# Computing Knowledge, Skills, Sequencing and Progression

| | EYFS | Key Stage 1 | Lower Key Stage 2 | Upper Key Stage 2 |
|---|---|---|---|---|
| **Technology in the real world** | | Use different font sizes, colours and images to communicate meaning.<br>Use appropriate language in an email. | Use search technologies safely and effectively.<br>Use different font sizes, colours and images purposefully.<br>Open, send and save emails.<br>Know how to use digital tools responsibly to communicate. | Use search technologies effectively to collect, analyse and evaluate digital content.<br>Use digital devices to combine different software and present data and information. |
| **Programming** | | Know what algorithms are and how they are used.<br>Write and test simple programs.<br>Use logical reasoning to make predictions. | Design and write programs, including decomposing, to achieve specific goals.<br>Use logical reasoning to explain simple algorithms. | Design, write and debug programs to solve problems, control simulations and physical systems.<br>Use sequences, repetition, variables, inputs and outputs.<br>Detect and correct errors in algorithms and programs. |
| **Purposeful Application** | | Use technology to create, organise, store, manipulate and retrieve data.<br>Recognise how IT is used beyond school. | Select and use technology to collect and present data and information.<br>Create and implement a range of programs to accomplish given goals.<br>Understand computer networks including the internet. | Select, use and combine software to collect, analyse, evaluate and present data appropriately.<br>Design a range of programs.<br>Understand computer networks for collaboration and communication. |
| **Online Safety** | | Know what to do if they need help because of something online.<br>Know what personal information is and why they need to keep it private.<br>Use technology safely and respectfully. | Recognise unacceptable behaviour online.<br>Know how to deal with and report inappropriate content and contact.<br>Continue to use technology safely and responsibly. | Use technology safely, respectfully responsibly, recognising appropriate behaviour and knowing how to report concerns. |

# Computing Knowledge, Skills, Sequencing and Progression

## Key Stage 1

| Technology in the Real World | Programming | Purposeful Application | Online Safety |
|---|---|---|---|
| Use different font sizes, colours and images to communicate meaning.<br>Use appropriate language in an email. | Respond to a range of stimuli.<br>Create art from imagination.<br>Begin to give reasons for choices. | Develop techniques of colour, pattern, texture, line, shape, form and space.<br>Use line to represent objects seen, remembered or imagined.<br>Experiment and enjoy colour using a variety of tools to spread paint.<br>Experiment with different materials, textures and patterns. | Learn about a range of artists, craftsmen and designers.<br>Be able to give their opinion and say what they like / dislike.<br>Make links to their own work. |

