fixed these by testing the new version of their program. The programs do not have to be written originally by the pupil.</p> | <p>The pupil can give reasons for errors in programs and explain how they have corrected these.</p> <p>The pupil can give well-thought-through reasons for errors they find in programs and can explain, again using clear and logical reasoning, how they have fixed these. The pupil can find and correct errors by reasoning about the program code without having to run the program.</p> | 4.1: We are software developers |
| Wider Understanding | C.4.3.3. Understand computer networks including the Internet. | <p>The pupil can understand that computer networks transmit information in a digital (binary) format.</p> <p>The pupil can explain that any information has to be converted to numbers before it can travel through computer networks. The pupil should understand that this conversion happens according to an agreed system or code.</p> | <p>The pupil can understand that the Internet transmits information as packets of data.</p> <p>When working online, the pupil can explain that the information they send and receive is automatically broken down into packets of data, and that these sometimes take different routes across the Internet.</p> | <p>The pupil can understand that packets are not routinely encrypted on the Internet.</p> <p>The pupil should show an awareness that their emails, requests for web pages and the contents of those pages, can be viewed by others, e.g. the school's network manager or Internet provider. They might also show an awareness of when content is encrypted (e.g. passwords or HTTPS web traffic).</p> | 4.4: We are bloggers |
| | C.4.4.1. Understand how networks can provide multiple services, such as the World Wide Web. | <p>The pupil can understand that the Internet and the web are not the same.</p> <p>The pupil can give a clear explanation of some of the differences between the Internet and the web.</p> | <p>The pupil can understand how the Internet makes the web possible.</p> <p>The pupil can give an explanation of how requests for web pages, and the HTML for those pages, are transmitted via the Internet.</p> | <p>The pupil can show an awareness of how HTTP operates.</p> <p>The pupil can give an explanation of how HTTP GET requests and responses are transmitted via the Internet, and show some awareness of how URLs are made up.</p> | 4.4: We are bloggers |

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| Creating content | C.4.1.1. Select, use and combine a variety of software (including Internet services) on a range of digital devices. | <p>The pupil can use a range of programs on a computer.</p> <p>The pupil can use a range of software on laptop or tablet computers, possibly with some support as appropriate. Software might include audio editing, music composition, web browsers, text editors, spreadsheets and presentation software.</p> | <p>The pupil can use and combine a range of programs on a computer.</p> <p>The pupil can use multiple programs on laptop or tablet computers to achieve particular goals. For example, they might record audio and then use this as samples in a composition; create HTML content in a text editor and preview it in a browser; analyse data in a spreadsheet and then create a presentation to show the results of their analysis.</p> | <p>The pupil can use and combine a range of programs on multiple devices.</p> <p>The pupil can use multiple digital devices (such as tablets and laptops or digital cameras and laptops) to achieve particular goals. The devices might include web servers, allowing them to use cloud-based applications. For example, they might use portable audio recorders to collect audio samples and then laptop-based sequencing software to use these in their own composition; a laptop text editor and a web server to create and host a web page; a digital weather station and a laptop spreadsheet program to collect and record weather data.</p> | <p>4.3: We are musicians</p> <p>4.5: We are artists</p> <p>4.6: We are meteorologists</p> |
| | C.4.1.2. Design and create a range of programs, systems and content that accomplish given goals. | <p>The pupil can design and create content on a computer.</p> <p>The pupil can plan and execute a project in which they use software on a laptop or tablet to create digital content, with appropriate support if necessary. For example, they could plan and compose original music using sequencing software; plan and create a web page; plan how they could contribute to a shared wiki and then do so; plan and create a presentation about the weather.</p> | <p>The pupil can design and create content on a computer in response to a given goal.</p> <p>With a given goal, the pupil can plan and execute a project in which they use software on a laptop or tablet to create digital content with some degree of independence. For example, they could plan and compose original music using sequencing software; plan and create a web page; plan how they could contribute to a shared wiki and then do so; plan and create a presentation about the weather. They should evaluate how effectively they have met the requirements of the original goal.</p> | <p>The pupil can design and create content on a computer in response to a given goal, paying attention to the needs of a known audience.</p> <p>With a given goal and a known audience in mind, the pupil can plan and execute a project in which they use software on a laptop or tablet to create digital content with some degree of independence. For example, they could plan and compose original music using sequencing software; plan and create a web page; plan how they could contribute to a shared wiki and then do so; plan and create a presentation about the weather. They should evaluate how effectively they have met the requirements of the original goal and the needs of the intended audience.</p> | <p>4.3: We are musicians</p> <p>4.4: We are bloggers</p> <p>4.5: We are artists</p> <p>4.6: We are meteorologists</p> |
| | C.4.1.3. Collecting, analysing, evaluating and presenting data and information. | <p>The pupil can collect data.</p> <p>The pupil can use computers to collect numerical data with appropriate support, if necessary. For example, they could collect and present data about the weather over a period of time.</p> | <p>The pupil can collect and present data.</p> <p>The pupil can use computers to collect numerical data and present this to an audience. For example, they could collect and present data about the weather over a period of time. They should be able to do this with a degree of independence.</p> | <p>The pupil can collect, analyse and present data.</p> <p>The pupil can use computers to collect numerical data, analyse this (typically in a spreadsheet) and present this to an audience. For example, they could collect, analyse and present data about the weather over a period of time. They should be able to do this with a degree of independence.</p> | <p>4.4: We are bloggers</p> <p>4.6: We are meteorologists</p> |
| Searching | C.4.2.1. Use search technologies effectively. | <p>The pupil can search for information within a single site.</p> <p>The pupil can use browser- and site-specific tools to locate particular information on a web page or within a website such as Wikipedia.</p> | <p>The pupil can use a standard search engine to find information.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively, to search for particular information on the web, such as answers to questions they identify in a research project.</p> | <p>The pupil can use filters to make more effective use of a standard search engine.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively, to search for particular information on the web, such as answers to questions they identify in a research project. They should use built-in search tools to filter their results, such as by time, location or reading level.</p> | <p>4.6: We are meteorologists</p> |
