LESSON 4

The Power of Loops

40 minutes | Unplugged Adventures

WHAT THIS LESSON DOES

Hey there! In this lesson, you'll explore advanced loops to repeat actions efficiently. You'll create a fun workout using variable loops, follow exercise sequences, and build your own patterns. Grab paper, coloured pencils, and a die to get started!

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the concept of variable loops and how they allow for a changing number of repetitions.
- Apply loops to create and follow sequenced patterns in a practical, interactive context.
- Recognise the role of algorithms in defining the order and repetition of actions.
- Develop skills in designing and sharing original patterns using loops.
- Identify real-life examples of loops and their application beyond coding.

BEFORE THE LESSON

- This is an unplugged lesson: no pupil devices needed. You do need a screen or projector to show the on-screen Exercise Trio and Exercise Pattern interactives.
- Have at least one six-sided die ready, or make one by writing 1 to 6 on card. Groups will each need one for the final activities.
- Set out blank cards or sticky notes (six per group) and markers or coloured pencils.
- Clear enough floor space for small, safe movements, and plan a seated version of each exercise for anyone who needs it.

The Power of Loops

HOW THE LESSON RUNS

Introduction
Exercise Algorithms
Loop It Up
Your Variable Loop Workout
Let's Do It Together!
The Power of the Loop

TEACHING MOVES

- 1. Introduction. Frame the whole lesson: today the class becomes a program that repeats moves without writing them out each time. Tell them a variable loop changes how many times we repeat, which the die will decide.
- 2. Exercise Algorithms. Shuffle the Exercise Trio and read the three moves left to right, stressing that this exact order is the algorithm. Do each move for three slow counts, run three or four rounds, and offer a seated option throughout.
- 3. Loop It Up. Introduce the loop as repeating one move a set number of times. Point to the coloured ring and x2 or x3 on each tile, and show plainly that a tile with no ring is done just once.
- 4. Your Variable Loop Workout. Put pupils in groups of three or four to invent one safe exercise per card with a name and drawing. Have them lay out three cards left to right, then roll the die to set repeats for each.
- 5. Let's Do It Together! Stick four or five pupil cards on the board. Call a pupil to roll the die, announce the exercise and the rolled number, then lead everyone. Name the roll out loud as the variable changing the loop.
- 6. The Power of the Loop. Close by contrasting writing a move out many times with writing it once inside a loop. Ask pupils to name repeated things in daily life, a game character's path, a chorus in a song.

WHAT TO WATCH FOR

- Pupils treat the loop number as the total workout rather than repeats of one move, so they do all three exercises that many times. Point to a single ringed tile and count aloud: x3 means this one move three times, then we move on. Demonstrate one tile before running the round.
- Pupils change the order of the exercise cards as they go, missing that the order is fixed by the algorithm. Remind them the laid-out cards left to right are the algorithm and cannot be reordered mid-workout. Only the die changes the repeats, never the order.

DIFFERENTIATION

- Emerging: Give a pupil who is unsure a smaller job first, such as calling out the count aloud while others move. Pair them with a partner who can model each move before they try it.
- Developing: Have them run one round for their group without your prompting, reading the tiles left to right themselves. Ask them to explain back why a ringed tile is done more than once.
- Proficient: Let them add a second ringed tile to their group's pattern and predict the total number of moves before rolling. Ask them to describe another everyday loop and how many times it repeats.