**Year 2 Computing Curriculum – Spring Term**

|  |
| --- |
| **Theme: Robots** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| This unit develops learners’ understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them. | **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  |
| design |  to think up and plan out in the mind | directions | guidance on where to go |
| test | a means of finding out the nature, quality, or value of something | route | a way of getting from one place to another |
| debug | to fix  | 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. Year 1 – Commands for a robot. | **Future Knowledge:**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 describe a series of instructions as a sequence

(Use of Beebot online) | * Language needs to be clear and precise for a sequence.
* A series of instructions in an order or pattern is a sequence.
 | * follow instructions given by someone else
* choose a series of words that can be acted out as a sequence
* give clear instructions
 |
| 1. To explain what happens when we change the order of instructions

(Use of Beebot online) | * Sequences with different orders will affect the outcome.
* An Algorithm is a planned procedure.
* An Algorithm will determine where the robots travel to.
 | * use the same instructions to create different algorithms
* use an algorithm to program a sequence on a robot
* show the difference in outcomes between two sequences that consist of the same instructions
 |
| 1. To use logical reasoning to predict the outcome of a program

(Use of Beebot online) | * My prediction of the Algorithm could be different to the outcome.
* Logical reasoning will help me make predictions.
* The difference between reasoned decisions and making a guess.
 | * follow a sequence
* predict the outcome of a sequence
* compare my prediction to the program outcome
 |
| 1. To explain that programming projects can have code and artwork

(Use of Beebot online) | * Design in programming not only includes code and algorithms, but also artefacts related to the project, such as artwork.
 | * explain the choices that I made for my mat design
* identify different routes around my mat
* test my mat to make sure that it is usable
 |
| 1. To design an algorithm

(Use of Beebot online) | * Learners will outline what their task is by identifying the starting and finishing points of a route.
 | * explain what my algorithm should achieve
* create an algorithm to meet my goal
* use my algorithm to create a program
 |
| 1. To create and debug a program that I have written

(Use of Beebot online) | * To break the task into chunks and create algorithms for each chunk. This process is known as ‘decomposition’ and is covered further in key stage 2. Learners will also find and fix errors in their algorithms and programs. They will understand this process to be ‘debugging’.
 | * test and debug each part of the program
* plan algorithms for different parts of a task
* put together the different parts of my program
 |
|  |
| **Themes and links** |
| **Computing themes** | **Where these are covered:** | **Links across the Computing curriculum** |
| **Technology around us** Autumn 1  | * The use of Robots in our 21st century world
 |

|  |  |
| --- | --- |
| **EYFS** | To listen to instructions |
| **1** | Commands for a Robot |
| **3** | Sequence sounds |
| **4** | Repetition in Sounds – decomposition  |
| **5** | Simple circuits  |
| **6** | Variables in programming |

 |
| **Digital painting** Autumn 2  | * To use robots for artwork
 |
| **Programming A** Spring 1  | * Programming and giving commands to the robots
 |
| **Data /information** Spring 2  | * Storing the Algorithms and understanding clear and precise instructions
 |
| **Creating media** Summer 1  | * Decomposition and Debugging of Algorithms
 |  |
| **Programming B** Summer 2  | * Variables in programming and what to do to debug
 |