

COMPUTER SCIENCE: Unit 6.1 Coding				
Lesson	Objectives	Working towards	Meeting expectations	Exceeding expectations
L1 & 2 Designing and Making a more Complex Program	To design a playable game with a timer and a score.	☐ Children are beginning to be able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way with support (Unit 6.1 Lessons 1 and 2).	☐ Children are beginning to be able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.	☐ Children can turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.
	To plan and use selection and variables. To understand how the launch command works	☐ They can then use this design to write a program using 2Code.	☐ They can then use this design to write a program using 2Code (Unit 6.1 Lessons 1 and 2).	☐ They can then use this design to write a program using 2Code (Unit 6.1 Lessons 1 and 2).
L3 Using Functions	To use functions and understand why they are useful. To understand how functions are created and called.	☐ Children understand sequence, selection and repetition in programs and can use them in their simplest forms.	☐ Children can translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures including nesting structures within each other (Unit 6.1 Lessons 1-6).	☐ Children's designs show that they are thinking both of the required task, and of how to accomplish this in code.
L4 Flowcharts and Control Simulations	To use flowcharts to test and debug a program. • To create a simulation of a room in which devices can be controlled.	☐ They will require support when combining these aspects e.g. using selection within a repeat in a game (Unit 6.1 Lessons 1, 2 and 6). ☐ With support, children can plan, design and create a simple program that includes a single variable relating to timing.	☐ Children can plan, design and create a program that includes variables relating to timing and scoring along with buttons which launch other programs (Unit 6.1 Lessons 1 and 2).	☐ Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs then test systematically to identify the specific line of code that is causing the problem.
L5 User Input	To understand the different options of generating user input in 2Code. • To understand how user input can be used in a program.	☐ They can also include a button which will launch another program (Unit 6.1 Lessons 1 and 2).	☐ Furthermore, children will consider how to organise their code using multiple tabs (Unit 6.1 Lessons 1, 2, 3 and 5).	☐ Children intuitively grasp the concepts of selection, repetition and variables and make use of the various commands to use input from users and produce output including sound and movement.

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L6 Using Text-based Adventures	To understand how 2Code can be used to make a text-based adventure game.	☐ They will usually require support to make use of variables and manipulate variables in their code and in understanding the way that functions are beneficial (Unit 6.1 Lessons 1-4). As their coding becomes more complex, they will require support to tackle debugging in a logical rather than a trial-and-error method. ☐ Children can make good attempts to 'read' code and predict what will happen in a program (Unit 6.1 Lessons 4-6). ☐ They can usually interpret a program in parts but will need support to put the separate parts of a complex algorithm or program together to explain the program as a whole (Unit 6.1 Lesson 6).	☐ They use functions within their code to eradicate unnecessary code and make their programming more efficient (Unit 6.1 Lesson 3). ☐ Their coding displays an understanding of the function of variables in coding (Unit 6.1 Lessons 1 and 2 and Lesson 6), outputs such as sound and movement (Unit 6.1 Lessons 1 and 2), inputs from the user of the program such as button clicks (Unit 6.1 Lessons 3, 4 & 5) and the value of Functions (Unit 6.1 Lesson 3). ☐ Children can make good attempts to 'read' code and predict what will happen in a program (Unit 6.1 Lessons 4 and 6). ☐ They can usually interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm or program together to explain the program as a whole (Unit 6.1 Lesson 6). ☐ Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem as the complexity of the programs increases. ☐ They try to improve and debug their own programs (Unit 6.1 All Lessons). Within their programs, they can use features such as interactivity with the end users with the desired effect of adding greater impact. (Unit 6.1. Lesson 5 and 6). ☐ Most children demonstrate a secure understanding of the impact of changing the position of instructions within 2Code. ☐ With this knowledge, they can demonstrate use of the tabs feature to carefully section code for the intention of easier debugging and less code error, as their coding becomes more complex.	☐ Children like to challenge themselves to combine these with other coding structures to achieve the effects that they design to personalise and to improve their programs (Unit 6.1 Lessons 4-6). ☐ They are also thinking about good structure to their code with a view to debugging such as the use of tabs and functions to organise code and the naming of variables.