| | C.4.2.2. Appreciate how search results are selected and ranked. | <p>The pupil can understand that search engines select pages according to keywords found in the content.</p> <p>When using search engines, the pupil should demonstrate their understanding that the pages shown include the keywords they have specified. The pupil can use this knowledge by thinking of good keywords appropriate for what they're searching.</p> | <p>The pupil can understand that search engines rank pages according to relevance.</p> <p>The pupil can demonstrate their understanding that search engine results are ranked according to relevance, and that normally the top results on the first page are likely to be those most relevant to their query. If the pupil is unable to find good results on the first page, expect them to reconsider their keywords rather than looking at further pages of results.</p> | <p>The pupil can understand that search engines use a cached copy of the crawled web to select and rank results.</p> <p>The pupil can explain how a search engine creates an index from a cached copy of the web and uses this to select and rank results. The pupil might also show an awareness of the Page Rank algorithm in which results are ranked according to the number and quality of in-bound links.</p> | <p>4.6: We are meteorologists</p> |
| E-Safety | C.4.1.1. Use technology safely, respectfully and responsibly. | <p>The pupil can use digital technology safely and show respect for others when working online.</p> <p>The pupil should know that they need to keep themselves safe when using digital technology. For example, they should be respectful to others in online communities, such as the Scratch community, if they are allowed to use this. They should show respect when creating or remixing web pages. They should respect others' points of view when editing wiki pages.</p> | <p>The pupil can demonstrate that they can act responsibly when using computers.</p> <p>The pupil can act responsibly when using computers. For example, they should act responsibly when developing computer games or prototype products. They should behave responsibly when using sampled music or creating a composition. They should show responsibility when creating or remixing online content, including observing copyright and any terms and conditions. They should contribute positively to a shared wiki.</p> | <p>The pupil can demonstrate that they can act responsibly when using the Internet.</p> <p>The pupil can act responsibly when using the Internet. For example, they should act responsibly in participating in an online community, such as the Scratch community, if they are allowed to use this. They should show responsibility when creating or remixing online content, including observing copyright and any terms and conditions. They should contribute positively to a shared wiki and/or Simple Wikipedia.</p> | <p>4.3: We are musicians</p> <p>4.4: We are bloggers</p> |
| | C.4.1.2. Recognise acceptable/unacceptable behaviour. | <p>The pupil can recognise unacceptable behaviour when using digital technology.</p> <p>The pupil can identify what would be unacceptable or inappropriate behaviour when using digital technology in a range of contexts. For example, they should know what would be unacceptable when using online communities, such as the Scratch website. They should recognise that copyright and the terms and conditions of web-based services should be respected. They should know what would be unacceptable in remixing a web page or editing a class wiki or Wikipedia.</p> | <p>The pupil can understand the difference between acceptable and unacceptable behaviours when using digital technology.</p> <p>The pupil can discuss the difference between acceptable and unacceptable behaviours when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; the use of others' original content, such as music samples or web pages; wikis, including Wikipedia.</p> | <p>The pupil can discuss the consequences of particular behaviours when using digital technology.</p> <p>The pupil can discuss the likely or possible consequences of particular behaviours when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; the use of others' original content, such as music samples or web pages; wikis, including Wikipedia.</p> | <p>4.3: We are musicians</p> <p>4.4: We are bloggers</p> |
| | C.4.1.3. Know a range of ways to report concerns and inappropriate behaviour. | <p>Know who to talk to about concerns and inappropriate behaviour in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school.</p> | <p>Know who to talk to about concerns and inappropriate behaviour at home or in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. They should also know that any concerns over, or inappropriate behaviour with, digital technology at home can be discussed with their parents, with you or with another trusted adult.</p> | <p>Know how to report concerns and inappropriate behaviour in a range of contexts.</p> <p>Pupils should know how to report inappropriate behaviour when using technology in school: typically this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over, or inappropriate behaviour with, digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to Childline, CEOP or to the police.</p> | <p>4.3: We are musicians</p> <p>4.4: We are bloggers</p> |
| | C.4.1.X. Be discerning in evaluating digital content. | <p>The pupil can decide whether a web page is relevant for a given purpose or question.</p> <p>The pupil can form a judgement about whether a web page, such as a Wikipedia article, is appropriate for finding out the answer to a question they have or for a given purpose.</p> | <p>The pupil can decide whether digital content is relevant for a given purpose or question.</p> <p>The pupil can form a judgement about whether a web page, such as a Wikipedia article, or other digital content is appropriate for finding out the answer to a question they have or for a given purpose.</p> | <p>The pupil can decide whether digital content is reliable and unbiased.</p> <p>The pupil can discuss whether particular content, such as a Wikipedia article or a page in a class wiki, is reliable and whether it has been written from a neutral point of view. They should be able to spot some examples of bias in digital content.</p> | <p>4.3: We are musicians</p> <p>4.6: We are meteorologists</p> |

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| | <p>C.4.1.4. Understand the opportunities networks offer for communication and collaboration.</p> | <p>The pupil can contribute to a shared wiki.</p> <p>The pupil can contribute positively to a shared project such as a class wiki.</p> | <p>The pupil can work collaboratively with classmates on a shared wiki.</p> <p>The pupil can work collaboratively with their peers on a shared project, such as a class wiki, making useful contributions and providing feedback to others.</p> | <p>The pupil can work collaboratively on a shared wiki, making changes to others' pages.</p> <p>The pupil can work collaboratively with their peers on a shared project, such as a class wiki, making useful contributions and constructive edits to pages begun by others.</p> | <p>4.4: We are bloggers</p> |
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| Year 5 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | Relevant Switched on Computing Unit(s) |