## Year A

| | Prior Learning | Intent (children will learn) | Unit | Sequence of Lessons WALT (children will…) | Vocabulary | Outcome / Composite |
|---|---|---|---|---|---|---|
| **Autumn A** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly<br>Safe behaviours in their day-to-day world and how this applies in the online world.<br>Y2s: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; friendship, responsibility and keeping safe online. | Students will learn how to become safe and responsible digital citizens by only sharing personal information with people they trust and keeping their computers safe. They will also learn about the importance of seeking guidance from a trusted adult when they feel unsafe or uneasy online or if they experience cyberbullying. | Hector's World (eSafety Commissioner): being a safe and responsible digital citizen; seeking support from trusted adults. | 1. Understand what personal information is and when it can be shared<br>2. Understand that not everyone online can be trusted<br>3. Understand what may happen when personal information is shared wrongly<br>4. Understand that you can always ask a trusted adult for help | | See Intent |
| | Y2s:<br>Computing Systems and Networks – IT Around Us (Y2) | Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Learners will also consider how to use technology responsibly. | Computing Systems and Networks – Technology Around Us (Y1) | 1. Identify technology.<br>2. Identify a computer and its main parts.<br>3. Use a mouse in different ways.<br>4. Use a keyboard to type.<br>5. Use the keyboard to edit text.<br>6. Create rules for using technology responsibly. | Click<br>Computer<br>Drag<br>Keyboard<br>Mouse<br>Screen<br>Technology<br>Trackpad | See Intent |
| | Y2s:<br>Creating Media – Digital Painting (Y1)<br>Digital Writing (Y1) | Learners 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. | Creating Media – Digital Photography (Y2) | 1. Know what devices can be used to take photographs<br>2. Use a digital device to take a photograph<br>3. Describe what makes a good photograph<br>4. Decide how photographs can be improved<br>5. Use tools to change an image<br>6. Recognise that images can be changed | Camera<br>Capture<br>Compose<br>Device; Digital<br>Edit; Filter<br>Focus; Format<br>Framing; Image<br>Photograph | See Intent |
| **Spring A** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly | The aim of the *Lee & Kim: Animal Magic* cartoon is to teach 5-7 year olds about personal information and the importance of keeping this secure both online and off. The cartoon follows the adventures of two children, Lee and Kim, who are playing an online game where they interact and play with different people using animal avatars. The online | Lee and Kim (ThinkUKnow): Personal information and the importance of keeping this | 1. To understand what personal information is<br>2. To understand what personal information should not be shared and that I have the right to say no<br>3. to identify trusted adults who can help<br>4. To understand what behaviour others value both online and off | | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | Safe behaviours in their day-to-day world and how this applies in the online world. Y1 and Y2: being a safe and responsible digital citizen. Y2: seeking support from trusted adults; personal information and keeping it secure; friendship, responsibility and keeping safe online. | safety messages from the cartoon and storybook are reinforced by SID, a superhero in the cartoon who helps Lee and Kim navigate the online game safely. | secure both online and off | | | |
| | Y2s:<br>Programming – Robot Algorithms (Y2)<br>Programming Quizzes (Y2) | Learners will be introduced to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs. Learners are also introduced to the early stages of program design through the introduction of algorithms. | Programming A – Moving a Robot (Y1) | 1. Explain what a given command will do.<br>2. Act out a given word.<br>3. Combine forwards and backwards commands to make a sequence.<br>4. Combine four direction commands to make sequences.<br>5. Plan a simple program.<br>6. Find more than one solution to a problem. | Algorithm<br>Backwards<br>Clear<br>Command<br>Directions<br>Forwards<br>Go; Instructions<br>Plan; Program<br>Route; Turn | See Intent |
| | Y2s:<br>Data and Information – Grouping Data (Y1) | Learners will begin to understand what the term data means and how data 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. Learners will use the data presented to answer questions. | Data and Information – Pictograms (Y2) | 1. Recognise that we can count and compare objects using tally charts<br>2. Recognise that objects can be represented as pictures<br>3. Create a pictogram<br>4. Select objects by attributes and make comparisons<br>5. Recognise that people can be described by attributes<br>6. Explain that we can present information using a computer | Attribute<br>Compare<br>Conclusion<br>Data<br>Organise<br>Pictogram<br>Tally chart<br>Total | See Intent |
| **Summer A** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly Safe behaviours in their day-to-day world and how this applies in the online world. Y1 and Y2: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online. | The Digiduck® collection has been created to help parents and teachers educate children aged 3 – 7 about online safety in stories of friendship, responsibility and critical thinking online. | Digiduck (Childnet): Friendship, responsibility and critical thinking online | 1. To recap online safety rules<br>2. To describe my online life and how I keep safe<br>3. To be a good friend on the internet<br>4. To understand that not all information on the internet is reliable | | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | Creating Media – Digital Photography (Y2)<br>Y2s:<br>Creating Media – Digital Painting (Y1)<br>Digital Writing (Y1) | Learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music. | Creating Media – Digital Music (Y2) | 1. Say how music can make us feel<br>2. Identify that there are patterns in music<br>3. Describe how music can be used in different ways<br>4. Show how music is made from a series of notes<br>5. Create music for a purpose<br>6. Review and refine our computer work | Beat<br>Emotion<br>Music; Note<br>Pattern<br>Pitch; Pulse<br>Rhythm<br>Tempo | See Intent |
| | Programming A – Moving a Robot (Y1)<br>Y2s:<br>Programming – Robot Algorithms (Y2)<br>Programming Quizzes (Y2) | Learners will be introduced to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms. | Programming B – Programming Animations (Y1) | 1. Choose a command for a given purpose<br>2. Show that a series of commands can be joined together<br>3. Identify the effect of changing a value<br>4. Explain that each sprite has its own instructions<br>5. Design the parts of a project<br>6. Use an algorithm to create a program | Algorithm<br>Block<br>Command<br>Predict<br>Program<br>Run<br>Sprite<br>Value | See Intent |
| **Year B** | | | | | | |
| | **Prior Learning** | **Intent (children will learn)** | **Unit** | **Sequence of Lessons WALT (children will…)** | **Vocabulary** | **Outcome / Composite** |
| **Autumn B** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly<br>Safe behaviours in their day-to-day world and how this applies in the online world.<br>Y2s: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; friendship, responsibility and keeping safe online. | Students will learn how to become safe and responsible digital citizens by only sharing personal information with people they trust and keeping their computers safe. They will also learn about the importance of seeking guidance from a trusted adult when they feel unsafe or uneasy online or if they experience cyberbullying. | Hector's World (eSafety Commissioner): being a safe and responsible digital citizen; seeking support from trusted adults. | 5. Understand what personal information is and when it can be shared<br>6. Understand that not everyone online can be trusted<br>7. Understand what may happen when personal information is shared wrongly<br>Understand that you can always ask a trusted adult for help | | See Intent |
| | Y2s:<br>Computing Systems and Networks – Technology Around Us (Y1) | Learners will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly. | Computing Systems and Networks – IT Around Us (Y2) | 1. Recognise the uses and features of information technology<br>2. Identify the uses of IT in the school and beyond the school<br>3. Explain how information technology helps us recognise that choices are made when using information technology | Applications<br>Barcode<br>Computer<br>Information technology (IT)<br>Laptop<br>Printer<br>QR code<br>Speaker<br>Tablet | To understand the different uses of IT |
| | Y2s:<br>Creating Media – Digital Photography (Y2)<br>Digital Music (Y2) | Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with learners | Creating Media – Digital Painting (Y1) | 1. Describe what different freehand tools do and use the shape tool and the line tools.<br>2. Use a computer to paint a picture.<br>3. Compare painting a picture on a computer and on paper. | Erase<br>Fill<br>Line tool | To create a piece of digital art. |

