

COMPUTER SCIENCE: Unit 4.1 Coding				
Lesson	Objectives	Working towards	Meeting expectations	Exceeding expectations
L1 Design, Code, Test and Debug	To review coding vocabulary and knowledge. To create a simple computer program.	Children's designs for their programs show that they are thinking of the structure of a simple program in logical, achievable steps (Unit 4.1 Lesson 1).	- Children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition (Unit 4.1 Lessons 1 and 6). - Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 4.1), they apply these techniques to their own code to fix bugs. - Children understand IF and IF/ ELSE statements for selection and combine these with other coding structures including variables to achieve the effects that they design in their programs (Unit 4.1 Lesson 4). - Their design demonstrates their growing understanding of when a coded solution will require repetition e.g. in Lesson 4 'Reginal Rocket' children can see that the position of the rocket is changed repeatedly until it is in line with the rocket launch pad. They can explain the new command 'Repeat Until'. - They make use of user input (Unit 4.1 Lesson 2) and outputs such as 'print to screen' (Unit 4.1 Lesson 4) as well as sound and movement of objects. They understand how variables can be used to store information while a program is executing (Unit 4.1 Lesson 5) and make attempts to use and manipulate the value of variables. - Children's designs for their programs show that they are thinking of the structure of a simple program in logical, achievable steps with attention to specific events that initiate specific actions (Unit 4.1 Lessons 1 and 6). - Children can 'read' others' code and predict what will happen in a program which helps them to correct errors (Unit 4.1). They can also make good attempts to fix their own bugs as their coding becomes more complex (Unit 4.1 Lesson 6). - Most children can create programs which accomplish a specific goal utilising a variety of media such as images, sounds and animation effects. (Unit 4.1 Lessons 1 and 6). - Children can interpret the flowcharts used to represent IF/ELSE statements (Unit 4.1 Lesson 4) and create their own when planning their programs.	- Children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition and variables (Unit 4.1 Lessons 1, 4 and 5). - Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 4.1). - Children make intuitive attempts to debug their own programs as they increase in complexity (Unit 4.1 Lesson 6). - Children realise the constraints of creating purely sequential programs and intuitively grasp the concepts of selection (Unit 4.1 Lessons 2, 3 and 4), repetition (Unit 4.1 Lesson 4) and variables (Unit 4.1 Lesson 5). Children like to challenge themselves to combine these with other coding structures to achieve the effects that they design in all their programs (Unit 4.1). Their designs are ambitious but logical and achievable. - Children's designs for their programs show that they are absorbing new knowledge of coding structures such as IF statements, repetition and variables. - Children can 'read' others' code and predict what will happen in a program which helps them to correct errors (Unit 4.1). They can also make good attempts to fix their own bugs as their coding becomes more complex (Unit 4.1 Lesson 6)
L2 IF Statements	To begin to understand selection in computer programming. To understand how an IF statement works.	- Children can make good attempts to 'read' code and predict what will happen in a program which can help them to correct errors in their code. - With support, children can turn a real-life situation into an algorithm for a program that has cause and effect (Unit 4.1 Lesson 2) - Children can identify errors within their programs and make logical attempts to fix it (Unit 4.1).		
L3 Co-ordinates	To understand how to use coordinates in computer programming. To understand how an IF statement works.	- Children attempt to introduce selection into their code using simple 'if statements' (Unit 4.1 Lesson 2). Children's use of these - With support children can use their algorithm to write simple programs using 2Code (Unit 4.1 Lesson 2). - Children cannot always predict the outcome accurately or anticipate the structures required when planning their code. - Children have a developing idea that a variable can be used to store information in a Program. - In lesson 5 they can follow the examples but might struggle when applying this with their own ideas.		
L4 Repeat Until and IF/ELSE Statements	To understand the Repeat until Command. To begin to understand selection in computer programming. To understand how an IF/ELSE statement works.			
L5 Number Variables	To understand what a variable is in programming. To use a number variable.			
L6 Making a Playable Game	To review vocabulary and concepts learnt in Year 4 Coding. To create a playable game.			