| Problem Solving | C.5.1.1. Design, write and debug programs that accomplish specific goals | The pupil can design and write a program using a block language based on their own ideas. The pupil can design a program of their own and write this in a block-based language such as Scratch. The program need not be complex but it should be accomplished with a degree of independent working. | The pupil can design, write and debug a program using a block language based on their own ideas. The pupil can design a program of their own and write this in a block-based language such as Scratch. The pupil can test and debug their code, explain what bugs they found and how they fixed them. The program need not be complex but it should be accomplished with a degree of independent working. | The pupil can design, write and debug a program using a block language based on their own ideas; the pupil can use iterative development to make improvements. The pupil can design a program of their own and write this in a block-based language such as Scratch. The pupil can test and debug their code, explain what bugs they found and how they fixed them. The pupil can then review their code, decide for themselves how this might be extended or improved, and then implement, test and debug these modifications. The program should be accomplished with a degree of independent working. | 5.1: We are game developers 5.6: We are VR designers |
| | C.5.1.2. Controlling or simulating physical systems. | The pupil can understand that physical systems can be controlled by a computer. | The pupil can experiment with computer control applications. | The pupil can develop their own simple computer control application. | 5.1: We are game developers 5.6: We are VR designers |
| | C.5.1.3. Solve problems by decomposing them into smaller parts. | The pupil can identify component parts of a problem. When given a complex problem or project, the pupil can identify the component parts of the problem or project and explain how they might tackle these in order to solve the original problem or complete the given project. Projects might include designing a computer game, creating a website or designing a building. | The pupil can identify component parts of a problem. When given a complex problem or project, the pupil can identify the component parts of the problem or project and explain how they might tackle these in order to solve the original problem or complete the given project. Projects might include designing a computer game, creating a website or designing a building. | The pupil can solve problems using decomposition, tackling each part separately. The pupil can take a complex problem, identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified. They can then use their plan to solve the original problem. Projects could include developing a computer game, creating a website or designing a building. | 5.1: We are game developers 5.3: We are architects 5.6: We are VR designers |
| Programming | C.5.2.1. Use sequence, selection, and repetition in programs; work with variables. | The pupil can use sequence and repetition in programs. The pupil's program, typically written in Scratch, or similar, should include sequences of commands or blocks and some repetition. Repetition would typically be for a fixed number of times, but might also include exit conditions (e.g. repeat...until...). Programs might include a simple game. | The pupil can use sequence, selection and repetition in programs. The pupil's program, typically written in Scratch, or similar, should include sequences of commands or blocks, some repetition and selection. Repetition might include exit conditions (e.g. repeat...until...). Selection would normally be of an if...then or if...then...else type. At this level, expect the pupil to be able to combine repetition with selection. Programs might include a computer game. | The pupil can use sequence, selection, repetition and variables in programs. The pupil's program, typically written in Scratch, or similar, should include sequences of commands or blocks, repetition, selection and variables. Repetition might include exit conditions (e.g. repeat...until...) and perhaps a counter-variable for iteration. Selection would normally be of an if...then or if...then...else type. At this level, expect the pupil to be able to combine repetition with selection and variables. Programs might include a more complex computer game. | 5.1: We are game developers 5.6: We are VR designers |
| | C.5.2.2. Work with various forms of input and output. | The pupil can write a program that accepts keyboard input and produces on-screen output. In Scratch (or similar), the pupil can write a program that uses the keyboard to control the behaviour of a sprite on screen. This might be used as the basis for a simple computer game. | The pupil can write a program that accepts keyboard and mouse input and produces output on screen and through speakers. In Scratch (or similar), the pupil can create a computer game using the keyboard or mouse for input and the screen and speakers for output. | The pupil can show an awareness of the importance of good user-interface design when developing a program. In developing their program, the pupil should take account of the needs of their users and be able to explain how these have influenced design and development. They should test their program with users, making changes on the basis of feedback received. | 5.1: We are game developers 5.6: We are VR designers |
| Logical thinking | C.5.3.1. Use logical reasoning to explain how some simple algorithms work. | The pupil can predict the outcomes of a rule-based algorithm. When provided with rule-based algorithms (e.g. for a computer game) the pupil should be able to predict what would happen under a range of circumstances. | The pupil can explain a rule-based algorithm in their own words. When provided with a rule-based algorithm (e.g. for a computer game), the pupil should be able to explain what it does and how it works, in their own words. | The pupil can give a clear and precise explanation of a rule-based algorithm. When provided with a rule-based algorithm (e.g. for a computer game), the pupil should draw on logical reasoning to give a clear and precise explanation of what it does and how it works. | 5.1: We are game developers 5.2: We are cryptographers |
| | C.5.3.2. Use logical reasoning to detect and correct errors in algorithms and programs. | The pupil can spot errors in algorithms. When given an algorithm for a particular purpose, e.g. a rule-based algorithm for a computer game or a sequence of steps to draw a geometric pattern, the pupil can identify possible errors in their algorithm. | The pupil can use logical reasoning to detect errors in algorithms. When given an algorithm for a particular purpose, e.g. a rule-based algorithm for a computer game or a sequence of steps to draw a geometric pattern, the pupil can use logical reasoning to identify possible errors in the algorithm, explaining why they believe the algorithm is incorrect. | The pupil can use logical reasoning to detect and correct errors in algorithms. When given an algorithm for a particular purpose, e.g. a rule-based algorithm for a computer game or a sequence of steps to draw a geometric pattern, the pupil can use logical reasoning to identify possible errors in the algorithm, explaining why they believe the algorithm is incorrect. The pupil can use logical reasoning to suggest possible corrections to the algorithm, explaining why these would correct the bug they identified. | 5.1: We are game developers 5.2: We are cryptographers |
| Wider Understanding | C.5.3.3. Understand computer networks including the Internet. | The pupil can understand the Internet as a network of networks. The pupil can give some explanation of how the Internet allows computers on different networks (e.g. at school and at home) to communicate with one another. | The pupil can understand how data routing works on the Internet. The pupil can give a coherent explanation of how data packets are routed from one computer to another on a separate network, which is also connected to the Internet. | The pupil can explain how Internet routing adapts to faults in the network. The pupil can give a coherent explanation of how data packets are routed from one computer to another on a separate network, which is also connected to the Internet, and how this routing would change if the network were to develop a fault. | 5.2: We are cryptographers 5.4: We are web developers |