# Computing Knowledge, Skills, Sequencing and Progression

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| | | considering their preferences when painting with and without the use of digital devices. | | | Paintbrush<br>Shape tool<br>Undo | |
| **Spring B** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly<br>Safe behaviours in their day-to-day world and how this applies in the online world.<br>Y1 and Y2: being a safe and responsible digital citizen. Y2: seeking support from trusted adults; personal information and keeping it secure; friendship, responsibility and keeping safe online. | The aim of the *Lee & Kim: Animal Magic* cartoon is to teach 5-7 year olds about personal information and the importance of keeping this secure both online and off. The cartoon follows the adventures of two children, Lee and Kim, who are playing an online game where they interact and play with different people using animal avatars. The online safety messages from the cartoon and storybook are reinforced by SID, a superhero in the cartoon who helps Lee and Kim navigate the online game safely. | Lee and Kim (ThinkUKnow): Personal information and the importance of keeping this secure both online and off | 5. To understand what personal information is<br>6. To understand what personal information should not be shared and that I have the right to say no<br>7. to identify trusted adults who can help<br>To understand what behaviour others value both online and off | | See Intent |
| | Y2s:<br>Programming – Moving a Robot (Y1)<br>Programming Animations (Y1) | Learners develop their understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them. | Programming A – Robot Algorithms (Y2) | 1. Describe a series of instructions as a sequence<br>2. Explain what happens when we change the order of instructions<br>3. Use logical reasoning to predict the outcome of a program<br>4. Explain that programming projects can have code and artwork<br>5. Design an algorithm,<br>6. Create and debug a program that I have written | Algorithm<br>Clear<br>Command<br>Debug<br>Instruction<br>Order<br>Prediction<br>Program<br>Sequence | See Intent |
| | Y2s:<br>Data and Information – Pictograms (Y2) | Learners are introduced to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. | Data and Information – Grouping Data (Y1) | 1. Label objects<br>2. Identify that objects can be counted<br>3. Describe objects in different ways<br>4. County objects with the same properties<br>5. Compare groups of objects<br>6. Answer questions about groups of objects | Data set<br>Group<br>Image<br>Label<br>Object<br>Property<br>Search<br>Value | See Intent |
| **Summer B** | EYFS<br>Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly<br>Safe behaviours in their day-to-day world and how this applies in the online world.<br>Y1 and Y2: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and | The Digiduck® collection has been created to help parents and teachers educate children aged 3 – 7 about online safety in stories of friendship, responsibility and critical thinking online. | Digiduck (Childnet): Friendship, responsibility and critical thinking online | 5. To recap online safety rules<br>6. To describe my online life and how I keep safe<br>7. To be a good friend on the internet<br>To understand that not all information on the internet is reliable | | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | keeping it secure; Y2: friendship, responsibility and keeping safe online. | | | | | |
| | Creating Media – Digital Painting (Y1)<br>Y2s:<br>Creating Media – Digital Photography (Y2)<br>Digital Music (Y2) | Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this. | Creating Media – Digital Writing (Y1) | 1. Use a computer to write<br>2. Add and remove text on a computer<br>3. Identify that the look of text can be changed on a computer<br>4. Make careful choices when changing text<br>5. Explain why I use the tools that I choose<br>6. Compare writing on a computer with writing on paper | Curser<br>Font<br>Keyboard<br>Keys<br>Letters<br>Select<br>Space<br>Text<br>Undo<br>Word processor | See Intent |
| | Programming A – Robot Algorithms (Y2)<br>Y2s:<br>Programming – Moving a Robot (Y1)<br>Programming Animations (Y1) | This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations'. Learners begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects. | Programming B – Programming Quizzes (Y2) | 1. Explain that a sequence of commands has a start<br>2. Explain that a sequence of commands has an outcome<br>3. Create a program using a given design<br>4. Change a given design<br>5. Create a program using my own design<br>6. Decide how my project can be improved | Action<br>Algorithm<br>Block; Change<br>Command<br>Compose<br>Debug; Design<br>Modify<br>Outcome<br>Predict<br>Program<br>Project; Run<br>Sequence<br>Sprite; Start | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

## Lower Key Stage 2

| Technology in the Real World | Programming | Purposeful Application | Online Safety |
|---|---|---|---|
| Use search technologies safely and effectively.<br>Use different font sizes, colours and images purposefully.<br>Open, send and save emails.<br>Know how to use digital tools responsibly to communicate. | Design and write programs, including decomposing, to achieve specific goals.<br>Use logical reasoning to explain simple algorithms. | Select and use technology to collect and present data and information.<br>Create and implement a range of programs to accomplish given goals.<br>Understand computer networks including the internet. | Recognise unacceptable behaviour online.<br>Know how to deal with and report inappropriate content and contact.<br>Continue to use technology safely and responsibly. |