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DIGITAL LITERACY: 6.2 Online Safety				
Lessons	Objectives	Working towards	Meeting expectations	Exceeding expectations
L1 Message in a Game	To identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. To identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. To identify the benefits and risks of giving personal information and device access to different software.	- Children can refer to the SMART rules to guide them online. They can navigate networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet (using as a source for research or leisure time). - They use these networks to collaborate with support using Purple Mash tools such as 2Write and 2Connect. - They can use search tools and have an awareness of the need to select sources carefully. - They can recognise features online that are risks and those that exist to protect them (lesson 1). - Children are aware that their actions online have an impact not only on themselves but on others as well. - They know to ask for help if they are worried or distressed by something online.	- Children have a good knowledge of the benefits and risks to working collaboratively. They have no trouble navigating networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet (using as a source for research or leisure time). - They use these networks to collaborate using Purple Mash tools such as 2Write, 2Connect and 2Blog and can use a variety of networked devices such as webcams, online tools, printers, and tablets in a connected way for their educational benefit. - Children can use search tools and routinely try to verify the validity and reliability of their sources. They look for corroborating sources for information and enter keywords that help them to choose the best results. - Children demonstrate an understanding of their responsibility to others as well as to themselves when communicating and sharing content online. - They can identify a variety of risks and benefits of technology (lessons 1 and 3). - They feel confident in having strategies to help them promote a positive online image of themselves in their digital footprint. - Children can identify location sharing as a risk to online safety in lesson 1 and could relate this to work done on protecting their identifying private information. - Children were able to identify the padlock and https as aids to the online safety in lesson 1 and could explain what these means referring to the work that they did on this in previous years' online safety units.	- Children view their own/school devices as a means to access a wealth and mixture of networked and local resources. - They use these in an integrated way; for example, they can take information and images from one source, compare them to others, include them in their written work alongside their own original images and text to enhance their own understanding and produce high quality comprehensive work. - They are implicitly aware of the benefits and risks to working collaboratively. They navigate networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet and use these networks to collaborate using Purple Mash tools such as 2Write, 2Connect and 2Blog. - Children can use search tools effectively, routinely verifying the validity and reliability of their sources. They look for corroborating sources for information and enter keywords that help them to choose the most suitable results.
L2 Online Behaviour	To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. To begin to understand how information online can persist and give away details of those who share or modify it.			

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L3 Screen Time	To understand the importance of balancing game and screen time with other parts of their lives, e.g., explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health. To identify the positive and negative influences of technology on health and the environment		☐ Children' work in lesson 1, indicates that they have a clear understanding of terms such as Computer virus, Location sharing, phishing scams, spam email, Malware and Identity theft. ☐ In lesson 2, they make sensible contributions to the question of what risks there are when installing an App and the possible risks hidden in the small print. ☐ Children's work as digital footprint detectives in lesson 2 demonstrates that they understand the impact of a positive and negative digital footprint and how to take control of their own online virtual image. ☐ Most children can balance the positive impact of technology with the reasons for limiting screen time that include the effect on physical and mental health. In lesson 3, they were able to reflect on their own screen time and collective class screen time and begin to make informed decisions about when to limit their own screen time ☐ Having studied this aspect in depth in year 5 (lesson 3), children routinely include citations in their research work across subjects. They also take care to credit the artist when using images from the Internet. In lesson 2, as part of the discussion surrounding digital footprints, children explored the existence of metadata to track the source of images. ☐ Having studied this aspect in depth in year 5 (lesson 2, step 11+ and lesson 3, step 6+), children take care to credit the artist when using images from the Internet and know how to explore the rights and permissions associated with an image online. ☐ They can explain the difference between copyright and privacy and are mindful of both aspects when working with images. ☐ Most children can make informed choices when communicating online for example selecting the appropriate form of communication for its purpose and audience. ☐ They can discuss the use of instant messaging in social contexts, aware of the pros and cons of using such tools	☐ They are aware that search engines are also often money-making ventures for their providers and that this has personal privacy implications. ☐ They know where to look to investigate their privacy settings on search engines. ☐ Children have an internalised in-depth understanding of the risks and benefits of an online presence (lessons 1 and 3). Their actions demonstrate that they also feel a responsibility to others when communicating and sharing content online. ☐ They feel confident in having strategies to help them promote a positive online image of themselves and deal with issues that might arise in the future.