| | C.5.4.1. Understand how networks can provide multiple services, such as the World Wide Web. | The pupil can show an understanding of basic HTML (hypertext mark-up language). The pupil can explain how a web page is transmitted in the form of HTML code. The pupil should be able to use simple tools to view and edit the HTML code for a web page. | The pupil can understand how web pages are created and transmitted. The pupil can explain how HTML is used to create a web page and how it is transmitted as packets of digital data over the Internet. The pupil should have an awareness of simple HTML tags for marking up a web page. | The pupil can show an understanding of how content management systems are used on the web. The pupil can explain some differences between static web pages written as simple HTML files and those generated from a database of content elements by content management systems such as WordPress. | 5.2: We are cryptographers 5.4: We are web developers |

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| Creating content | C.5.1.1. Select, use and combine a variety of software (including Internet services) on a range of digital devices. | <p>The pupil can use and combine a range of programs on a computer.</p> <p>The pupil can use multiple programs on laptop or tablet computers to achieve particular goals. For example, they might use an audio editor or image editor to develop media content for a computer game; use image or video editing software to develop media content for a web page or blog; use image-editing software to develop images to use in 3D design software.</p> | <p>The pupil can use and combine a range of programs on multiple devices.</p> <p>The pupil can use multiple digital devices (such as tablets and laptops or digital cameras and laptops) to achieve particular goals. The devices might include web servers, allowing them to use cloud-based applications. For example, they might use local media in conjunction with a cloud-based programming platform, such as Scratch; digital cameras and video cameras to capture content to use on an externally hosted website or blog; a digital camera to take photos they could import into 3D design software on a laptop.</p> | <p>The pupil can select, use and combine a range of programs on multiple devices.</p> <p>The pupil can choose for themselves from a range of available programs on laptops, tablets or cloud-based services to achieve particular goals. For example, they might select and use an audio editor or image editor to develop media content for a computer game; use their own choice of image or video editing software to develop media content for a web page or blog; use their own choice of image-editing software to develop images to use in 3D design software. The pupil should be able to use multiple digital devices (such as tablets and laptops or digital cameras and laptops) to meet their given goals.</p> | <p>5.3: We are architects</p> <p>5.4: We are web developers</p> <p>5.6: We are VR designers</p> |
| | C.5.1.2. Design and create a range of programs, systems and content that accomplish given goals. | <p>The pupil can design and create programs on a computer.</p> <p>The pupil can design a program of their own and write this in a block-based language such as Scratch. The program need not be complex - a simple game would suffice.</p> | <p>The pupil can design and create programs on a computer in response to a given goal.</p> <p>The pupil can design a program of their own in response to a given goal and write this in a block-based language such as Scratch. The program need not be complex - a simple game would suffice, but it should be accomplished with a degree of independent working.</p> | <p>The pupil can design and create programs on a computer in response to a given goal and paying attention to the needs of a known audience.</p> <p>With a given audience in mind, the pupil can design a program of their own in response to a given goal and write this in a block-based language such as Scratch. For example, the pupil could design and create a computer game for a particular, known audience.</p> | <p>5.3: We are architects</p> <p>5.4: We are web developers</p> <p>5.5: We are adventure gamers</p> <p>5.6: We are VR designers</p> |
| | C.5.1.3. Collecting, analysing, evaluating and presenting data and information. | <p>The pupil can evaluate information.</p> <p>Working with text, audio, images or video, the pupil can evaluate the quality of the information, perhaps looking for bias or questioning assumptions that have been made, or considering the effectiveness of its presentation. For example, they could work with a number of sources of information on e-safety, evaluating its quality, or they could provide constructive critical feedback to peers on the quality of their work in design projects.</p> | <p>The pupil can analyse and evaluate information.</p> <p>Working with text, audio, images or video, the pupil can analyse information, perhaps summarising this. They should evaluate the quality of the information, looking for bias or questioning assumptions that have been made. For example, they could work with information on e-safety, evaluating its quality and providing a clear and coherent summary.</p> | <p>The pupil can analyse and evaluate information from multiple sources.</p> <p>Working with text, audio, images or video, the pupil can analyse information, perhaps summarising this or looking for common features or exceptions. They should evaluate the quality of the information, looking for bias or questioning assumptions that have been made. For example, they could work with a number of sources of information on e-safety, evaluating their quality and providing a clear and coherent summary, drawing on multiple sources.</p> | <p>5.3: We are architects</p> <p>5.4: We are web developers</p> <p>5.5: We are adventure gamers</p> |
| Searching | C.5.2.1. Use search technologies effectively. | <p>The pupil can use a standard search engine to find information.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively, to search for particular information on the web, such as answers to questions they identify in a research project.</p> | <p>The pupil can use filters to make more effective use of a standard search engine.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively, to search for particular information on the web, such as answers to questions they identify in a research project. They should use built-in search tools to filter their results, such as by time, location or reading level.</p> | <p>The pupil can use advanced search options to make more effective use of a standard search engine.</p> <p>The pupil can use a common search engine (such as Google with safe search mode locked in place) effectively, to search for particular information on the web, such as answers to questions they identify in a research project. They should use advanced search options to filter their results, perhaps searching for a key phrase rather than keywords, using alternate keywords, or restricting their search to particular locations or domains.</p> | <p>5.3: We are architects</p> <p>5.5: We are adventure gamers</p> |