## Year A

| | Prior Learning | Intent (children will learn) | Unit | Sequence of Lessons WALT (children will…) | Vocabulary | Outcome / Composite |
|---|---|---|---|---|---|---|
| **Autumn A** | EYFS<br>The children learn safe behaviours in their day-to-day world such as not talking to or meeting strangers and how this applies in the online world<br><br>KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 4 Chat It, Mind It and Secure It units (Year 4s) | **Chat It**: We use respectful words when we chat to people (online and offline).<br>**Mind It**: We are kind and honest online.<br>**Secure It:** We keep ourselves safe online by using privacy settings and common sense. | Natterhub - Year 3<br>Chat It<br><br>Y3 Mind It<br><br>Y3 Secure It | **Chat It**<br>WALT: Understand the risks associated with meeting and talking with people I don't know.<br>WALT: Explore and discuss the differences between online and face to face friendships.<br>WALT: Know what to do when we feel uncomfortable or upset but familiar or unfamiliar people.<br>WALT: Use respectful words when we chat to people (online and offline).<br><br>**Mind It**<br>WALT: Understand that information about people is stored online.<br>WALT: Understand the need to be careful with information shared online.<br>WALT: Understand that we can talk to trusted adults.<br>WALT: Understand that we can act with integrity and honesty.<br><br>**Secure It**<br>WALT: How to create strong passwords and keep them private.<br>WALT: How connected devices collect and share information.<br>WALT: Understand how to keep ourselves safe online but using privacy settings and common sense. | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Computing Systems and Networks<br>KS1<br>Technology Around Us<br>IT Around Us | Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. They will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network. | Computing Systems and Networks – Connecting Computers (Y3) | 1. Explain how digital devices function<br>2. Identify input and output devices<br>3. Recognise how digital devices can change the way we work<br>4. Explain how a computer network can be used to share information<br>5. Explore how digital devices can be connected<br>6. Recognise the physical components of a network | Connection<br>Digital device<br>Input<br>Network<br>Output<br>Process<br>Program<br>Server<br>Switch | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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|---|---|---|---|---|---|---|---|
| | Creating Media<br>KS1<br>Digital Painting; Digital Writing; Digital Photography; Digital Music<br>LKS2<br>Stop Frame Animation (Y4s)<br>Desktop Publishing (Y4s) | Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers. | | Creating Media – Audio Production (Y4) | 1. Identify that sound can be digitally recorded<br>2. Use a digital device to record sound<br>3. Explain that a digital recording is stored as a file<br>4. Explain that audio can be changed through editing<br>5. Show that different types of audio can be combined and played together<br>6. Evaluated editing choices made | Wireless Access Point (WAP)<br><br>Audio<br>Edit<br>Export<br>File<br>Input<br>Output<br>Playback<br>Podcast<br>Record<br>Selection<br>Sound | See Intent |
| **Spring A** | KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 4 Think It, Question It and Learn It units (Y4s) | **Think It**: We understand different identities online and how to protect ourselves.<br>**Question It**: We understand the differences between options, beliefs and facts and that not all information online is factual.<br>**Learn It**: We understand why we need to consider who owns online content and whether I have the right to use it. | Natterhub<br>Y3 Think it<br><br>Y3 Question It<br><br>Y3 Learn It | **Think It**<br>1. WALT - To identify and describe safe online sharing through the exploration of real-life and online identities.<br>2. WALT- To recognise online identities as only part of a whole person and explore the importance of positive relationships.<br>3. WALT -To identify strategies to help solve problems.<br><br>**Question It**<br>1. WALT -To understand what autocomplete is.<br>2. WALT - To understand that the internet can be used to buy and sell things.<br>3. WALT To explain the difference between a belief, an opinion and a fact.<br><br>**Learn It**<br>1. WALT -To understand that other people's work belongs to them.<br>2. WALT - We use technology to help us in different ways.<br>3. WALT -We use technology to share, research and communicate ideas and experiences. | | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Programming<br>KS1<br>Moving a Robot<br>Animations<br>Robot Algorithms<br>Programming Quizzes<br>LKS2<br>Repetition in Shapes (Y4s)<br>Repetition in Games (Y4s) | This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment. Learners 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 all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit. | | Programming A – Sequencing Sounds (Y3) | 1. Explore a new programming environment<br>2. Identify that each sprite is controlled by the commands I choose<br>3. Explain that a program has a start<br>4. Recognise that a sequence of commands can have an order<br>5. Change the appearance of my project<br>6. Create a project from a task description | Algorithm<br>Blocks<br>Bug; Code<br>Command<br>Debug; Design<br>Motion; Order<br>Programming<br>Sequence<br>Sprite; Task | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | Data and Information<br>KS1<br>Grouping Data<br>Pictograms<br>LKS2<br>Branching Databases<br>(Y4s) | In this unit, learners will consider how and why data is collected over time. Learners 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. Learners 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. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions. | Data and Information – Data Logging (Y4) | 1. Explain that data gathered over time can be used to answer questions<br>2. Use a digital device to collect data automatically<br>3. Explain that a data logger collects "data points" from sensors over time<br>4. Use data collected over a long duration to find information<br>5. Identify the data needed to answer questions<br>6. Use collected data to answer questions | Analyse<br>Data<br>Data logger<br>Data point<br>Data set<br>Input device<br>Interval<br>Log<br>Sensor<br>Table | See Intent |
| **Summer A** | KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 4 Balance It and Feel It units (Y4s) | **Balance It:** We take care of our minds and bodies to stay healthy.<br>**Feel It:** We are kind and thoughtful and learn from our mistakes. | Online Safety Natterhub<br>Y3 Balance It<br><br>Y3 Feel It | **Balance It**<br>Lesson 1- To consider how time spent on technology can affect other activities.<br>Lesson 2- To understand the importance of sleep for our physical and mental health.<br>Lesson 3 - To understand why limits are needed on screen time.<br><br>**Feel It**<br>Lesson 1- To identify some online technologies where bullying might take place.<br>Lesson 2 -To understand the behaviours that are considered online bullying.<br>Lesson 3 -To understand the effect an online post can have. | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Creating Media<br>KS1<br>Digital Painting; Digital Writing; Digital Photography; Digital Music<br>LKS2<br>Audio Production<br>Stop Frame Animation (Y4s)<br>Desktop Publishing (Y4s) | Learners 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. | Creating Media – Photo Editing (Y4) | 1. Explain that digital images can be changed.<br>2. Change the composition of an image.<br>3. Describe how images can be changed for different uses.<br>4. Make good choices when selecting different tools.<br>5. Recognise that not all images are real.<br>6. Evaluate how changes can improve an image. | Arrange<br>Composite<br>Composition<br>Crop<br>Digital<br>Edit<br>Element<br>Image<br>Layer | See Intent |
| | Programming<br>KS1<br>Moving a Robot; Animations<br>Robot Algorithms<br>Programming Quizzes<br>LKS2<br>Repetition in Shapes (Y4s)<br>Repetition in Games (Y4s) | This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They 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. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze-tracing program. | Programming B – Events and Actions in Progress (Y3) | 1. Explain how a sprite moves in an existing project<br>2. Create a program to move a sprite in four directions<br>3. Adapt a program to a new context<br>4. Develop my program by adding features<br>5. Identify and fix bugs in a program<br>6. Design and create a maze-based challenge | Action<br>Algorithm<br>Code<br>Debug<br>Error<br>Event<br>Logic<br>Motion<br>Setup | See Intent |
| **Year B** | | | | | | |

