**Year 1 Computing Curriculum – Summer 2**

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| **Theme: Moving a robot** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| - Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions- Create and debug simple programs- Use logical reasoning to predict the behaviour of simple programs- Recognise common uses of information technology beyond school | **Keyword** | Definition | sequences | a pattern or process in which one thing follows another. | **Geography** – Using direction and positional language**PSHE** – taking turns and working as a team **English** – writing instructions **Science** – making predictions  |
| forwards | towards a place or time that is further on; ahead | directions | guidance on where to go |
| backwards | in the direction of or toward the back | route | a way of getting from one place to another |
| turn | to move around a point | plan | an action you want to take |
| commands | to order or instruct | program | a plan of what will be done |
| instructions  | to give an order | algorithms | a determined and finite procedure for solving a problem |
| **Prior Knowledge:**EYFS – To follow two step instructions | **Future Knowledge:**Year 2 - To create and debug a program. Year 3 - Sequencing SoundsYear 4 – Repetition in Sounds to modify a count-controlled. Year 5 - control a simple circuit connected to a computer. Year 6 - To choose how to improve a game by using variables |
| **Lesson Sequence** | **Key Knowledge** | **Key Skills** |
| 1. To explain what a given command will do
 | Learners will be introduced to floor robots. They will talk about what the buttons on a floor robot might do and then try the buttons out. They will spend time linking an outcome to a button press. Learners will consider the direction command buttons, as well as the ‘clear memory’ and ‘run program’ buttons. | To explain what a given command will do* I can predict the outcome of a command on a device
* I can match a command to an outcome
* I can run a command on a device
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| 1. To act out a given word
 | Learners will think about the language used to give directions and how precise it needs to be. They will also work with a partner to give and follow instructions. These real-world activities should, at suitable points during this lesson, be related to the floor robot introduced in Lesson 1. | To act out a given word* I can follow an instruction
* I can recall words that can be acted out
* I can give directions
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| 1. To combine forwards and backwards commands to make a sequence.
 | Learners will focus on programming the floor robot to move forwards and backwards. They will see that the robot moves forwards and backwards a fixed distance. This highlights the idea that robots follow a clear, fixed command in a precise and repeatable way. Learners will think about starting the robot from the same place each time. Using the same starting position with fixed commands will allow learners to predict what a program will do.  | To combine ‘forwards’ and ‘backwards’ commands to make a sequence* I can compare forward and backward movements
* I can start a sequence from the same place
* I can predict the outcome of a sequence involving ‘forwards’ and ‘backwards’ commands
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| 1. To combine four direction commands to make sequences.
 | Learners will use ‘left turn’ and ‘right turn’ commands along with ‘forwards’ and ‘backwards’ commands. Doing this will allow learners to develop slightly more complex programs. Learners will create their programs in this lesson through trial and error, before moving on to planning out their programs in Lesson 5. In Activity 3, learners will predict where given programs will move the robot to. Learners will make their predictions by looking at the commands and matching the program steps to movements. | To combine four direction commands to make sequences* I can compare left and right turns
* I can experiment with ‘turn’ and ‘move’ commands to move a robot
* I can predict the outcome of a sequence involving up to four commands
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| 1. To plan a simple program.
 | Learners will decide what their program will do. They will then create their program and test it on the robot. Where needed, learners will also debug their program.  | To plan a simple program * I can explain what my program should do
* I can choose the order of commands in a sequence
* I can debug my program
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| 1. To find more than one solution to a problem.
 | Learners will be encouraged to plan routes around a mat before they start to write programs for those routes. The activities in this lesson also introduce the concept of there being more than one way to solve a problem. This concept is valid for a lot of programming activities: the same outcome can be achieved through a number of different approaches, and there is not necessarily a ‘right’ approach. The lesson also introduces the idea of program design, where learners need to plan what they want their program to achieve before they start programming. | To find more than one solution to a problem* I can identify several possible solutions
* I can plan two programs
* I can use two different programs to get to the same place
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| **Themes and links** |
| **Computing themes** | **Where these are covered:** |
| **Technology around us** Autumn 1  | * Using robots around the world
* What we use robots for
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| **Digital painting** Autumn 2  | * Robots on a device
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| **Programming A** Spring 1  | * Programming a set of instructions
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| **Data /information** Spring 2  | * Writing instructions using left, right and how many turns.
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| **Creating media** Summer 1  | * Creating algorithms for the robots.
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| **Programming B** Summer 2  | * Programming animations. To choose a command for a given purpose.
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