



Year 4 – Programming (Repetition in shapes)



Rationale: This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.

Progression: This unit progresses students' knowledge and understanding of programming. It progresses from the sequence of commands in a program to using count-controlled loops. Pupils will create algorithms and then implement those algorithms as code.

Overview:	Subject Knowledge
Lesson 1: To identify	Lesson 1: This lesson will introduce pupils to programming in Logo. Logo is a text-based
that accuracy in	programming language where pupils type commands that are then drawn on screen.
programming is	Pupils will learn the basic Logo commands, and will use their knowledge of them to
important	read and write code.
Lesson 2: To create a	Lesson 2: In this lesson, pupils will create algorithms (a precise set of ordered
program in a text-based	instructions, which can be turned into code) for their initials. They will then implement
language	these algorithms by writing them in Logo commands to draw the letter. They will debug
Lesson 3: To explain	their code by finding and fixing any errors that they spot.
what 'repeat' means	Lesson 3: In this lesson, pupils will first look at examples of patterns in everyday life.
Lesson 4: To modify a	They will recognise where numbers, shapes, and symbols are repeated, and how many
count-controlled loop to	times repeats occur. They will create algorithms for drawing a square, using the same
produce a given	annotated diagram as in Lesson 2. They will use this algorithm to program a square the
outcome	'long' way, and recognise the repeated pattern within a square.
Lesson 5: To decompose	Lesson 4: In this lesson, pupils will work with count-controlled loops in a range of
a program into parts	contexts. First, they will think about a real-life example, then they will move on to using
Lesson 6: To create a	count-controlled loops in regular 2D shapes. They will trace code to predict which
program that uses	shapes will be drawn, and they will modify existing code.
count-controlled loops	Lesson 5: In this lesson, pupils will focus on decomposition. They will break down
to produce a given	everyday tasks into smaller parts and think about how code snippets can be broken
outcome	down to make them easier to plan and work with. They will learn to create, name, and
	call procedures in Logo, which are code snippets that can be reused in their
	programming.
	Lesson 6: In the final lesson, pupils will apply the skills that they have learnt in this unit
	to create a program containing a count-controlled loop. Over the course of the lesson,
	they will design wrapping paper using more than one shape, which they will create
	with a program that uses count-controlled loops. They will begin by creating the
	algorithm, either as an annotated sketch, or as a sketch and algorithm, and then
	implement it as code.
Assessment/Key Skills	

Summative assessment

Please see the assessment question and answer documents for this unit.