# Computing Knowledge, Skills, Sequencing and Progression

| | Prior Learning | Intent (children will learn) | | Unit | Sequence of Lessons WALT (children will…) | Vocabulary | Outcome / Composite |
|---|---|---|---|---|---|---|---|
| **Autumn B** | EYFS<br>The children learn safe behaviours in their day-to-day world such as not talking to or meeting strangers and how this applies in the online world<br><br>KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 3 Chat It, Mind It and Secure It units (Y4s) | **Chat It**: We use respectful words when we chat to people (online and offline).<br>**Mind It**: We are kind and honest online.<br>**Secure It:** We keep ourselves safe online by using privacy settings and common sense. | Online Safety Natterhub:<br>Y4 Chat it<br><br>Y4 Mind it<br><br>Y4 Secure it | **Chat It** To know how to communicate what I am doing online and explain why I have chosen to do so.<br>To know how to create a safe screen name.<br>To understand ways to communicate online.<br>To describe how others can find out information about me by looking online.<br>**Mind It**<br>To describe how others can find out information about me by looking online.<br>To explain ways that information about me online could have been copied, changed or shared.<br>To understand how online posts last forever.<br>**Secure It**<br>To explain the ways people can and should protect their personal information online.<br>To understand how personal information can be used by others.<br>To explain how internet use can be monitored. | | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Computing Systems and Networks<br>KS1<br>Technology Around Us<br>IT Around Us<br>LKS2<br>Connecting Computers (Y4s) | Learners 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. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. | | Computing Systems and Networks – The Internet (Y4) | 1. Describe how networks physically connect to other networks<br>2. Recognise how networked devices make up the internet<br>3. Outline how websites can be shared via the World Wide Web<br>4. Describe how content can be added and accessed on the WWW<br>5. Recognise how the content of the WWW is created by people<br>6. Evaluate the consequence of unreliable content | Browser<br>Content<br>Download File<br>Link<br>Network<br>Router<br>Server<br>Website<br>Wireless access point (WAP)<br>WWW | See Intent |
| | Creating Media<br>KS1<br>Digital Painting; Digital Writing; Digital Photography; Digital Music<br>LKS2<br>Audio Production (Y4s)<br>Photo Editing (Y4s) | Learners 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 learners adding other types of media to their animation, such as music and text. | | Creating Media – Stop Frame Animation (Y3) | 1. Explain that animation is a sequence of drawings or photographs<br>2. Relate animated movement with a sequence of images<br>3. Plan an animation<br>4. Identify the need to work consistently and carefully<br>5. Review and improve an animation<br>6. Evaluate the impact of adding other media to an animation | Animation<br>Flip book<br>Frame<br>Image<br>Onion skinning<br>Photograph<br>Sequence<br>Stop frame | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| **Spring B** | KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 3 Think It, Question It and Learn It units (Y4s) | **Think It**: We understand different identities online and how to protect ourselves.<br>**Question It**: We understand the differences between options, beliefs and facts and that not all information online is factual.<br>**Learn It**: We understand why we need to consider who owns online content and whether I have the right to use it. | Natterhub:<br>Y4 Think it<br><br>Y4 Question It<br><br>Y4 Learn It | **Y4 Think it**<br>1.To understand how online and offline identities are different<br>2.To understand ways to protect my personal information online.<br>3.To know who to turn to in certain situations.<br><br>**Y4 Question it**<br>**1.**To understand the differences between opinions, beliefs and facts.<br>2.To understand that not all information online is factual.<br>3.To understand how online advertisements try to sell products and services.<br><br>**Y4 Learn it**<br>1.We use technology to help us in different ways.<br>2.To explain why I need to consider who owns online content and whether I have the right to use.<br>3.To understand how some online content is made to be shared. | | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Programming<br>KS1<br>Moving a Robot<br>Animations<br>Robot Algorithms<br>Programming Quizzes<br>LKS2<br>Sequencing Sounds (Y4s)<br>Events and Actions in Progress (Y4s)<br><br>Data and Information<br>KS1<br>Grouping Data<br>Pictograms<br>LKS2<br>Data Logging (Y4s) | This unit 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>Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a | | Programming A – Repetition in Shapes (Y4)<br><br>Data and Information – Branching Databases (Y3) | 1. Identify that accuracy in programming is important<br>2. Create a program in a text-based image<br>3. Explain what “repeat” means<br>4. Modify a count-controlled loop to produce a given outcome<br>5. Decompose a program into parts<br>6. Create a program that uses count-controlled loops to produce a given outcome<br><br>1. Create questions with yes / no answers<br>2. Identify the object attributes needed to collect reward data<br>3. Create a branching database<br>4. Identify objects using a branching database<br>5. Explain why it is helpful for a database to be well structured | Algorithm Code Command Count-controlled loop Debug Decompose Design; Pattern Procedure Program Repeat Repetition Value<br><br>Attribute Branching database Compare Equal Pictogram Question | See Intent<br><br>See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | | branching database, which they will test by using it. They will also consider real-world applications for branching databases. | | | 6. Compare the information shown in a pictogram with a branching database | Table<br>Value | |
| **Summer B** | KS1: being a safe and responsible digital citizen; seeking support from trusted adults; personal information and keeping it secure; Y2: friendship, responsibility and keeping safe online.<br><br>Year 3 Balance It and Feel It units (Y4s) | **Balance It:** We take care of our minds and bodies to stay healthy.<br>**Feel It:** We are kind and thoughtful and learn from our mistakes. | Online Safety Natterhub<br>Y4 Balance it<br><br>Y4 Feel it | **Balance It**<br>To consider how time spent on technology can affect other activities.<br>To understand the importance of sleep for our physical and mental health.<br>To understand why limits are needed on screen time.<br>**Feel It**<br>To identify some online technologies where bullying might take place.<br>To understand the behaviours that are considered online bullying.<br>To understand the effect an online post can have. | | | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Creating Media<br>KS1<br>Digital Painting; Digital Writing; Digital Photography; Digital Music<br>LKS2<br>Stop Frame Animation<br>Audio Production (Y4s)<br>Photo Editing (Y4s) | Learners 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. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world. | | Creating Media – Desktop Publishing (Y3) | 1. Recognise how text and images convey information<br>2. Recognise that text and layout can be edited<br>3. Choose appropriate page settings<br>4. Add content to a desktop publishing production<br>5. Consider how different layouts can suit different purposes<br>6. Consider the benefits of desktop publishing | Communicate<br>Image<br>Landscape<br>Layout<br>Orientation<br>Placeholder<br>Portrait<br>Template<br>Text | See Intent |
| | Programming<br>KS1<br>Moving a Robot<br>Animations<br>Robot Algorithms<br>Programming Quizzes<br>LKS2<br>Repetition in Shapes<br>Sequencing Sounds (Y4s)<br>Events and Actions in Progress (Y4s) | 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 learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout. | | Programming B – Repetition in Games (Y4) | 1. Develop the use of count-controlled loops in a different programming environment<br>2. Explain that in programming there are infinite loops and count controlled loops<br>3. Develop a design which includes two or more loops which run at the same time<br>4. Modify an infinite loop in a given program<br>5. Design a project that includes repetition<br>6. Create a project that includes repetition | Algorithm<br>Block; Code<br>Count-controlled loop<br>Infinite loop<br>Loop; Modify<br>Program; Refine<br>Repeat; Sprite<br>Value | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