DIGITAL LITERACY: 4.2 Online safety				
Lessons	Objectives	Working towards	Meeting expectations	Exceeding expectations
L1 Going Phishing	To understand how children can protect themselves from online identity theft. To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.	☐ Children contribute their ideas to discussion of spam email (lesson 1), malware (lesson 2) and plagiarism (lesson 3). They have included appropriate content in their Top Tips for Online Safety publication (lesson 2). They have been able to share their work online.	☐ Children have decided upon the most important online safety messages to communicate and have shared these ideas in their Top Tips for Online Safety publication (lesson 2). They put this knowledge into action in their own online activity. ☐ Children can explore key concepts relating to online safety using 2Connect Unit 4.2 Lesson 1). They help others to understand the importance of online safety (Unit 4.2 Lesson 2) and apply their knowledge through the creation of online safety resources which are then used as part of presentation to parents (Unit 4.2 Lesson 1). ☐ Using the example from lesson 1, children can give some examples of things to look out for in an email to ensure that it from a valid source and is not a phishing scam email. They can explain what can be learnt by looking at the padlock details for a website (lesson 1). ☐ Most children can reflect upon positive and negative aspects of a digital footprint and can give examples of the care they would take when sharing online in relation to their and others' digital footprint (lesson 1). ☐ Most children can give reasons for taking care when installing apps or software. They know what Malware is and the possible impact of computer viruses and can give recommendations for how best to ensure that they only install valid software as part of their top tips document in lesson 2. ☐ Most children can give reasons for limiting screen time that include the effect on physical and mental health. In lesson 4, 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. ☐ Most children can explain how plagiarism is stealing, they are beginning to be able to identify the aspects of sharing that would be classed as plagiarism (lesson 3). In lesson 4, children were able to include actions for reporting cyberbullying or inappropriate content in their screen time study document. By completing lesson 4, most children would have saved both online and locally to a device and are able to explain the differences between the two storage types. ☐ Most children will be able to identify key messages that should be shared with other children and parents about online safety, including identification of reliable content from websites found via common search engines (Unit 4.2 Lessons 1 & 2).	☐ Most children can explain how plagiarism is stealing, they are beginning to be able to identify the aspects of sharing that would be classed as plagiarism (lesson 3). In lesson 4, children were able to include actions for reporting cyberbullying or inappropriate content in their screen time study document. By completing lesson 4, most children would have saved both online and locally to a device and are able to explain the differences between the two storage types. ☐ Most children will be able to identify key messages that should be shared with other children and parents about online safety, including identification of reliable content from websites found via common search engines (Unit 4.2 Lessons 1 & 2).
L2 Beware Malware	To identify the risks and benefits of installing software including apps.	☐ With support throughout, children show an understand what online safety is. In a small group, they can use 2Connect (Unit 4.2 Lesson 1) to map out the key features of online safety. Children produce a simple leaflet, postcard, or slideshow etc about online safety, which can then be used as part of presentation to parents (Unit 4.2 Lesson 1)		
L3 Plagiarism	To understand that copying the hers and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. To identify appropriate behaviour when participating or contributing to collaborative online projects for			
L4 Healthy Screen-Time	To identify the positive and negative influences of technology on health and the environment. To understand the importance of balancing game and screen time with other parts of their lives.			