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INFORMATION TECHNOLOGY: Unit 6.3 Spreadsheets

Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Exploring Probability	To use a spreadsheet to investigate the probability of the results of throwing many dice.	☐ With support throughout, children can create a simple spreadsheet and collect a limited set of data using 2Calculate that answers a mathematical problem relating to probability (Unit 6.3 Lesson 1).	☐ Children can create a spreadsheet and collect data using 2Calculate that answers a mathematical problem relating to probability (Unit 6.3 Lesson 1).	☐ Children demonstrating greater depth can create a spreadsheet using 2Calculate that demonstrates a systematic and logical approach.
L2 Creating a Computational Model	To use a spreadsheet to calculate the discount and final prices in a sale. Create a formula to help work out the prices of items in the sale.	☐ Children can use a spreadsheet to model a real-life situation (Unit 6.3 Lesson 3).	☐ Children can use a spreadsheet to model a real-life situation (Unit 6.3 Lesson 3).	☐ They can then use this to successfully collate, select and manipulate this data, allowing them to answer a mathematical problem relating to probability (Unit 6.3 Lesson 1).
L3 Use a Spreadsheet to Plan Pocket Money Spending	To use a spreadsheet to plan how to spend pocket money and the effect of saving money.	☐ Most children will be able to create spreadsheets which contain visual elements such as suitable graphs which represent their data (Unit 6.3. Lesson 1).	☐ They will select an appropriate graphical representation of their data from the available choice.	☐ Children understand the importance of data in real-life situations and can use spreadsheets to successfully model this (Unit 6.3 Lesson 3).
L4 & 5 Planning a School Event	To use a spreadsheet to plan a school charity day to maximise the money donated to charity.	☐ Children can represent data in a given format (Unit 6.3 Lesson 1) and turn this data into a graph (Unit 6.3 Lesson 1).	☐ They can create a computational model which successfully solves a given problem (Unit 6.3. Lesson 2). Their use of tools and features to maximise spreadsheet content is secure such as: 'How many', 'function', 'format' and 'image toolbar' (Unit 6.3).	☐ Furthermore, they choose the most appropriate way to convert and represent their data and can give their reasons behind this choice (Unit 6.3 Lesson 1).
			☐ They interrogate and refine data with increasing efficiency. For example, children create a spreadsheet to answer a mathematical question, creating a computational model or to support with planning a school event.	
			☐ They utilise advanced features such as the 'formula wizard' for efficiency and know the best layouts to use to support easier interrogations of data (Unit 6.3).	

INFORMATION TECHNOLOGY: Unit 6.4 Blogging

Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 What is a Blog?	To identify the purpose of writing a blog. To identify the features of successful blog writing.	☐ Children can identify some of the key features of a blog and share these using 2Write (Unit 6.4 Lesson 1). With limited support, they can create a suitable blog for a purpose and can post comments on an existing class blog (Unit 6.4 Lessons 3 & 4).	☐ Children can identify the key features of a blog and share these using 2Write (Unit 6.4 Lesson 1). They can create a blog for a specific purpose and can post comments on an existing class blog (Unit 6.4 Lesson 2 & 3). ☐ Children recognise the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lesson 4).	☐ Children can critique good examples of blogs share these using 2Write (Unit 6.4 Lesson 1). They can create a range of blogs for a specific purpose and audience and can comment on an existing class blog (Unit 6.4 all lessons).