## Upper Key Stage 2

| **Technology in the Real World** | **Programming** | **Purposeful Application** | **Online Safety** |
|---|---|---|---|
| Use search technologies effectively to collect, analyse and evaluate digital content.<br>Use digital devices to combine different software and present data and information. | Design, write and debug programs to solve problems, control simulations and physical systems.<br>Use sequences, repetition, variables, inputs and outputs.<br>Detect and correct errors in algorithms and programs. | Select, use and combine software to collect, analyse, evaluate and present data appropriately.<br>Design a range of programs.<br>Understand computer networks for collaboration and communication. | Use technology safely, respectfully responsibly, recognising appropriate behaviour and knowing how to report concerns. |

## Year A

| | **Prior Learning** | **Intent (children will learn)** | **Unit** | **Sequence of Lessons WALT (children will…)** | **Vocabulary** | **Outcome / Composite** |
|---|---|---|---|---|---|---|
| **Autumn A** | Previous Chat It, Think It and Balance It units | **Chat It** – We use respectful words when we chat to people (online and offline)<br>**Think It** – we think carefully about what we do online<br>**Balance It** – We take care of our minds and bodies to stay healthy | Natterhub<br>Y5 Chat it<br><br><br><br><br>Y5 Think it<br><br><br><br><br><br>Y5 Balance it | <u>Chat it</u><br>1. Recognising negative behaviour.<br>2. Contributing to online groups<br>3. Feeling left out.<br>4. Badge round-up<br><br><u>Think it</u><br>1) What information should we share?<br>2) Fake profiles<br>3) Are fake profiles OK?<br>4) Badge round-up?<br><br><u>Balance it</u><br>1) Online Temptations and Pressures<br>2) You decide<br>3) Screen Time and Self-Regulation<br>Badge round-up. | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |

# Computing Knowledge, Skills, Sequencing and Progression

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|---|---|---|---|---|---|---|
| | Computing Systems and Networks<br>**KS1**: Technology Around Us; IT Around Us<br>**LKS2**: Connecting Computers; The Internet<br>**UKS2**: Communication and Collaboration (Y6) | Learners will develop their understanding of computer systems and how information is transferred between systems and devices. Learners 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. Learners will also take part in a collaborative online project with other class members and develop their skills in working together online. | Computing Systems and Networks – Systems and Searching (Y5) | 1. Explain that computers can be connected together to firm networks<br>2. Recognise the role of computer systems in our lives<br>3. Recognise how information is transferred over the internet<br>4. Explain how sharing information online lets people in different places work together<br>5. Contribute to a shared project online<br>6. Evaluate different ways of working together online | Address<br>Collaborate<br>Connection<br>Digital<br>Explore<br>Input<br>Output<br>Process<br>Protocol<br>System | See Intent |
| | Creating Media<br>**KS1**: Digital Painting; Digital Writing; Digita Photography; Digital Music<br>**LKS2**: Stop Frame Animation; Desktop Publishing; Audio Production; Photo Editing<br>**UKS2**: Video Production (Y6s); Introduction to Vector Graphics (Y6s) | This unit introduces learners to the creation of websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths. | Creating Media – Web page Creation (Y6) | 1. Review an existing website and consider its structure<br>2. Plan the features of a webpage<br>3. Consider the ownership and use of images (copyright)<br>4. Recognise the need to preview pages<br>5. Outline the need for a navigation path<br>6. Recognise the implications of linking to content owned by other people | Copyright<br>Embed<br>Home page<br>HTML<br>Hyper link<br>Layout<br>Media<br>Navigate<br>Webpage<br>Website | See Intent |
| **Spring A** | Previous Mind It, Question It and Feel It units | **Mind It:** We are kind and honest online.<br>**Question It:** We ask questions and are open-minded.<br>**Feel It:** We use our empathy and resilience to learn from our mistakes. | Online Safety Natterhub<br>Y5 Mind it<br>Y5 Question it<br>Y5 Feel it | <u>Mind It</u><br>Lesson 1 - Project Part One: Search for Information<br>Lesson 2 - Project Part Two: Facts or Fiction<br>Lesson 3 - Project Part Three: Assess the Fake Information<br><br><u>Question it!</u><br>Lesson 1 - Searching Skills<br>Lesson 2 - Misinformation and Disinformation<br>Lesson 3 - Information Investigators<br><br><u>Feel it!</u><br>Lesson 1 - Banter or Bullying<br>Lesson 2 - Looking Out for Each Other Online<br>Lesson 3 - Beat the Bullies | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |

