

Computing Medium Term Plan- Autumn Term 1 Y2

Coding

- Unit Outcome - To create more complex algorithms and develop their use of new programs.

Date	Objective (s)	Task/activity	Resources	Key Vocabulary	Learning Outcome
Lesson 1	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the</p>	<p><u>Main Teaching</u> Squares and Rectangles: Remind the children or, if there is space, practise walking a few squares and rectangles using the commands fd , rt 90 and lt 90. (There are some examples on the Lesson Presentation, which could be used to start children off or to check at the end.) Turtle Logo Commands: Demonstrate the simple Turtle Logo commands, fd number, rt number (90) and lt number (90). Show children how to clear the screen (clearscreen or cs). Also show children how to use the up and down arrow to scroll through previous commands, which can then be edited and run again by pressing . (This can save time by allowing the children to repeat previous commands without having to retype them.)</p> <p><u>Differentiated Activities</u> Drawing Squares and Rectangles: Children draw squares and rectangles of different sizes using the differentiated Activity Sheets. Children may need support to draw the different shapes.</p> <p><u>Challenges</u> Children create their own squares and rectangles and attempt</p>	<p>Lesson Pack. Desktop Computer or Laptop. Turtle Logo application (installed or online). Whiteboards and pens or books, pens and pencils for recording</p>	<p>Algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.</p>	<p>To create an algorithm to move or rotate the turtle.</p>

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<p>behaviour of simple programs using Turtle Logo.</p> <p><u>Lesson objectives:</u></p> <p>I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct any mistakes</p> <p>I can use the commands fd, lt, rt to move or rotate the</p>	<p>to draw a triangle and other regular polygons.</p> <p><u>Plenary</u></p> <p>Check: Demonstrate some of the algorithms the children have used to draw different squares. Ask the children do they work? Are the commands written in the correct order? Have you used different algorithms for the same shape? Correct any mistakes (debug)</p>			
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	<p>turtle.</p> <p>I can use cs to clear the screen.</p>				
Lesson 2	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions. Create and debug simple</p>	<p><u>Main Teaching</u> Squares and Rectangles: Ask the children to draw some rectangles and squares using Turtle Logo. Turtle Logo Command/The Repeat Command: Remind the children of the commands they used last week and introduce the repeat command</p> <p><u>Differentiated Activities</u> Different Shapes: Following the differentiated Activity Sheets children use the repeat command to draw repeated squares and rectangles starting from the same place. Draw a range of shapes using the repeat command without support.</p> <p><u>Challenges</u> Draw a range of shapes using the repeat command without support and draw a regular polygon.</p> <p><u>Plenary</u> Can You...? Ask children to come up with the algorithm to draw</p>	<p>Lesson Pack Desktop Computer or Laptop Turtle Logo application (installed or online) Whiteboards and pens or books, pens and pencils for recording</p>	<p>Algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable, repeat.</p>	<p>I can use repeat.</p> <p>To create an algorithm using the repeat command.</p>



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	<p>programs. Use logical reasoning to predict the behaviour of simple programs using Turtle Logo</p> <p><u>Lesson objectives:</u></p> <p>I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct any mistakes.</p> <p>I can use the</p>	<p>the shape shown on the slide. What Will This Algorithm Draw?</p> <p>Ask children what shape they think will be drawn if they follow the algorithms shown on the Lesson Presentation. Listen to children's thoughts and ask them why.</p>			
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	commands fd,lt, rt to move or rotate the turtle.				
Lesson 3	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions. Create and debug simple</p>	<p><u>Main Teaching</u> What is Scratch? Begin by reminding children of their learning from Turtle Logo and how they gave the Turtle commands to move or rotate. Scratch: Show the children how to open Scratch, depending on whether you are using the online version or application. Demonstrate to the children how to start moving, add a sound and move back again to make the cat dance. Please note, if using Scratch 3, the 'play drum' programming block is now located within the 'add extension' option that can be accessed from the bottom left of the Scratch screen. Click on the 'music' extension and the appropriate blocks will appear. The block is now a different colour but has the same function</p> <p><u>Differentiated Activities</u> Make a Dance: Children work through the demonstrated activity and use the Activity Sheet to support the task. (Note: In Turtle Logo there is no option to add sound.) Children may need</p>	<p>Lesson Pack Desktop Computer or Laptop. Scratch application (installed or online). Whiteboards and pens or books, pens and pencils for recording</p>	<p>Algorithm, instructions, commands, sprite, move, add sound.</p>	<p>To create an algorithm that includes movement and sound.</p>



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	<p>programs. Use logical reasoning to predict the behaviour of simple programs using Scratch.</p> <p><u>Lesson objectives:</u> I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct any mistakes.</p>	<p>support when creating the algorithm.</p> <p><u>Challenges</u> Use the Activity Sheet to prompt the initial task, then challenge the children to create a dance for a second sprite, and create a similar algorithm in Turtle Logo</p> <p><u>Plenary</u> What Will Happen? Show a set of blocks and ask how the children would expect the sprite to move. Compare: Ask the children to compare Scratch and Turtle Logo. How would you get the algorithm that you have written to repeat? (The aim of this question is to get children to think how something might happen, rather than necessarily showing them.)</p>			
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	<p>I can move a sprite.</p> <p>I can add sound.</p>				
Lesson 4	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions. Create and debug simple</p>	<p><u>Main Teaching</u> Remember: Ask children to quickly use move and play drum blocks to repeat the activity from the previous session. How would you repeat this algorithm? Please note, if using Scratch 3, the 'play drum' programming block is now located within the 'add extension' option that can be accessed from the bottom left of the Scratch screen. Click on the 'music' extension and the appropriate blocks will appear. The block is now a different colour but has the same function. Repeat: Demonstrate the repeat block. How many times will it run? Say Something: Add the say block. Watch Me Dance: Demonstrate the algorithm in Scratch, depending on whether you are using the online version or application</p> <p><u>Differentiated Activities</u> Keep Dancing! Children use the How to Use Scratch Activity Sheet to create the algorithm in Scratch. Can you change the algorithm so the Sprite moves backwards first then forwards?</p>	<p>Lesson Pack Desktop Computer or Laptop. Scratch application (installed or online). Whiteboards and pens or books, pens and pencils for recording</p>	<p>Algorithm, instructions, commands, sprite, block, move, add sound, repeat, say something.</p>	<p>To create an algorithm and use the repeat and say command.</p>