L2 Planning a Blog	To plan the theme and content for a blog.	☐ Children are aware there is an approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lessons 3 & 4).	☐ Children understand the features of a blog and the differences between a blog page and a blog post (Unit 6.4 Lesson 1).	☐ Children understand why there is an approval process for any posts and understand the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lesson 4).
L3 Writing a Blog	To understand how to write a blog and a blog post. To consider the effect upon the audience of changing the visual properties of the blog. To understand how to contribute to an existing blog.	☐ Children understand the importance of being respectful on the Internet. ☐ Children understand the basic features of a blog and some of the differences between a blog page and a blog post (Unit 6.4 Lesson 1). Children work collaboratively (Unit 6.4 Lesson 2) and individually (Unit 6.4 Lesson 3) to plan, design and create a simple blog. ☐ Children become contributors to a blog, their responses to blog posts may be basic (Unit 6.4 Lesson 4).	☐ Children work collaboratively (Unit 6.4 Lesson 2) and individually (Unit 6.4 Lesson 3) to plan, design and create a blog. ☐ Children become active contributors to a blog, carefully considering their responses to blog posts (Unit 6.4 Lesson 4).	☐ Children demonstrating greater depth, understand that 2Blog is an introduction to the world of blogging and is a way for the user to become a content creator on the internet. As such the content included in their blog carefully considers the end user (throughout unit).
L4 Sharing Posts and Commenting	To understand the importance of commenting on blogs. To peer-assess blogs against the agreed success criteria. To understand how and why blog posts and comments are approved by the teacher.	☐ Most children will be able to create a blog with multimedia content and format it appropriately using 2Blog (Unit 6.4. Lessons 2 & 3). ☐ They can post comments and blog posts to existing blogs with a complete awareness of how information is presented has an impact on the audience (Unit 6.4).	☐ Children become active contributors to a blog, carefully considering their responses to blog posts to ensure that they are always respectful (Unit 6.4 Lesson 4). ☐ Children understand the implications of inappropriate use of the blog. In lesson 1, children create a collaborative file with tips for good blog posts, this should include notes about citing sources. ☐ Children should then follow this advice when creating their blogs.	☐ Children demonstrating greater depth, understand that 2Blog is an introduction to the world of blogging and is a way for the user to become a content creator on the internet. As such they understand the implications of inappropriate use of the blog and how this relates to the real world.

COMPUTER SCIENCE: Unit 6.5 Text Adventures				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 What Is a Text Adventure? Planning a Story Adventure	To find out what a text-based adventure game is and to explore an example made in 2Create a Story. To use 2Connect to plan a 'Choose your own Adventure' type story	- Children can turn a simple story with at least one decision into a logical design using 2Connect (Unit 6.5 Lesson 1). - They might need support when completing the decision tree. - Children can create individual pages in 2Create a Story (Unit 6.5 Lesson 2) but will need support to link these parts in a logical way. - In (Unit 6.5 Lesson 3), they can design a simple map with a sequence of rooms and one item to collect. In (Unit 6.5 Lesson 4), they will need support to turn their designs into code but can succeed in representing the player navigating to different rooms.	- Children can turn a simple story with 2 or 3 levels of decision making into a logical design using 2Connect (Unit 6.5 Lesson 1). - Having seen an example, they can use this to make the story their own. - Children can create the pages for the component parts of the design in 2Create a Story (Unit 6.5 Lesson 2) and make good attempts to link these parts in a logical way. - They might need support when debugging the linked pages if things do not proceed as expected. In (Unit 6.5 Lesson 3), they can make a design map with a sequence of rooms including rooms in which the player needs to make a choice to complete the game and collect items. In (Unit 6.5 Lesson 4), they can use the example code to turn their own designs into code.	- Children can turn a simple story with 3 or more levels of decision making into a logical design using 2Connect (Unit 6.5 Lesson 1). - They can ensure that the design is complete and logical. Children can use 2Create a Story to make the component parts of the design (Unit 6.5 Lesson 2) and link these parts in a logical way. - They can then debug in a logical way using their design document if things do not proceed as expected. In (Unit 6.5 Lesson 3), they can make a comprehensive design map with a sequence of rooms including rooms in which the player needs to make a choice and collect items in a certain order to complete the game.