# Computing Knowledge, Skills, Sequencing and Progression

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| | Programming<br>**KS1**: Moving a Robot Animations; Robot Algorithms; Programming Quizzes<br>**LKS2**: Sequencing Sounds; Events and Actions in Progress; Repetition in Shapes; Repetition in Games<br>**UKS2**: Variables in Games (Y6s); Sensing Movement (Y6s) | Learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners 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. Learners 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). | | Programming A – Selection in Physical Computing (Y5) | 1. Control a simple circuit connected to a computer<br>2. Write a program that includes count-controlled loops<br>3. Explain that a loop can stop when a condition is met (eg number of times)<br>4. Conclude that a loop can be used to repeatedly check whether a condition has been met<br>5. Design a physical project that includes selection<br>6. Create a controllable system that includes selection | Action<br>Component<br>Condition<br>Count controlled loop<br>Crumble controller<br>Infinite loop<br>LED<br>Micro controller<br>Program<br>Repetition | See Intent |
| | Data and Information<br>**KS1**: Grouping Data; Pictograms<br>**LKS2**: Branching Databases; Data Logging<br>**UKS2**: Flat File Databases (Y6s) | Learners are introduced to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked. | | Data and Information – Introduction to Spreadsheets (Y6) | 1. Identify questions which can be answered using data<br>2. Explain that objects can be described using data<br>3. Explain that formula can be used to produce calculated data<br>4. Apply formulas to data, including duplicating<br>5. Create a spreadsheet to plan an event<br>6. Choose suitable ways to present data | Calculation<br>Cell<br>Common attribute<br>Data<br>Data item<br>Data set<br>Format<br>Formula<br>Graph; Input<br>Operation<br>Output<br>Spreadsheet | See Intent |
| **Summer A** | Previous Secure It and Learn It units | **Secure It:** We are wise users of the world wide web who know how to stay secure online.<br>**Learn It:** We use technology to help us in different ways. | Online Safety Natterhub<br>Y5 Secure It<br>Y5 Learn It | **Year 5 Secure it**<br>Lesson 1- To understand how to create a strong password and keep it safe.<br>Lesson 2 -To explain how apps or services may collect and share my private information.<br>Lesson 3 -To explain how and why some apps may request payment for additional content.<br><br>**Year 5 Learn it**<br>Lesson 1- To understand the internet is a valuable tool for learning new skills.<br>Lesson 2 -To understand how others will use content, products and services for.<br>Lesson 3 -To demonstrate how a concept or skill can be taught online | | See unit | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Creating Media<br>**KS1**: Digital Painting; Digital Writing; Digital Photography; Digital Music | Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk | | Creating Media – 3D Modelling (Y6) | 1. Use a computer to create and manipulate 3D digital objects<br>2. Compare working digitally with 2D and 3D graphics | 2D; 3D<br>3D space<br>Dimensions<br>Duplicate<br>Group | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| | **LKS2**: Stop Frame Animation; Desktop Publishing; Audio Production; Photo Editing<br>**UKS2**: Web Page Creation; Video Production (Y6s); Introduction to Vector Graphics (Y6s)<br><br>Programming<br>**KS1**: Moving a Robot Animations; Robot Algorithms; Programming Quizzes<br>**LKS2**: Sequencing Sounds; Events and Actions in Progress; Repetition in Shapes; Repetition in Games<br>**UKS2**: Selection in Physical Computing; Variables in Games (Y6s); Sensing Movement (Y6s) | tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.<br><br>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. | Programming A – Selection in Quizzes (Y5) | 3. Construct a digital 3D model of a physical object<br>4. Identify that physical objects can be broken down into a collection of 3D shapes<br>5. Design a digital model by combining 3D shapes<br>6. Develop and improve a digital 3D model<br><br>1. Explain how selection is used in computer programs<br>2. Relate that a conditional statement connects a condition to an outcome<br>3. Explain how selection directs the flow of a program<br>4. Design a program which uses selection<br>5. Create a program which uses selection<br>6. Evaluate my program | Modify<br>Placeholder<br>Resize<br>Ungroup<br>View<br><br>Algorithm<br>Condition<br>Conditional statement<br>Debug<br>Outcome<br>Selection<br>Task | See Intent |

## Year B

| | Prior Learning | Intent (children will learn) | Unit | Sequence of Lessons WALT (children will…) | Vocabulary | Outcome / Composite |
|---|---|---|---|---|---|---|
| **Autumn B** | Previous Natterhub Units | **Chat It** – We use respectful words when we chat to people (online and offline)<br>**Think It** – we think carefully about what we do online<br>**Balance It** – We take care of our minds and bodies to stay healthy | Online Safety<br>Natterhub<br>Y6 Chat it<br>Y6 Think it<br>Y6 Balance it | **Chat It**<br>To reflect on my own screen time and understand how to make a change.<br>To understand the importance of respectful communication.<br>To recognise the problems that can come with sharing information online.<br>To know how to report problems and support others when I am working online.<br>**Think It**<br>To understand inequality, prejudice and discrimination online.<br>To understand what positive and negative online interactions look like and how we can respond to them<br>To identify places to get help when faces with a difficult situation<br>**Balance It**<br>To identify and resist online temptations and pressures<br>To identify decision that come with responsible internet use | | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |

