# Computing coverage map

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| **Year R** | **Technology around us**<br>Children will use the CD player and play simple games on the ipads and interactive white board. They will understand how to ask for help if something unexpected happens. | **Using a mouse**<br>Children will be taught to use a mouse to move the cursor and left click to select an answer in a game. | **Creating Media**<br>Use a paint programme (idoodle) to create an image. | **Digital Photography**<br>Children will be taught to use the ipads to take photos of their own work. | **Creating Media**<br>Children will be taught to use the ipads to record themselves acting out a story. The teacher will then put the clips together to make a short film.<br><br>Online safety<br>I can give some simple examples of these rules | **Programming**<br>Children will be taught to give instructions to one another to move across an obstacle course. They will then use these skills to programme a simple robot such as the bee bots to move forwards and backwards..<br><br>Online safety<br>I can offer examples of how this can make others feel |
| **Year 1** | **COMPUTING SYSTEMS AND NETWORKS**<br>**Technology around us** - Developing understanding of technology and how it helps. Become more familiar with different components of a computer by developing keyboard and mouse skills<br><br>Online Safety **- Health, Wellbeing and Lifestyle**<br>I can explain rules to keep myself safe when using technology both in and beyond the home. | **CREATING MEDIA**<br>**Digital Painting** - Explore the world of digital art and its exciting range of creative tools. Children are empowered to create their own paintings with inspiration from other artists.<br><br>Online Safety **- Copyright and Ownership**<br>I understand that work created by others does not belong to me even if I save a copy | **PROGRAMMING A**<br>**Moving a robot** - Early programming concepts are introduced and children explore using different commands.<br><br>Online Safety **- Managing online information**<br>I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. | **DATA AND INFORMATION**<br>**Grouping data** - Using labels to put objects into groups and labelling these groups. Children will be able to answer questions about data.<br><br>Online Safety **- Privacy and security**<br>I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. | **CREATING MEDIA**<br>**Digital writing** - Using a computer to create and change text. Children will consider the differences between using a computer and writing on paper.<br><br>Online Safety **- Online Bullying**<br>I can describe how to behave online in ways that do not upset others and can give examples. | **PROGRAMMING B**<br>**Introduction to animation** - On screen programming through scratch Jr. Investigating sprites and programming using blocks to use, modify and create algorithms.<br><br>Online Safety **- Self-image and Identity**<br>I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. |
| **Year 2** | **COMPUTING SYSTEMS AND NETWORKS**<br>**Information technology around us** - How is information technology (IT) being used for good in our lives? With an initial focus on IT in the home, children explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it.<br><br>Online safety **- Health, Wellbeing and Lifestyle**<br>I can say how those rules / guides can help anyone accessing online technologies | **CREATING MEDIA**<br>**Digital photography** - children will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.<br><br>Online Safety **- Copyright and Ownership**<br>I can recognise that content on the internet may belong to other people. | **PROGRAMMING A**<br>**Robot algorithms** - develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome.They will design algorithms and then test those algorithms as programs and debug them.<br><br>Online Safety **- Managing online information**<br>I can explain why some information I find online may not be real or true. | **DATA AND INFORMATION**<br>**Pictograms** - This unit introduces the children to the term 'data'. children will begin to understand what data means and how this can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. children will use the data presented to answer questions.<br><br>Online safety **- Privacy and security**<br>I can explain how passwords can be used to protect information, accounts and devices. | **CREATING MEDIA**<br>**Making music** - children will explore how music can make them think and feel. They will make patterns and use those patterns to make music with both percussion instruments and digital tools. They will also create different rhythms and tunes, using the movement of animals for inspiration. Finally, children will share their creations and compare creating music digitally and non-digitally.<br><br>Online safety **- Online Bullying**<br>I can explain what bullying is, how people may bully others and how bullying can make someone feel | **PROGRAMMING B**<br>**Introduction to quizzes** - fklqguhq ehjlq wr xqghuvwdqg wkdwvhtxhqfhv ri frp p dqgv kdyh dq rxwfrp h dqg p dnh suhglfwlrqv edvhg rq wkhludnduqlqj1Wkh\| xvh dqg p rgli\| ghvljqv wr fuhdwh wkhlu rz q txl} txhvwirqv lq Vfudwfk Mudqg uhddvh wkhvh ghvljqv lq Vfudwfk Muxvlqj eorfnv rifrgh1Ilqdo\|/fklqguhq hydoxdwh wkhluz run dqg p dnh lp suryhp hqw wr wkhlusurjudp p lqj sumnfwv1<br><br>Online Safety **- Self-image and Identity**<br>I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help. |
| **Year 3** | **COMPUTING SYSTEMS AND NETWORKS**<br>**Connecting Computers** - Fkdoohqjh \|rxufkloguhq wr ghyhors wkhlu xqghuvwdqglqj rigljlwdoghylfhv/z lwk dq lqlwldoirfxv rq lqsxw/surfhvvhv/dqg rxwsxw1Vwduwe\| frp sdulqj gljlwdodqg qrq0gljlwdoghylfhv/ehiruh lqwurgxflqj wkhp wr frp sxwhuqhwz runv wkdwlqfoxgh qhwz run lqiudvwxfwuh ghylfhv dnh urxwhuv dqg vz lwfkhv1 | **CREATING MEDIA**<br>**Desktop publishing** - During this unit, children will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. children will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand | **PROGRAMMING A**<br>**Sequence in music** - This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most children. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on | **DATA AND INFORMATION**<br>**Branching databases** - children will develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The children will create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be | **CREATING MEDIA**<br>**Animation** - children will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with children adding other types of media to their animation, such as music and text.<br><br>Online safety **- Online Bullying**<br>I can describe appropriate ways to behave towards other people online and | **PROGRAMMING B**<br>**Events and actions** - This unit explores the links between events and actions, whilst consolidating prior learning relating to sequencing. children will begin by moving a sprite in four directions (up, down, left and right). They will then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of pen blocks. children |

