TSS Primary Computing MTP 2022-2023
Year 4 Block 4 – Repition in Games

Week	Key Targets and Learning Objectives	Key Activities	Key Vocabulary
1	To join the Scratch community	In this lesson students will create accounts at scratch.mit.edu using school credentials while paying particular attention to personal information Once Scratch accounts are confirmed students will continue their online coding course at code.org	• Scratch • Email • Gender • personal information • D.O.B
2	**4CT.02** Follow, understand, edit and correct algorithms that use iteration, including count-controlled loops. To develop the use of count-controlled loops in a different programming environment • I can list an everyday task as a set of instructions including repetition • I can predict the outcome of a snippet of code • I can modify a snippet of code to create a given outcome	**1. Using loops to create shapes** In the first lesson, learners look at real life examples of repetition, and identify which parts of instructions are repeated. Learners then use Scratch, a block-based programming environment, to create shapes using count-controlled loops. They consider what the different values in the loop signify, use existing code to modify and create new code, and work on reading code and predicting what the output will be once the code is run.	• Scratch • Programming • Sprite • Blocks • Code • Loop • Repeat • Value
3	**4CT.01** Follow, understand, edit and correct algorithms that use repetition, including indefinite (forever) loops. To explain that in programming there are infinite loops and count controlled loops • I can modify loops to produce a given outcome • I can choose when to use a count-controlled and an infinite loop • I can recognise that some programming languages enable more than one process to be run at once	**2. Different loops** In this lesson, learners look at different types of loops - both infinite loops and count-controlled loops. They practise using these within Scratch and think about which might be more suitable for different purposes.	• Block • Repeat • Forever • Infinite loop • Count-controlled loop • Costume

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4	**4CT.05** Predict the outcome of algorithms that contain repetition. To develop a design which includes two or more loops which run at the same time • I can choose which action will be repeated for each object • I can explain what the outcome of the repeated action should be • I can evaluate the effectiveness of the repeated sequences used in my program	**3. Animate your name** In this lesson, learners create designs for an animation of the letters in their names. The animation uses repetition to change the costume (looks) of the sprite, and the letter sprites will all animate together when the event block (green flag) is clicked. Once they have designed their animations, they will program them in Scratch. After programming, learners then evaluate their work, considering how effective their use of repetition was.	• Repetition • Forever • Infinite loop • Count-controlled loop • Animate • Costume • Event block • Duplicate
5	**4P.04** Know how to develop programs that produce a desired output, which includes the use of the repeat command. To modify an infinite loop in a given program • I can identify which parts of a loop can be changed • I can explain the effect of my changes • I can re-use existing code snippets on new sprites	**4. Modifying a game** In this lesson, learners look at an existing game and match parts of the game with the design. They make changes to a sprite in the existing game to match the design. They then look at a completed design, and implement the remaining changes in the Scratch game. They add a sprite, and re-use and modify code blocks within loops, and explain the changes made.	• Block • Repeat • Forever • Infinite loop • Modify • Design

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6	**4P.06** Know how to plan the instructions for objects within programs, including identifying inputs and outputs. To design a project that includes repetition • I can evaluate the use of repetition in a project • I can select key parts of a given project to use in my own design • I can develop my own design explaining what my project will do	**5. Designing a game** In this lesson, learners look at a model project using repetition. They then design their own game based on the model project, producing a design and algorithm for sprites in the game. They share these designs with a partner and have time to make any changes to their design as required.	• Infinite loop • Count-controlled loop • Repetition • Design • Sprite • Algorithm
7	**4P.04** Know how to develop programs that produce a desired output, which includes the use of the repeat command. **4P.07** Know how to test different parts of a program systematically, to identify and debug errors. To create a project that includes repetition • I can refine the algorithm in my design • I can build a program that follows my design • I can evaluate the steps I followed when building my project	**6. Creating our games** In this lesson, learners build their games, using the designs they created in lesson 5. They follow their algorithms, fix mistakes and refine designs in their work as they build. They evaluate their work once it is completed, and showcase games at the end.	• Repetition • Design • Algorithm • Duplicate • Debug • Refine • Evaluate