# Computing Knowledge, Skills, Sequencing and Progression

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| | Computing Systems and Networks<br>**KS1**: Technology Around Us; IT Around Us<br>**LKS2**: Connecting Computers; The Internet<br>**UKS2**: Systems and Searching (Y6) | Learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet. | Computing Systems and Networks – Communication and Collaboration (Y6) | 1. Identify how to use a search engine<br>2. Describe how search engines select results<br>3. Explain how search engines are ranked<br>4. Recognise why the order of results in important, and to whom<br>5. Recognise how we communicate using technology<br>6. Evaluate different methods of online communication | Bot<br>Crawler<br>Index<br>Link<br>Ranking<br>Search<br>Search engine | See intent |
| | Creating Media<br>**KS1**: Digital Painting; Digital Writing; Digital Photography; Digital Music<br>**LKS2**: Stop Frame Animation; Desktop Publishing; Audio Production; Photo Editing<br>**UKS2**: Web Page Creation (Y6s); 3D modelling (Y6s) | Learners are given the opportunity to learn how to create short videos in groups. 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. Learners are guided with step-by-step support to take their idea from conception to completion. At the teacher's discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video. | Creating Media – Video Production (Y5) | 1. Recognise video as moving pictures which can include audio<br>2. Identify digital devices that can record video<br>3. Capture video using a digital device<br>4. Recognise the features of an effective video<br>5. Identify that video can be improved through reshooting and editing<br>6. Consider the impact of the choices made when making and sharing a video | Audio<br>Capture<br>Content<br>Credits<br>Export<br>Recording<br>Soundtrack<br>Special effects<br>Title<br>Video<br>Videographer | See intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| **Spring B** | Previous Natterhub Units | **Mind It:** We are kind and honest online.<br>**Question It:** We ask questions and are open-minded.<br>**Feel It:** We use our empathy and resilience to learn from our mistakes. | Online Safety Natterhub<br>Y6 Mind it<br>Y6 Question it<br>Y6 Feel it | **Mind It**<br>-To understand how to create a positive online reputation.<br>-To understand how an information trail is created and how that contributes to my digital footprint<br>-To understand how our digital actions now can impact on our future.<br>**Question It**<br>-To explore how search engines work and how results are selected and ranked.<br>-To consider the difference between facts and opinions in digital content.<br>-To learn how to be a discerning consumer of digital content.<br>**Feel It**<br>-To understand how to react to concerns online and what help is available if we have a concern.<br>-To know how to gather evidence of online bullying and what to do with the evidence.<br>-To understand that we can all make a positive difference when it comes to stamping out bullying. | | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Programming<br>**KS1**: Moving a Robot Animations; Robot Algorithms; Programming Quizzes<br>**LKS2**: Sequencing Sounds; Events and Actions in Progress; Repetition in Shapes; Repetition in Games<br>**UKS2**: Selection in Physical Computing (Y6s); Selection in Quizzes (Y6s) | This unit explores the concept of variables in programming through games in Scratch. Learners find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard. Following the Use-Modify-Create model, learners experiment with variables in an existing project, then modify them, before they create their own project. Learners focus on design and apply their knowledge of variables and design to improve their games in Scratch. | Programming A – Variables in Games (Y6) | 1. Define a "variable" as something that is changeable<br>2. Explain why a variable is used in a program<br>3. Choose how to improve a game by using variables<br>4. Design a project that builds on a given example<br>5. Use my design to create a project<br>6. Evaluate my project | Algorithm<br>Change<br>Code<br>Event<br>Program<br>Set<br>Value<br>Variable | See Intent |
| | Data and Information<br>**KS1**: Grouping Data; Pictograms<br>**LKS2**: Branching Databases; Data Logging<br>**UKS2**: Introduction to Spreadsheets (Y6s) | 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. | Data and Information – Flat-File Databases (Y5) | 1. Use a form to record information<br>2. Compare paper and computer-based databases<br>3. Outline how grouping and then sorting data allows us to answer questions<br>4. Explain that tools can be used to select specific data<br>5. Explain that computer programs can be used to compare data virtually<br>6. Apply my knowledge of a database to set out and answer one work questions | Compare<br>Data<br>Database<br>Field; Filter<br>Group<br>Information<br>Order; Record<br>Search<br>Sort | See Intent |

# Computing Knowledge, Skills, Sequencing and Progression

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| **Summer B** | Prior Natterhub Units | **Secure It:** We are wise users of the world wide web who know how to stay secure online.<br>**Learn It:** We use technology to help us in different ways. | Online Safety Natterhub<br>Yr 6 Secure it<br>Yr 6 Learn it | **Secure it**<br>To understand how to use, manage and remember passwords.<br>To describe and identify some types of cybercrime.<br>**Learn It**<br>To understand how the internet can be used as a tool for opening our minds.<br>To understand the positive differences technology makes throughout the world. | | Children complete a range of activities, discussions and quizzes which result in a badge for each unit. |
| | Creating Media<br>**KS1**: Digital Painting; Digital Writing; Digital Photography; Digital Music<br>**LKS2**: Stop Frame Animation; Desktop Publishing; Audio Production; Photo Editing<br>**UKS2**: Video Production; Web Page Creation (Y6s); 3D modelling (Y6s) | Learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work. | Creating Media – Introduction to Vector Graphics (Y5) | 1. Identify that drawing tools can be used to produce different outcomes<br>2. Create a vector drawing by combining shapes<br>3. Use tools to achieve a desired effect<br>4. Recognise that vector drawings consist of layers<br>5. Group objects to make them easier to work with<br>6. Evaluate my vector drawing | Alignment grid<br>Alternatives<br>Consistency<br>Drawing tools<br>Group<br>Layers<br>Modify<br>Select<br>Ungroup<br>Vector | See Intent |
| | Programming<br>**KS1**: Moving a Robot Animations; Robot Algorithms; Programming Quizzes<br>**LKS2**: Sequencing Sounds; Events and Actions in Progress; Repetition in Shapes; Repetition in Games<br>**UKS2**: Variables in Games; Selection in Physical Computing (Y6s); Selection in Quizzes (Y6s) | This unit is the final KS2 programming unit and brings together elements of all the four programming constructs from previous years: sequence, selection and variables. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects with each lesson adding more depth. | Programming B – Sensing Movement (Y6) | 1. Create a program to run on a controllable device<br>2. Explain that selection can control the flow of a program<br>3. Update a variable with a user input<br>4. Use a conditional statement to compare a variable to a value<br>5. Design a project that uses inputs and outputs on a controllable device<br>6. Develop a program to use inputs and outputs on a controllable device | Accelerometer<br>Algorithm<br>Maker-Code<br>Micro-bit<br>Navigation<br>Process<br>USB<br>Variable | See Intent |