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| | Online Safety - **Health, Wellbeing and Lifestyle**<br>I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged | how these can support them in making their own template for a magazine front cover.<br><br>Online safety - **Copyright and Ownership**<br>I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause. | all aspects of sequences, and make sure that knowledge is built in a structured manner.<br><br>Online Safety - **Managing online information**<br>I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. | presented as a branching database.<br><br>Online Safety - **Privacy and security**<br>I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. | why this is important. | are given the opportunity to draw lines with sprites and change the size and colour of lines.<br><br>Online Safety - **Self-image and Identity**<br>I can explain how people can represent themselves in different ways online |
| **Year 4** | **CREATING MEDIA**<br>**Stop frame animation** - children will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with children adding other types of media to their animation, such as music and text.<br><br>Online safety - **Health, Wellbeing and Lifestyle**<br>I can explain how using technology can be a distraction from other things, in both a positive and negative way. | **PROGRAMMING A**<br>**Repetition in shapes** - This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.<br><br>Online Safety - **Copyright and Ownership**<br>I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images. | **DATA AND INFORMATION**<br>**Data logging** - Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data.<br><br>Online Safety - **Managing online information**<br>I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. | **CREATING MEDIA**<br>**Photo editing** - In this unit, children will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.<br>Online safety<br><br>Online Safety - **Privacy and security**<br>I can describe strategies for keeping personal information private, depending on context. | **PROGRAMMING B**<br>**Repetition in games** - This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where children can discover similarities between two environments. children look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition.<br><br>Online Safety - **Online Bullying**<br>I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them | **COMPUTING SYSTEMS AND NETWORKS**<br>**The internet** - children will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create.<br><br>Online Safety - **Self-image and Identity**<br>I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. |
| **Year 5** | **COMPUTING SYSTEMS AND NETWORKS**<br>**Sharing information** - children will develop their understanding of computer systems and how information is transferred between systems and devices. children will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. children will also take part in a collaborative online project with other class members and develop their skills in working together online.<br><br>Online safety - **Health, Wellbeing and Lifestyle**<br>I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. | **PROGRAMMING A**<br>**Selection in physical computing** - In this unit, children will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. children will be introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices-LEDs and motors) through the application of their existing programming knowledge. children are introduced to conditions as a means of controlling the flow of actions and make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the if, then structure).<br><br>Online Safety - **Copyright and Ownership**<br>I can assess and justify when it is acceptable to use the work of others | **CREATING MEDIA**<br>**Vector drawing** - children start to create vector drawings. They learn how to use different drawing tools to help them create images. children recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. children layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.<br><br>Online safety - **Managing online information**<br>I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. | **DATA AND INFORMATION**<br>**Flat-file databases** - This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.<br><br>Online Safety - **Privacy and security**<br>I can explain what a strong password is and demonstrate how to create one. | **PROGRAMMING B**<br>**Selection in quizzes** - In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs and then learning how the If… Then… Else structure can be used to select different outcomes depending on whether a condition is true or false. They represent this understanding in algorithms and then by constructing programs using the Scratch programming environment. They use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.<br><br>Online Safety - **Online Bullying**<br>I can explain how to block abusive users. | **CREATING MEDIA**<br>**Video editing** - This unit gives children the opportunity to learn how to create short videos in groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software.<br><br>Online safety - **Self-image and Identity**<br>I can explain how identity online can be copied, modified or altered. |
| **Year 6** | **PROGRAMMING A**<br>**Variables in games** - This unit explores the concept of variables in programming through games in Scratch. First, pupils will learn what variables are, and relate them to real-world examples of values that can be set and changed. Pupils will | **PROGRAMMING B**<br>**Sensing** - This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from year 3, repetition from year 4, selection from year 5 and variables, introduced in year 6, | **CREATING MEDIA**<br>**Web page creation** - This unit introduces children to the creation of websites for a chosen purpose. children identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. | **COMPUTING SYSTEMS AND NETWORKS**<br>**Communication** - In this unit, the class will learn about the World Wide Web as a communication tool. First, they will learn how we find information on the World Wide Web, through learning how search | **CREATING MEDIA**<br>**3D modelling** - During this unit, children will develop their knowledge and understanding of using a computer to produce 3D models. children will initially familiarise themselves with working in a 3D space, including combining 3D | **DATA AND INFORMATION**<br>**Spreadsheets** - This unit introduces the children to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. children will be taught the importance of formatting data to support calculations, |

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| | then use variables to create a simulation of a scoreboard.<br><br>Online Safety - **Health, Wellbeing and Lifestyle**<br>I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. | programming A. It offers children the opportunity to use all of these constructs in a different, but still familiar environment whilst also utilising a physical device - the micro:bit.<br><br>Online Safety - **Copyright and Ownership**<br>I can demonstrate the use of search tools to find and access online content which can be reused by others. | Throughout the process children pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.<br><br>Online safety - **Managing online information**<br>I can describe the difference between online misinformation and dis-information | engines work (including how they select and rank results) and what influences searching, and through comparing different search engines. They will then investigate different methods of communication, before focusing on internet-based communication.<br><br>Online Safety - **Privacy and security**<br>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). | objects to make a house and examining the differences between working digitally with 2D and 3D graphics. children will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders.<br><br>Online safety - **Online Bullying**<br>I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. | while also being introduced to formulas and will begin to understand how they can be used to produce calculated data.<br><br>Online safety - **Self-image and Identity**<br>I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. |