| | C.5.2.2. Appreciate how search results are selected and ranked. | <p>The pupil can understand that search engines use a cached copy of the crawled web to select results.</p> <p>The pupil can explain how a search engine creates a cached copy of the web and uses an index of this to select results.</p> | <p>The pupil can understand that search engines use a cached copy of the crawled web to select and rank results.</p> <p>The pupil can explain how a search engine creates an index from a cached copy of the web and uses this to select and rank results. The pupil might also show an awareness of the Page Rank algorithm in which results are ranked according to the number and quality of in-bound links.</p> | <p>The pupil can understand how search engines build a cached copy of the web using HTTP and web-crawler programs.</p> <p>The pupil can explain how a search engine creates a cached copy of the web using automated HTTP GET requests, follows links found, indexes results and uses the resulting index to select and rank results. The pupil might also show an awareness of the Page Rank algorithm in which results are ranked according to the number and quality of in-bound links.</p> | <p>5.3: We are architects</p> |
| E-Safety | C.5.1.1. Use technology safely, respectfully and responsibly. | <p>The pupil can demonstrate that they can act responsibly when using computers.</p> <p>The pupil can act responsibly when using computers. For example, they appreciate the importance of using encryption to keep information private and the need for strong passwords to protect their identity. They should act responsibly when creating web pages or writing blog posts.</p> | <p>The pupil can demonstrate that they can act responsibly when using the Internet.</p> <p>The pupil can act responsibly when using the Internet. For example, they should act responsibly when participating in an online community, such as the Scratch community, if permitted to do so. They should demonstrate that they understand the importance of encrypted (HTTPS) connections when browsing the web and of using strong passwords to protect their identity online. They should act responsibly when creating, editing or commenting on web pages or blog posts.</p> | <p>The pupil can show that they can think through the consequences of their actions when using digital technology.</p> <p>The pupil can discuss likely and potential consequences of their actions when using digital technology in a range of contexts. Contexts might include participation in online communities, such as the Scratch community, if they are permitted to do so; the use (or non-use) of encryption, of using weak passwords or sharing their passwords with others; or creating particular content for a class website or blog.</p> | <p>5.2: We are cryptographers</p> <p>5.4: We are web developers</p> <p>5.5: We are adventure gamers</p> |
| | C.5.1.2. Recognise acceptable/unacceptable behaviour. | <p>The pupil can understand the difference between acceptable and unacceptable behaviour when using digital technology.</p> <p>The pupil can discuss the difference between acceptable and unacceptable behaviour when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; using cryptography and passwords; creating websites or writing blog posts.</p> | <p>The pupil can discuss the consequences of particular behaviours when using digital technology.</p> <p>The pupil can discuss the likely or possible consequences of particular behaviours when using digital technology in a range of contexts. Contexts could include the Scratch website, or other online communities; using cryptography and passwords; creating websites or writing blog posts.</p> | <p>The pupil can identify principles underpinning acceptable use of digital technologies.</p> <p>The pupil can identify some principles underpinning acceptable behaviour when using technologies in a range of contexts. Contexts could include the Scratch website, or other online communities; using cryptography and passwords; creating websites or writing blog posts.</p> | <p>5.2: We are cryptographers</p> <p>5.4: We are web developers</p> |
| | C.5.1.3. Know a range of ways to report concerns and inappropriate behaviour. | <p>Know who to talk to about concerns and inappropriate behaviour at home or in school.</p> <p>Pupils should know to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. They should also know that any concerns over, or inappropriate behaviour with, digital technology at home can be discussed with their parents, with you or with another trusted adult.</p> | <p>Know how to report concerns and inappropriate behaviour in a range of contexts.</p> <p>Pupils should know how to report inappropriate behaviour when using technology in school, preferably this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over inappropriate behaviour with digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to Childline, CEOP or to the police.</p> | <p>Know a range of ways to report concerns and inappropriate behaviour in a variety of contexts.</p> <p>Pupils should know how to report inappropriate behaviour when using technology in school, typically this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over inappropriate behaviour with digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to Childline, CEOP or the police. Pupils should know that illegal content or activities can be reported to the police.</p> | <p>5.2: We are cryptographers</p> <p>5.4: We are web developers</p> |

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| C.5.1.X. Be discerning in evaluating digital content. | <p>The pupil can decide whether digital content is relevant for a given purpose or question.</p> <p>The pupil can form a judgement about whether digital content, such as sound and graphics for a game or media for a web page or 3D model, is appropriate for finding out the answer to a question they have or for a given purpose.</p> | <p>The pupil can decide whether digital content is reliable and unbiased.</p> <p>The pupil can discuss whether particular content (such as a web page, other pupils' pages or blog posts) is reliable and whether it has been written from a neutral point of view. They should be able to spot some examples of bias in digital content.</p> | <p>The pupil can form an opinion about the effectiveness of digital content.</p> <p>Taking into account the intended audience and purpose of the content, the pupil should be able to form a judgement, and provide reasons, for the extent to which they consider digital content to be effective. Content could be a game or media, their own or their peers' artwork, their own or classmates' pages or posts or a 3D model.</p> | <p>5.3: We are architects 5.4: We are web developers</p> |
| C.5.1.4. Understand the opportunities networks offer for communication and collaboration. | <p>The pupil can contribute to a class website or blog.</p> <p>The pupil can make a positive contribution to a shared website or class blog.</p> | <p>The pupil can work collaboratively with classmates on a class website or blog.</p> <p>The pupil can work productively and positively with others when developing a shared website or contributing to a class blog.</p> | <p>The pupil can provide constructively critical feedback to classmates in a class website or blog project.</p> <p>Showing appropriate sensitivity, the pupil can provide constructive, critical feedback to another, e.g. on others' contributions to a shared website or a class blog.</p> | <p>5.2: We are cryptographers 5.4: We are web developers</p> |

| Year 6 Computing Framework | | | | | |
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| | Computer Science | | | | |
| | Information Technology | | | | |
| | Digital Literacy | | | | |
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| Sub-strand | Progression statement | What to look for guidance (Working towards expectations) | What to look for guidance (Meeting expectations) | What to look for guidance (Exceeding expectations) | Relevant Switched on Computing Unit(s) |