INFORMATION TECHNOLOGY: Unit 4.3 Spreadsheets

Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Formula Wizard and Formatting Cells	To explore how the numbers entered into cells can be set to either currency or decimal. • To explore the use of the display of decimal places. • To find out how to add formulae to a cell.	☐ With support throughout, children will use 2Calculate and a limited data set to design a simple graph to solve a mathematical problem (Unit 4.3 Lesson 3). ☐ Children will present their data and information using 2Calculate (Unit 4.3 Lesson 5).	☐ Children will use 2Calculate to design a graph to solve a mathematical problem (Unit 4.3 Lesson 3). ☐ Children will present, format and analyse their data and information in a variety of ways and use their spreadsheets to solve and check mathematical problems and concepts (Unit 4.3 Lesson 5). ☐ Most children can use the number formatting tools within 2Calculate to appropriately format numbers (Unit 4.3. Lesson 1). ☐ Children can add a formula to a cell to automatically make a calculation in that cell using the 'formula wizard' (Unit 4.3. Lesson 1). ☐ Children will be fluent in copying and pasting contents between cell(s) (Unit 4.3. Lesson 1). ☐ Children can use spreadsheets to collate data and extract information from it to answer questions e.g., children can create line graphs and can use it to identify when something will happen using 2Calculate (Unit 4.3 Lesson 3).	☐ Children demonstrating greater depth will explore more complex functioning of the 2Calculate tools to create their own spreadsheets to explore number and interpret their own data. ☐ Children will intuitively grasp the concept of using a spreadsheet to model a real-life situation and calculate solutions. ☐ Children demonstrating greater depth will use 2Calculate to design a range of different graphs which present data in a variety of ways and select the most appropriate one to independently to solve mathematical problems (Unit 4.3 Lesson 5).
L2 Using the Timer and Spin Buttons	• To explore how tools can be combined to use 2Calculate to make number games. • To explore the use of the timer, random number and spin button tools.			
L3 Line Graphs	To use the line graphing tool in 2Calculate with appropriate data. To interpret a line graph to estimate values between data readings			
L4 Using a Spreadsheet for Budgeting	To use the currency formatting tool in 2Calculate. To use 2Calculate to create a model of a real-life situation.			
L5 Exploring Place Value with a Spreadsheet	To use the functions of allocating value to images in 2Calculate to make a resource to teach place value.			

INFORMATION TECHNOLOGY: Unit 4.4 Writing for different audiences				
L1 Font Styles	To explore how font size and style can affect the impact of a text.	☐ With support throughout, children will use 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create limited content in small groups linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5). ☐ Using the variety of software, children change the font style to make it appropriate for their audience (Unit 4.4 Lesson 1).	☐ Children will use 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create content linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5) for a select audience. ☐ Using the variety of software, children must make informed choices about the best way to present their information e.g., appropriate font and text formatting (Unit 4.4 Lesson 1). ☐ Most children can alter font types, styles and sizes to suit an intended audience for digital content using 2Publish and incorporate, with ease, images from clipart banks and internet sources (Unit 4.4. Lesson 1).	☐ Children demonstrating greater depth will seamlessly use a variety of software including 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create content linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5) for a variety of different audiences. ☐ Using the variety of software, children must make informed choices about the best way to present their information e.g., appropriate font and text formatting and give reasons for their choices (Unit 4.4 Lesson 1).
L2 & 3 Using a Simulated Scenario to Produce a News Report	To use a simulated scenario to produce a news report.			
L4 & 5 Writing for a Campaign	To use a simulated scenario to write for a community campaign.			

