Seamer and Irton CP School – Computing (H.Griffiths)

Topic – Moving a robot	Year 1 Spring 1	Strand – Programming

Prior Learning	Key Knowledge I need to understand
As this is a Year 1 unit, no prior knowledge is assumed. However, children at Seamer and Irton will investigate technology through relevant statements from the Early Learning Goals in the EYFS statutory framework and the 2020 Development Matters document.	**I need to understand that:** **Programming is when we make a set of instructions for computers to follow.** **Robots are one type of machine that can follow programs. Floor robots include Bee-bots and Blue-bots.** **Floor robots have buttons which help us to direct them.** **We can use algorithms (a set of instructions to perform a task) to program floor robots along routes.** Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.

How I will show what I have learned	
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
To act out a given word	- I can follow an instruction - I can recall words that can be acted out - I can give directions
To combine forwards and backwards commands to make a sequence	- I can compare forwards and backwards movements - I can start a sequence from the same place - I can predict the outcome of a sequence involving forwards and backwards commands
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
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
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

What vocabulary I need to know	What's next
Forwards, backwards, turn, clear, go, commands, instructions, directions, forwards, backwards, left, right, turn, plan, algorithm, program, route, program	In **Year 1 – Introduction to Animation – Summer 2**, 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.

Please access resources at Teach Computing Curriculum - https://teachcomputing.org/curriculum

Assessment

National Curriculum Computing links

- 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

Assessment

Formative assessment opportunities will be provided throughout each lesson. The learning objective and success criteria will be introduced at the beginning of each lesson and then reviewed at the end. Learners should assess how well they feel they have met the learning objective using the teacher's chosen method.

Summative assessment completed on ScholarPack on teacher judgement alongside evidence from each session.

Teachers

Algorithms are a set of clear, precise and ordered instructions and a computer program is the implementation of an algorithm on a digital device.

When programming, there are four levels that can help describe a project, known as levels of abstraction. Research suggests that this structure can support learners in understanding how to create a program and how it works:

Task – what is needed
Design – what it should do
Code – how it is done
Running the code – what it does

Spending time at the task and design levels before engaging in code writing aids learners in assessing the achievability of their programs and reduces a learner's cognitive load during programming.

Before starting this unit, ensure you are familiar with your school's Beebots and Bluebots, including charging or battery requirements. You should also know how to switch the devices on and off, as well as key functions such as clearing the memory. It is advisable to use the robots on the floor if possible, as this can reduce damage caused by dropping.