| Problem Solving | C.6.1.1. Design, write and debug programs that accomplish specific goals. | <p>The pupil can design and write a program using a second programming language based on their own ideas.</p> <p>The pupil can design a program of their own and write this in a programming language other than Scratch (or whichever language has formed the focus for their programming in other years), such as MakeCode, and be aware of errors in their program. The program need not be complex.</p> | <p>The pupil can design, write and debug a program using a second programming language based on their own ideas.</p> <p>The pupil can design a program of their own and write this in a programming language other than Scratch (or whichever language has formed the focus for their programming in other years), such as MakeCode. The second language does not need to be text based, but Logo or Python could be used.</p> <p>The pupil can test and debug their code, explain what bugs they found and how they fixed these. The program need not be complex.</p> | <p>The pupil can design, write and debug a program using a second programming language based on their own ideas, using iterative development to make improvements.</p> <p>The pupil can design a program of their own and write this in a programming language other than Scratch (or whichever language has formed the focus for their programming in other years), such as MakeCode. The second language does not need to be text-based, but Logo or Python could be used. The pupil can test and debug their code, explain what bugs they found and how they fixed these. The pupil can review their code, decide for themselves how this might be extended or improved, and then implement, test and debug these modifications. At this level, expect the pupil to be able to develop relatively complex programs with a degree of independence.</p> | 6.1: We are toy makers 6.2: We are computational thinkers 6.6: We are AI developers |
| | C.6.1.2. Controlling or simulating physical systems. | The pupil can experiment with computer control applications. | The pupil can design, write and debug their own computer control application. | The pupil can design, write and debug own computer control application, using iterative development to make improvements. | 6.1: We are toy makers 6.6: We are AI developers |
| | C.6.1.3. Solve problems by decomposing them into smaller parts. | <p>The pupil can plan a solution to a problem using decomposition.</p> <p>The pupil can take a complex problem, identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified.</p> | <p>The pupil can solve problems using decomposition, tackling each part separately.</p> <p>The pupil can take a complex problem, identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified. they can then use their plan to solve the original problem.</p> | <p>The pupil can apply decomposition to help understand complex systems.</p> <p>The pupil can apply the principle of decomposition to help them to understand how complex systems operate. This could be software or combined hardware/software systems.</p> | 6.1: We are toy makers 6.6: We are AI developers |
| Programming | C.6.2.1. Use sequence, selection and repetition in programs; work with variables. | <p>The pupil can use sequence, selection and repetition in programs.</p> <p>The pupil's program should include sequences of commands or blocks, some repetition and selection. Repetition might include exit conditions (e.g. repeat...until...). Selection would normally be of an if...then or if...then...else type. At this level, expect the pupil to be able to combine repetition with selection.</p> | <p>The pupil can use sequence, selection, repetition and variables in programs.</p> <p>The pupil's program should include sequences of commands or blocks, repetition, selection and variables. Repetition might include exit conditions (e.g. repeat...until...) and perhaps a counter-variable for iteration. Selection would normally be of an if...then or if...then...else type. At this level, expect the pupil to be able to combine repetition with selection and variables.</p> | <p>The pupil can use sequence, selection, repetition, variables and procedures in programs.</p> <p>The pupil's program should include sequences of commands or blocks, repetition, selection, variables and user-defined procedures, functions or custom blocks. Repetition might include exit conditions (e.g. repeat...until...) and perhaps a counter-variable for iteration. Selection would normally be of an if...then or if...then...else type. At this level, expect the pupil to be able to combine repetition with selection and variables. Procedures or custom blocks need not include passing parameters, although they might.</p> | 6.1: We are toy makers 6.2: We are computational thinkers |
| | C.6.2.2. Work with various forms of input and output. | The pupil can write a program that accepts input and produces output on screen and through speakers. | The pupil can write a program that accepts inputs other than keyboard and mouse and produces outputs other than screen or speakers. | <p>The pupil can use principles of good user-interface design, including accessibility, when developing programs.</p> <p>In developing their program, the pupil should take account of the needs of their intended users and be able to explain how these have influenced design and development decisions. The pupil should test their program with intended users, making changes on the basis of the feedback they receive. The pupil should consider design for accessibility.</p> | 6.1: We are toy makers 6.2: We are computational thinkers |
| Logical thinking | C.6.3.1. Use logical reasoning to explain how some simple algorithms work. | <p>The pupil can explain an algorithm using sequence, repetition and selection in their own words.</p> <p>Given an algorithm using sequence, repetition and selection, the pupil can give a coherent, logically reasoned explanation of what it does and how it works. Repetition is likely to be using end conditions (e.g. repeat...until...), and selection is likely to be simply if...then.</p> | <p>The pupil can give clear and precise logical explanations of a number of algorithms.</p> <p>Given an algorithm, the pupil can describe what it does and, using logical reasoning, give precise explanations of how it works. Algorithms could be linked to programming projects, but might include a key algorithm such as binary search.</p> | <p>The pupil can use logical reasoning to explain how more complex algorithms work.</p> <p>Given an algorithm, the pupil should be able to describe what it does and, using logical reasoning, give precise explanations of how it works. Algorithms could be linked to programming projects, but might include key algorithms such as binary search, bubble sort or finding highest common factors.</p> | 6.1: We are toy makers 6.2: We are computational thinkers |
| | C.6.3.2. Use logical reasoning to detect and correct errors in algorithms and programs. | <p>The pupil can use logical reasoning to detect errors in algorithms.</p> <p>When given an algorithm for a particular purpose, e.g. a rule-based algorithm for a smartphone app, the pupil can use logical reasoning to identify possible errors in the algorithm, explaining why they believe the algorithm is incorrect.</p> | <p>The pupil can use logical reasoning to detect and correct errors in algorithms (and programs).</p> <p>When given an algorithm for a particular purpose, e.g. a rule-based algorithm for a smartphone app, the pupil can use logical reasoning to identify possible errors in the algorithm, explaining why they believe the algorithm is incorrect. The pupil can use logical reasoning to suggest possible corrections to the algorithm, explaining why these would correct the bug they identified.</p> | <p>The pupil can suggest ways in which the efficiency of algorithms and programs can be improved.</p> <p>The pupil can consider alternative algorithms for particular problems, using logical reasoning to compare these for efficiency. Examples might include comparing linear and binary search.</p> | 6.1: We are toy makers 6.2: We are computational thinkers |