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	<p>programs Use logical reasoning to predict the behaviour of simple programs using Scratch</p> <p><u>Lesson objectives:</u></p> <p>I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct any mistakes.</p> <p>I can use the</p>	<p>Can you change the sounds in the algorithm? Children answer the questions on the Repeat and Say Something Activity Sheet</p> <p><u>Challenges</u></p> <p>Children answer the questions on the Repeat and Say Something Activity Sheet and begin to use the turn, point and motion blocks to create different effects</p> <p><u>Plenary</u></p> <p>What will happen? Show some algorithms. What do you expect to happen?</p>			
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	<p>repeat command.</p> <p>I can use the say block</p>				
Lesson 5	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions. Create and debug simple</p>	<p><u>Main Teaching</u> Remember: Children use move, play drum and repeat blocks to create an algorithm. Can you find different ways of starting an algorithm? Please note, if using Scratch 3, the 'play drum' programming block is now located within the 'add extension' option that can be accessed from the bottom left of the Scratch screen. Click on the 'music' extension and the appropriate blocks will appear. The block is now a different colour but has the same function. <i>Green Flag/Change Colour/Press Key Block</i>: Demonstrate the green flag, change colour and key press commands. What do you think will happen? <u>Differentiated Activities</u> Start It Up: Children create their algorithm following the How to Use Scratch as a guide. Use <i>Green Flag Activity</i> sheet as required. Can you run both algorithms at once? How can you change an algorithm? Ask children to create their own algorithms to make the sprite dance. Can you add a second</p>	<p>Lesson Pack Desktop Computer or Laptop. Scratch application (installed or online). Whiteboards and pens or books, pens and pencils for recording</p>	<p>Algorithm, instructions, commands, sprite, block, move, add sound, repeat, say something, green flag, change colour, key press</p>	<p>To create an algorithm and use the green flag to start.</p>

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<p>programs. Use logical reasoning to predict the behaviour of simple programs using Scratch.</p> <p><u>Lesson objectives:</u> I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct any mistakes.</p> <p>I can start an</p>	<p>sprite? How will you start your second sprite? Try This: Can you create an algorithm that will make this happen?</p> <ul style="list-style-type: none"> • The cat moves to the left and plays crash cymbal. • The cat returns to its starting point and changes colour. • The cat moves to the right, plays bass drum. • The cat returns to the start and says "and again?" for 2 seconds. • This is repeated 5 times and starts when the green flag is clicked. (Children are not told how far to move the sprite. This is deliberate, as it makes children consider what is an appropriate distance to move). <p><u>Challenges</u></p> <p><u>Plenary</u> One Way: Look at the example answer given on the Lesson Presentation. (You can click on the link to see it playing in Scratch online.) What do we need? Children revise their list from last lesson of what is needed. Next time we will look at how to add a background or backdrop and other sprites</p>			
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	<p>algorithm with the green flag or key press.</p> <p>I can change the colour of the sprite.</p>				
Lesson 6	<p><u>NC objective:</u> Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and ambiguous instructions.</p>	<p><u>Main Teaching</u> Can you...? Children create an algorithm in Scratch to complete the given tasks. (Click on the algorithm to see it run in a browser) Please note, if using Scratch 3, the 'play drum' programming block is now located within the 'add extension' option that can be accessed from the bottom left of the Scratch screen. Click on the 'music' extension and the appropriate blocks will appear. The block is now a different colour but has the same function. Add a Backdrop/Add a Sprite/Which sprite? Over the next 3 slides demonstrate how to change the background and add a sprite.</p> <p><u>Differentiated Activities</u> Add a Sprite and a Backdrop: Children work through the demonstrated activities using the differentiated Activity Sheets. Children create a project with 2 dancers on a stage.</p>	<p>Lesson Pack Desktop Computer or Laptop. Scratch application (installed or online). Whiteboards and pens or books, pens and pencils for recording.</p>	<p>Algorithm, instructions, commands, sprite, block, move, add sound, repeat, say something, green flag, change colour, key press.</p>	<p>To create an algorithm and use the commands to change the backdrop and add sprites.</p>



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	<p>Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs using Scratch</p> <p><u>Lesson objectives:</u></p> <p>I can write commands in the correct order.</p> <p>I can write a variable value where required.</p> <p>I can correct</p>	<p>Children create a project with 2 fish moving in a tank.</p> <p><u>Challenges</u></p> <p>Children create a project with 2 penguins in a winter scene.</p> <p><u>Plenary</u></p> <p>Share: Take it in turns to show your partner your project. What do you like about your project? How have you made it start? What might you improve? All Together: Ask children to share what improvements they would make. Finish the unit by asking the children to recap the skills they have learnt in these programming lessons</p>			
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	any mistakes. I can change the backdrop. I can add sprites				
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