L2 Making a Story-based Adventure Game	To use 2Connect plans for a story adventure to make the adventure using 2Create a Story.	They can debug a simple program with support. In (Unit 6.5 Lesson 4), they will need support to relate the examples to their own design, especially when using variables, but will be able to code some of the elements of their own design independently and can write code that take input from the user.	Children will debug as they code and might need some support in identifying the cause of some bugs.	In (Unit 6.5 Lesson 4), they can use the example code to turn their own designs into code. Children will debug as they code using their designs and notes as a guide.
L3 Introducing Map-Based Text Adventures	To introduce an alternative model for a text adventure which has a less sequential narrative.	Children can relate the example design to the example program and can predict what will happen in the program using the design document.	Children can relate the example design to the example program and can predict what will happen in the program using the design document. In their own program, they can use their design algorithm to debug their adventure story. In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs and identify where in their code, their bugs occur.	In (Unit 6.5 Lesson 4), they understand and can adapt the use of variables to their own design and can write code that takes input from the user and gives output to the user.
L4 Coding a MapBased Text Adventure	To use written plans to code a map-based adventure in 2Code.	In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs but will need support to identify where these bugs are in their code and to fix them.	Most children apply their knowledge of coding and the fundamental order of instructions through creating their own story-based adventure game.	- Children can relate the example design to the example program and can predict what will happen in the program using the design document. - In their own program, they can use their design algorithm to debug their adventure story and foresee elements that they need to code. - In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs and identify where in their code, their bugs occur. While coding, they refer to and annotate, their design with helpful notes and changes to enable them to debug and to enhance their program.

			☐ They can identify errors in their code and specifically errors that could impact on the order of events and specific actions when buttons are pressed (Unit 6.5 Lesson 2). ☐ Most children demonstrate how algorithms are useful for representing a solution to a problem e.g. During the creation of their own story-based adventure games within 2Code they can systematically test their code against its intended outcome (Unit 6.5 Lesson 2). Most children can carefully plan before constructing digital content such as a text adventure game. ☐ Using 2Connect, children can carefully identify the data and information they need to incorporate within their intended coded games. ☐ As they advance onto coding, the children can extract and manipulate bits of data and strings of text for the purpose of their game functionality (Unit 6.5 Lessons 1 & 4).	
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COMPUTER SCIENCE: Unit 6.6 Networks				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 The World Wide Web and the Internet	To discover what the children know about the Internet.	☐ Children are aware there is a difference between the Internet and the World Wide Web and can show all the things they use the internet for using 2Connect (Unit 6.6 Lesson 1). ☐ Children know there are different network types such as WAN and LAN and can provide some insight into how they access the internet at school (Unit 6.6 Lesson 2).	☐ Children can explain the difference between the Internet and the World Wide Web and can show all the things they use the internet for using 2Connect (Unit 6.6 Lesson 1). ☐ Children know what a WAN and LAN are and can describe how they access the internet in school (Unit 6.6 Lesson 2).	☐ Children know difference between the Internet and the World Wide Web and can provide examples. ☐ They can show the main uses for the internet using 2Connect (Unit 6.6 Lesson 1). ☐ Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN. In greater detail, children can describe how they access the internet at school and the hypothetical connections their computing device makes (Unit 6.6 Lesson 2).
L2 Our School Network and Accessing the Internet	To find out what a LAN and WAN are. To find out how we access the internet in school.			
L3 Research	To research and find out about the age of the internet. To think about what the future might hold.			