| Wider Understanding | C.6.3.3. Understand computer networks including the Internet. | <p>The pupil can understand that computers can communicate through network technologies other than the Internet.</p> <p>The pupil can demonstrate an awareness of other networking technologies they might encounter.</p> | <p>The pupil can understand how mobile phone or other networks operate.</p> <p>The pupil can give an explanation of how networks operate: they should know that information is transmitted digitally, and have some understanding of the network topology involved.</p> | <p>The pupil can understand differences between network technologies.</p> <p>The pupil can compare and contrast different network technologies, discussing differences in topology, range, bandwidth and fault tolerance.</p> | 6.3: We are publishers 6.4: We are connected |
| | C.6.4.1. Understand how networks can provide multiple services, such as the World Wide Web. | <p>The pupil can understand the difference between a domain name and an IP address.</p> <p>The pupil can distinguish between a domain name used by people and an IP address used by computers, and appreciate why domain names are more commonly used on the Internet.</p> | <p>The pupil can understand how domain names are converted into IP addresses on the Internet.</p> <p>The pupil can give some explanation of how a domain name is converted into an IP address using the distributed domain name system (DNS) using something similar to a set of phone books. The pupil should show an awareness of the looked-up addresses (DNS records) being copied (cached), and that more local records are used in preference to more authoritative records in most circumstances.</p> | <p>The pupil can show awareness of some of the security implications of DNS lookups.</p> <p>The pupil can discuss some of the security implications of being given the wrong IP address when looking up a domain name, recognising that malware could compromise the integrity of this system on their computer and the importance of network managers maintaining the integrity of this system at Internet service provider level. The pupil might also be aware of how seriously the security of root DNS servers is treated.</p> | 6.3: We are publishers 6.4: We are connected |

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| Creating content | C.6.1.1. Select, use and combine a variety of software (including Internet services) on a range of digital devices. | <p>The pupil can use and combine a range of programs on multiple devices.</p> <p>The pupil can use multiple digital devices (such as tablets and laptops or digital cameras and laptops) to achieve particular goals. The devices might include web servers, allowing them to use cloud-based applications. For example, they might use local media to make a presentation using cloud-based presentation software, such as Google Slides, local media, cloud-based programming environments and a connected tablet or smartphone to help in developing and testing an app; a video camera, laptop-based editing software and online video streaming to create a marketing video for an app.</p> | <p>The pupil can select, use and combine a range of programs on multiple devices.</p> <p>The pupil can choose for themselves from a range of available programs on laptops, tablets or cloud-based services to achieve particular goals. For example, they might choose which image editors and presentation software to use when making a presentation; which image and audio editors to use when creating media content for an app; which DTP, video editor and website tools to use when developing marketing materials for an app.</p> | <p>The pupil can show some understanding of the differences between, and relative merits of, different applications, operating systems and hardware.</p> <p>The pupil can discuss the differences between smartphones, tablets, laptops and servers. They should be able to compare and contrast different applications (e.g. Word and Google Docs). They should be able to compare and contrast operating systems they have used (e.g. Windows and iOS or Android).</p> | 6.3: We are publishers |
| | C.6.1.2. Design and create a range of programs, systems and content that accomplish given goals. | <p>The pupil can create systems in response to a given goal.</p> <p>The pupil can plan and design a system with multiple, interrelated components with a given goal in mind.</p> | <p>The pupil can design and create systems in response to a given goal.</p> <p>The pupil can plan, design and implement a system with multiple, interrelated components with a given goal in mind.</p> | <p>The pupil can design and create systems in response to a given goal, paying attention to the needs of a known audience.</p> <p>The pupil can plan, design and implement a system with multiple, interrelated components with a given goal and a known audience in mind. They should evaluate how effectively their system meets the specified goal and the needs of their audience.</p> | 6.5: We are advertisers 6.3: We are publishers 6.5: We are advertisers 6.6: We are AI developers |
| | C.6.1.3. Collecting, analysing, evaluating and presenting data and information. | <p>The pupil can analyse data.</p> <p>The pupil can analyse numerical data (typically using a spreadsheet) perhaps producing summary statistics, looking for relationships, trends and exceptions.</p> | <p>The pupil can analyse and evaluate data.</p> <p>The pupil can evaluate the quality of numerical data, deciding the extent to which it is affected by systematic or random errors. They should analyse their data, perhaps producing summary statistics, looking for relationships, trends and exceptions.</p> | <p>The pupil can analyse, evaluate and interpret data, being aware of the limitations of any conclusions drawn.</p> <p>The pupil can evaluate the quality of numerical data, deciding the extent to which it is affected by systematic or random errors. They should analyse their data, perhaps producing summary statistics, looking for relationships, trends and exceptions. They should provide an interpretation of their data and discuss the limitations of their findings.</p> | 6.3: We are publishers 6.5: We are advertisers 6.6: We are AI developers |
| Searching | C.6.2.1. Use search technologies effectively. | <p>The pupil can appreciate that a range of different search technologies are available.</p> <p>The pupil can show that they are aware of a range of different search technologies, including alternatives to Google (such as Bing or Yahoo) and site-specific search engines (such as those for the App Store or Google Play). E.g. They could name several search engines that could be used when researching available smartphone apps for a particular purpose.</p> | <p>The pupil can make use of a range of search engines appropriate to finding information that is required.</p> <p>The pupil can show that they can use effectively a range of different search technologies, including alternatives to Google (such as Bing or Yahoo) and site-specific search engines (such as those for the App Store or Google Play). E.g. They could demonstrate how they would use a range of search engines when researching available smartphone apps for a particular purpose.</p> | <p>The pupil can appreciate that much information cannot easily be found using search engines.</p> <p>The pupil should be aware that not all questions can be answered using search engines. They should be able to give examples of 'ungoogleable' questions and consider some other ways in which these could be answered.</p> | 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers |
| | C.6.2.2. Appreciate how search results are selected and ranked. | <p>The pupil can appreciate that search engines rank results based on in-bound links to a page.</p> <p>The pupil can demonstrate some awareness of the Page Rank algorithm, explaining that the ranking of a page is determined largely on the basis of the links pointing to that page in the engine's cached copy of the web.</p> | <p>The pupil can appreciate that search engines rank pages based on the number and quality of in-bound links.</p> <p>The pupil can demonstrate some awareness of the Page Rank algorithm, explaining that the quality of a page is determined largely on the basis of the number and quality of links pointing to that page in the engine's cached copy of the web, and that quality is itself determined recursively through Page Rank.</p> | <p>The pupil can appreciate that search engines now use many additional 'signals' to provide more relevant results.</p> <p>The pupil should be aware of the Page Rank algorithm used for ranking search results, but should also be able to discuss other signals used in ranking algorithms, such as bounce back rates, accessibility indicators, localisation and personalisation of search results.</p> | 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers |
| E-Safety | C.6.1.1. Use technology safely, respectfully and responsibly. | <p>The pupil can demonstrate that they can act responsibly when using the Internet.</p> <p>The pupil can demonstrate that they act responsibly when using the Internet. For example, they should show responsibility when conducting web-based research; in using online project management tools; when creating and analysing surveys (including paying due regard to data protection legislation and ethical principles); in observing the terms and conditions of online tools; when creating digital content.</p> | <p>The pupil can show that they can think through the consequences of their actions when using digital technology.</p> <p>The pupil can discuss likely and potential consequences of their actions when using digital technology in a range of contexts. Contexts might include developing smartphone apps; using online project management tools; collecting information for market research; posting original content online.</p> | <p>The pupil can consider critically some of the wider implications of the use of digital technology.</p> <p>The pupil can discuss critically some wider implications of the use of digital technology, such as the ready availability of smartphones and connectivity; creating and distributing digital content; designing and developing apps.</p> | 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers |
| | C.6.1.2. Recognise acceptable/unacceptable behaviour. | <p>The pupil can discuss the consequences of particular behaviours when using digital technology.</p> <p>The pupil can discuss the likely or possible consequences of particular behaviours when using digital technology in a range of contexts. Contexts could include smartphone or tablet use; the use of online project management tools; online surveys and recording of interviews; creating and sharing digital content.</p> | <p>The pupil can identify principles underpinning acceptable use of digital technologies.</p> <p>The pupil can identify some principles underpinning acceptable behaviour when using technologies in a range of contexts. Contexts could include smartphone or tablet use; the use of online project management tools; online surveys and recording of interviews; creating and sharing digital content.</p> | <p>The pupil can consider questions of ethics and morality in relation to digital technology.</p> <p>The pupil can consider some of the ethical or moral questions raised by the use of digital technology in a range of contexts. Contexts could include smartphone or tablet use; the use of online project management tools; online surveys and recording of interviews; creating and sharing digital content.</p> | 6.4: We are connected 6.5: We are advertisers |
| | C.6.1.3. Know a range of ways to report concerns and inappropriate behaviour. | <p>Know how to report concerns and inappropriate behaviour in a range of contexts.</p> <p>Pupils should know how to report inappropriate behaviour when using technology in school: preferably this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over, or inappropriate behaviour with, digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to Childline, CEOP or to the police.</p> | <p>Know a range of ways to report concerns and inappropriate behaviour in a variety of contexts.</p> <p>Pupils should know how to report inappropriate behaviour when using technology in school: preferably this will be to their teacher, the network manager or another trusted adult. They should know how to report any concerns over, or inappropriate behaviour with, digital technology at home. Preferably this would be through discussion with their parents, with you or with another trusted adult. Pupils should also know how to report inappropriate behaviour to those running websites which they regularly use, and to Childline, CEOP or the police. Pupils should know that illegal content or activities can be reported to CEOP or the police.</p> | <p>Consider how they would determine the best way to address particular concerns or inappropriate behaviour.</p> <p>Pupils should think about how they would determine the best way to address particular concerns or inappropriate behaviour. They should take into account whether their concerns, or the behaviour, relates to home or to school, whether the person is another pupil, an adult they know or someone else, whether it might be illegal, how serious it is and whether others are likely to be affected.</p> | 6.4: We are connected 6.5: We are advertisers |
| | C.6.1.X. Be discerning in evaluating digital content. | <p>The pupil can decide whether digital content is reliable and unbiased.</p> <p>The pupil can discuss whether particular content (such as advertising copy and product reviews) is reliable, and whether it has been written from a neutral point of view. They should be able to spot some examples of bias in digital content.</p> | <p>The pupil can form an opinion about the effectiveness of digital content.</p> <p>Taking into account the intended audience and purpose of the content, the pupil can form a judgement as to, and provide reasons for, the extent to which they consider digital content to be effective. The content might be media resources or marketing materials.</p> | <p>The pupil can consider principles they can use to evaluate digital content.</p> <p>The pupil should identify some principles they could use to evaluate digital content, such as absence of bias, effective design, acknowledgement of sources, agreement with other sources, the reputation of the author, any indication that it has been checked or reviewed, absence of errors or logical inconsistencies.</p> | 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers |

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| | <p>C.6.1.4. Understand the opportunities networks offer for communication and collaboration.</p> | <p>The pupil can use online tools to plan a collaborative project.</p> <p>The pupil can make use of an online tool to plan a collaborative project.</p> | <p>The pupil can use online tools to plan and carry out a collaborative project.</p> <p>The pupil can make use of an online tool to plan and carry out a collaborative project.</p> | <p>The pupil can use online tools to plan, carry out and evaluate a collaborative project.</p> <p>The pupil can make use of an online tool to plan, carry out and then evaluate a collaborative project.</p> | <p>6.3: We are publishers 6.4: We are connected</p> |
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