COMPUTER SCIENCE: Unit 4.5 Logo				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Introduction to 2Logo	- To learn the structure of the language of 2Logo. - To input simple instructions in 2Logo	☐ Children can 'read' small 2Logo programs and predict the outcome using some logical reasoning although they might not always be correct (Unit 4.5 Lesson 1).	☐ Children can 'read' 2Logo programs with several steps and predict the outcome accurately (Unit 4.5 Lesson 1) & (Unit 4.5 Lesson 3).	☐ Children enjoy and challenge themselves to think about the 2Logo commands that they need in long steps of several commands at a time before executing the code to check the result e.g. fd 4 rt 90 fd 6 rt 90 fd 5 lt 90 fd 9 These commands include repeats alongside sequential steps. They fully understand the value of the pu and pd commands to achieve the effects that they desire (Unit 4.5 Lesson 1). When their code does not execute as they expect, they use logical reasoning and debugging techniques such as running accumulating parts of the code to find the source of the error independently (Unit 4.5 Lesson 2).
L2 Creating Letters using 2Logo	To use 2Logo to create letter shapes.	☐ Children think about the 2Logo commands that they need in small steps, one or two commands at a time. When their code does not execute as they expect, they can sometimes find the error independently but as the code becomes longer, they need support to do so (Unit 4.5 Lesson 2).	☐ Children can think about the 2Logo commands that they need steps of two or more commands at a time before executing the code to check the result e.g. fd 4 rt 90 fd 6 rt 90. When their code does not execute as they expect, they can sometimes find the error independently but as the code becomes longer, they need support to do so (Unit 4.5 Lesson 2).	☐ They create procedures and call these procedures efficiently; they can refine their code to put procedure calls within other procedures (Unit 4.5 Lesson 4).
L3 Using the 'Repeat' Command in 2Logo	To use the Repeat command in 2Logo to create shapes.	☐ They understand that the repeat command makes things happen more than once but might not be able to plan the repeat; they work out a solution using trial-and-error that includes some logic (Unit 4.5 Lesson 3).	☐ They understand the repeat command and can plan simple repeat structures before executing rather than relying on trial-and-error (Unit 4.5 Lesson 3).	☐ They experiment with repeating procedures to make more complex patterns (Unit 4.5 Lesson 4).
L4 Using Procedures	To use and build procedures in 2Logo	☐ They can create a procedure but might not realise the full value of creating a procedure to make quality code and save coding the same thing many times over (Unit 4.5 Lesson 4).	☐ They experiment with repeating procedures to make more complex patterns (Unit 4.5 Lesson 4).	☐ They understand the value of a procedure in making code more efficient and call these procedures appropriately (Unit 4.5 Lesson 4).
			☐ Most children can manipulate instructions within 2Logo to create common shapes using repeat functions (Unit 4.5. Lesson 3). They can edit instructions to produce shapes created in the most efficient way including using the Procedures function (Unit 4.5. Lesson 4). In (Unit 4.5 Lesson 4), they can use some knowledge of mathematics to understand how the patterns are formed.	☐ Children can 'read' increasingly complex 2Logo programs with several steps and predict the outcome accurately (Unit 4.5 Lesson 3) including procedures within repeats (Unit 4.5 Lesson 4).

INFORMATION TECHNOLOGY: Unit 4.6 Animation				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Animating an Object	To decide what makes a good, animated film or cartoon and discuss favourite animations. To learn how animations are created by hand. To find out how 2Animate animations can be created in a similar way using technology.	- With support throughout, children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1). - Children begin to transfer this knowledge and create their own basic animation using 2Animate (Unit 4.6 Lesson 3). This animation may lack detail and lack smoothness of transition.	- Initially children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1). Children transfer this knowledge and create their own animation using 2Animate (Unit 4.6 Lesson 3). - Children know, understand, and use the onion skin animation tool within 2Animate to show movement across the screen (Unit 4.6 Lesson 2). Furthermore, they select backgrounds and sounds to make their animation more immersive (Unit 4.6 Lesson 2).	- Children demonstrating greater depth create their own detailed animation using 2Animate (Unit 4.6 Lesson 3) utilizing all the features of the software e.g., onion skin animation tool (Unit 4.6 Lesson 2) select backgrounds and sounds (Unit 4.6 Lesson 2). - Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3).
L2 2Animate Tools	To learn about onion skinning in animation. To add backgrounds and sounds to animations.	Children share their learning by displaying their animation on a blog or display board (Unit 4.6 Lesson 3).	Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3).	Children will demonstrate greater depth understanding when they suggest novel ways to solve difficulties that other children are having in making their animations effective.
L3 Stop Motion Animation	- Introducing 'stop motion' animation. - To share animation the class blog.			