INFORMATION TECHNOLOGY: Unit 6.7 Quizzing				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Introducing 2DIY	To create a picture-based quiz for young children.	☐ With support throughout, children can plan, design and create simple quizzes using given software- 2DIY, 2Quiz and 2Investigate. Throughout the unit, children begin to consider their audience, their ability and interests and make decisions based upon this. ☐ Children sometimes choose appropriate software for the questions that they want to ask (Unit 6.7 Lesson 2 and 3). ☐ Children give and respond to feedback, although this may be at a basic level, and they can make simple edits to their quizzes (Unit 6.7 Lesson 1).	☐ Children can plan, design and create various quizzes using a variety of software- 2DIY, 2Quiz and 2Investigate. Throughout the unit, children consider their audience, their ability and interests and make decisions based upon this. ☐ Children choose appropriate software for the questions that they want to ask (Unit 6.7 Lesson 2 and 3). ☐ Children give and respond to feedback; they edit and redesign their quizzes accordingly (Unit 6.7 Lesson 1). ☐ Most children can create purposeful online quizzes for an intended audience using the 2DIY suite of applications. ☐ With ease, they combine text with images and audio to enhance their quizzes. The question types used are fit for audience and serve to add additional enhancements for the intended user. Extra features such as using the instruction window and time limit are applied aptly (Unit 6.7. Lessons 1 to 3).	☐ Children demonstrating greater depth see the links between the variety of software- 2DIY, 2Quiz and 2Investigate. ☐ They select the software based on whether it is appropriate for the task and can give reasons to justify their choice (Unit 6.7 Lesson 2 and 3). ☐ Children give and respond to feedback; they edit and redesign their quizzes accordingly (Unit 6.7 Lesson 1).
L2 & 3 Using 2Quiz	To learn how to use the question types within 2Quiz.			
L4 Exploring Grammar Quizzes	To explore the grammar quizzes.			
L5 A Database Quiz	To make a quiz that requires the player to search a database.			
L6 Are you Smarter than a 10- (or 11-) Year-Old?	To make a quiz to test your teachers or parents.			

COMPUTER SCIENCE: Unit 6.8 Understanding Binary				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 What is Binary?	To examine how whole numbers are used as the basis for representing all types of data in digital systems. To recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). To understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.	□ With support throughout, children will begin to understand how within digital systems, whole numbers are used as the basis of representing all types of data and that this is known as a binary format. □ Children will begin to know that binary codes contain only the digits 0 and 1. When looking at binary, children will begin to be able to relate 0 to an 'off' switch and 1 to an 'on' switch (Lesson 1). □ Some children will show an understanding of the system in order to be able to count up from 0 in binary, as well as converting simple decimal numbers into binary, using visual aids and support (Lesson 2 & 3).	□ Throughout the unit, children will examine and understand how within digital systems, whole numbers are used as the basis of representing all types of data and that this is known as a binary format. □ Children will know that binary codes contain only the digits 0 and 1. When looking at binary, children will be able to relate 0 to an 'off' switch and 1 to an 'on' switch and know that these represent the on and off electrical states respectively in hardware and robotics (Lesson 1). □ Most children will show an understanding of the system in order to be able to count up from 0 in binary, as well as converting decimal numbers into binary, using visual aids if necessary (Lessons 2&3). □ Children will understand the 'division by two' method as a way of converting numbers from decimal to binary (Lesson 3). □ Children will be able to use their knowledge of binary and of code to make their own program which represents the state of an object as active or inactive, using the respective binary values or 1 or 0 (Lesson 4).	□ Children demonstrating greater depth will understand and confidently explain how the binary system works within a wide variety of digital systems. □ Children will show a deep understanding of the system in order to be able to count up from 0 in binary, as well as converting decimal numbers into binary using the 'division by two' method. (Lesson 3). □ Children will be able to use their knowledge of binary and of code to design, make and evaluate their own programs which represents the state of an object as active or inactive, using the respective binary values or 1 or 0 (Lesson 4).
L2 Counting in Binary	To examine how whole numbers are used as the basis for representing all types of data in digital systems. To recognise that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11 To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.			
L3 Converting from Decimal to Binary	To examine how whole numbers are used as the basis for representing all types of data in digital systems. To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary. To explore how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms.			
L4 Game States	To examine how whole numbers are used as the basis for representing all types of data in digital systems. To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.			

INFORMATION TECHNOLOGY: Unit 6.9 Spreadsheets (Microsoft Excel)				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 What is a Spreadsheet?	To know what a spreadsheet looks like. To navigate and enter data into cells.	□ With support, children can save and open workbooks and navigate to different sheets within a workbook (Lesson 1). □ Children can enter data into cells (Lesson 1) and find specific cell locations within a spreadsheet (lesson 1).	□ Children have a good understanding of a variety of purposes for using spreadsheets. □ Children appreciate the advantage of using a spreadsheet for certain tasks over a paper-based method. □ Children understand and use the new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook. They can locate frequently used functions and tools and know how to find the functions that they need.	□ Children can suggest situations in which a spreadsheet would help them to model a situation and make decisions or accomplish a task. □ Children actively make use of the in-built functions of a spreadsheet such as series fill, mathematical formulae (lesson 2) and the SUM function (lesson 3) to help them accomplish a task without needing to be specifically instructed which functions to use where?
L2 Basic Calculations	To introduce some basic data formulae in Excel. To demonstrate how the use of Excel can save time and effort when performing calculations.	□ Children understand some of the new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook. □ Children might need support navigating the different menus and icons within the software. □ With specific guidance, children can use a spreadsheet to carry out basic calculations including some of the operators (addition, subtraction, multiplication and division) using formulae (lesson 2).	□ Children can use a spreadsheet to carry out basic calculations including all the operators (addition, subtraction, multiplication and division) using formulae (lesson 2). □ Children know that tools such as series fill exist and can make use of the assistance they provide.	□ Children understand the idea of using a spreadsheet to model a situation. They can make good attempts to create models using a spreadsheet and can use the relevant functions of the spreadsheet to answer questions (lesson 3 & lesson 7).
L3 Modelling	To use a spreadsheet to model a situation.	□ They might need support when deciding where to use them and what the information shows. With step-by-step assistance, children can create a spreadsheet to model a specific situation and calculate the answer to a one-step problem (lesson 3 & lesson 7). Children have explored features such as flash fill, convert text to tables and splitting cells and have an understanding that this can make data clearer. They need support to use these functions and interpret the data (lesson 4). Children know that a spreadsheet can create graphs from data. With specific instructions, children can make a graph from data and use it to answer a simple question (lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment	□ Children understand the idea of using a spreadsheet to model a situation. Given a precise situation and guidance on layout, they can create a useful model. They can use it to answer questions (lesson 3 & lesson 7).	□ They are selfmotivated to extend the applicability of a spreadsheet model to explore factors of the situation that were not specifically directed by a teacher.
L4 Organising Data	To demonstrate how Excel can make complex data clear by manipulating the way it is presented.		□ With direction, children can use flash fill, convert text to tables, splitting cells and sorting for organising and presenting their data in a spreadsheet (lesson 4). □ Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets (lesson 5).	□ Children' knowledge of methods such as flash fill, convert text to tables and splitting cells (lesson 4) formulae for percentages, averages, max and min (lesson 5) allows them to analyse their own data and helps them to make informed decisions about what data to collect and in what format.
L5 Advanced Formulae and Big Data	To use formulae for percentages, averages, max and min in spreadsheets.		□ They are beginning to develop a critical eye when it comes to the conclusions that can be made from data (lesson 5, step 21).	□ Children use a critical eye when it comes to the conclusions that can be made from data. (lesson 5, step 21).
L6 Charts and Graphics	To create a variety of graphs in Excel.		□ Children can use graphic functionality within a spreadsheet program to make their data clearer and use this to answer questions (lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment.	□ Children choose from the range of graphical representations within the spreadsheet software to choose the one that makes their data clearest to answer questions (Lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment.