	INFORMATION TECHNOLOGY: Unit 4.7 Effective Search			
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Using a Search Engine	To locate information on the search results page.	☐ Children have some awareness that search engines can provide helpful information to support our daily lives such as: Weather forecasts, postcodes, answer calculations, provide definitions and sport results (Unit 4.7 Lesson 1 & 2). ☐ They can search for intended information with some degree of accuracy demonstrated in the results returned.	☐ Children can use search engines to provide helpful information to support their learning (Unit 4.7 Lesson 1 & 2). They can search for intended information with a degree of accuracy and thus know that key words can be more effective than sentences when searching. ☐ Most children will be able to locate information from the internet via a search engine using effective techniques such as truncating a question into just key words or concise phrases. They will be aware of the lack of need to use capital letters or punctuation when using this search technique (Unit 4.7. Lesson 2). ☐ Most children will be able to analyse the contents of a web page for obvious clues about the credibility of the information. They will be able to work in small groups to decide collectively if a website has questionable credibility (Unit 4.7, Lesson 3).	☐ Children can use search engines effectively to find intended information (Unit 4.7 Lesson 1 & 2) and are fully aware of the benefits of using key words. ☐ They can interpret search questions and decide upon how to re-phrase them so that they return the most suitable results in a search engine.
L2 Use Search Effectively to Answer Questions	To use search effectively to find out information.			
L3 Reliable Information Sources	To assess whether an information source is true and reliable			

	COMPUTER SCIENCE: Unit 4.8 Hardware Investigators			
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Hardware	To understand the different parts that make up a desktop computer.	☐ Children understand what hardware is and that specific components allow computers to join and form a network. ☐ Children can recognise some hardware parts that relate to networking (Unit 4.8 Lesson 1). ☐ With some support, children can create their own hardware leaflet.	☐ Children recognise the main component parts of hardware which allow computers to join and form a network (Unit 4.8 Lesson 1). ☐ Children can create their own leaflet to share their understanding of Computer Hardware (Unit 4.8 Lesson 2)	☐ Children recognise the components parts of hardware which allow computers to join and form a network (Unit 4.8 Lesson 1). ☐ They are also able to explain that there are different types of network and how they are connected. ☐ Children can create their own leaflet to share their understanding of Computer Hardware and can compare physical network connections with wireless connections. (Unit 4.8 Lesson 2).
L2 Parts of a Computer	To recall the different parts that make up a computer.			

INFORMATION TECHNOLOGY: Unit 4.9 Making Music				
Lessons	Objective	Working towards	Meeting expectations	Exceeding expectations
L1 Understanding Music	To identify and discuss the main elements of music: Pulse, Rhythm, Tempo, Pitch, Texture	☐ Children are able to understand the concept of rhythm and tempo. They attempt to create a simple rhythm using within 'Busy Beats' and experiment with the BPM tool (Lesson 1 and 2). ☐ Children create a simple composition that considers pitch, rhythm and melody using 'Busy Beats' (Lesson 3 and 4).	☐ Children distinguish between rhythm and tempo, they are able to create a simple rhythm, experimenting with BPM in 'Busy Beats' (Lesson 2). ☐ Children can utilise the tools within Busy Beats to create a melodic phrase experimenting with pitch (Lesson3). ☐ Through experimentation, children are able to compose a piece of electronic musing where they have considered pitch, rhythm and melody, successfully utilising the tools within 'Busy Beats' (Lesson 4)	☐ Children create more complex rhythms. They added additional elements into their composition and utilising BPM aptly within 'Busy Beats' (Lesson 2). ☐ Children are able to form more complex compositions where pitch, rhythm and melody have been considered. They experiment with adding key parts to their compositions to create an intro, chorus and outro. (Lesson 3 and 4).
L2 Rhythm and Tempo.	To understand and experiment with rhythm and tempo.			
L3 Melody and Pitch	To create a melodic phrase.			
L4 Creating Music	To compose a piece of electronic music.			