INFORMATION TECHNOLOGY: Unit 6.9 Spreadsheets (Google sheets)				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 What is a Spreadsheet?	To know what a spreadsheet looks like. To navigate and enter data into cells.	☐ With support, children can save and open workbooks and navigate to different sheets within a workbook (Lesson 1). Children can enter data into cells (Lesson 1) and find specific cell locations within a spreadsheet (Lesson 1). Children understand some of the new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook. Children might need support navigating the different menus and icons within the software. With specific guidance, children can use a spreadsheet to carry out basic calculations including some of the operators (addition, subtraction, multiplication and division) using formulae (Lesson 2).	☐ Children have a good understanding of a variety of purposes for using spreadsheets. ☐ Children appreciate the advantage of using a spreadsheet for certain tasks over a paper-based method. ☐ Children understand and use the new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook. They can locate frequently used functions and tools and know how to find the functions that they need. ☐ Children can use a spreadsheet to carry out basic calculations including all the operators (addition, subtraction, multiplication and division) using formulae (Lesson 2).	☐ Children can suggest situations in which a spreadsheet would help them to model a situation and make decisions or accomplish a task. ☐ Children actively make use of the in-built functions of a spreadsheet such as series fill, mathematical formulae (Lesson 2) and the SUM function (Lesson 3) to help them accomplish a task without needing to be specifically instructed which functions to use where.
L2 Basic Calculations	To introduce some basic data formulae in Sheets. To demonstrate how the use of Sheets can save time and effort when performing calculations.		☐ Children know that tools such as series fill exist and can make use of the assistance they provide.	☐ Children understand the idea of using a spreadsheet to model a situation. They can make good attempts to create models using a spreadsheet and can use the relevant functions of the spreadsheet to answer questions (Lesson 3 & Lesson 7).
L3 Modelling	To use a spreadsheet to model a situation.		☐ Children understand the idea of using a spreadsheet to model a situation. Given a precise situation and guidance on layout, they can create a useful model.	
L4 Organising Data	To demonstrate how spreadsheets can make complex data clearer by manipulating the way it is presented.	☐ They might need support when deciding where to use them and what the information shows.	☐ They can use it to answer questions (Lesson 3 & Lesson 7). With direction, children can use flash fill, convert text to tables, splitting cells and sorting for organising and presenting their data in a spreadsheet (Lesson 4).	☐ They are self-motivated to extend the applicability of a spreadsheet model to explore factors of the situation that were not specifically directed by a teacher.
L5 Advanced Formulae and Big Data	To use formulae for percentages, averages, max and min into spreadsheets.	☐ With step-by-step assistance, children can create a spreadsheet to model a specific situation and calculate the answer to a one-step problem (Lesson 3 & Lesson 7).		☐ Children' knowledge of methods such as flash fill, convert text to tables and splitting cells (Lesson 4) formulae for percentages, averages, max and min (Lesson 5) allows them to analyse their own data and helps them to make informed decisions about what data to collect and in what format.
L6 Charts and Graphics	To create a variety of charts and graphs to understand data	☐ Children have explored features such as flash fill, convert text to tables and splitting cells and have an understanding that this can make data clearer.	☐ Children know how to incorporate formulae for percentages, averages, max and min into their	

Year 6 Computing Progression

L7 Using a Spreadsheet to Plan a Cake Sale	To use a spreadsheet to model a real-life situation.	☐ They need support to use these functions and interpret the data (lesson 4). ☐ Children know that a spreadsheet can create graphs from data.	spreadsheets (lesson 5). They are beginning to develop a critical eye when it comes to the conclusions that can be made from data (lesson 5). ☐ Children can use graphic functionality within a spreadsheet program to make their data clearer and use this to answer questions (lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment.	☐ Children use a critical eye when it comes to the conclusions that can be made from data. (lesson 5). ☐ Children choose from the range of graphical representations within the spreadsheet software to choose the one that makes their data clearest to answer questions (Lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment.
L8 Using a Spreadsheet to Solve Problems	To apply spreadsheet skills to solving problems.	☐ With specific instructions, children can make a graph from data and use it to answer a simple question (lesson 6). NB Lesson 8 provides an opportunity for children to demonstrate many of the skills taught in the previous lessons and can be useful as the basis for assessment.		