Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

Subject: Computing

Year group: 4

Term: Summer Term

Unit name: Repetition in shapes

Compassion

When Jesus arrived, he saw a large crowd. He felt sorry for them and healed those who were sick.

Matthew 14:14

Vocabulary	
Complex programming	Solve
Logical reasoning	Until
Script/script area	Count controlled loops
Conditional	Commands
Bugs	Coding
Solutions	Algorithm
Test	Repeat
Predict	

Big idea: **To plan, modify and test commands to create shapes and patterns using repetition and loops.**

This unit looks at repetition and loops in programming. Pupils will create programs by planning, modifying and testing commands to test shapes and pattern.

If there is sufficient time , there is a second unit -Unit B-Repetition in games that can be taught afterwards.

Progression of skills :

Declares and assigns variables.

Uses post-tested loop e.g. 'until', and a sequence of selection statements in programs, including an if, then and else statement.

Designs solutions (algorithms) that use repetition.

Prior learning:
Year 3 Summer term Sequence in Music unit. Children explored the programming environment of Scratch. They built sequences of commands and implemented their algorithms as code to produce a representation of a piano. Within the unit they applied stages of program design.

In **year 2** , children created and debugged simple programming of floor robots in **Programming Unit A** . Children may also have experience of other languages or environments such as ScratchJnr , which may also be useful.

2Logo

National Curriculum links :

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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Future learning:

Year 4 Programming B Repetition in Games. Here they will compare what they know to a new environment : Scratch. They will look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.

In **Year 5**, children go on to use selection in their programming units-**Selection in Physical Programming** and **Selection in Quizzes** .

In **Year 6**, there is a further games unit in which children develop their learning about variables-**Variables in Games**. Here they develop their use of the Scratch environment.

Key Learning assessment statements-what will the children know by the end of the unit?

To program a computer by typing commands to move a screen turtle.

To write an algorithm that will draw a letter, debugging their code and fixing errors.

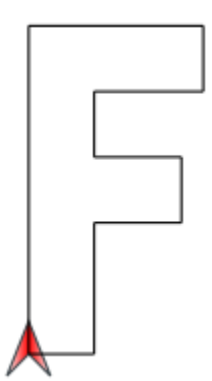
To use the repeat command to draw a shape , such as a square, using an efficient code .

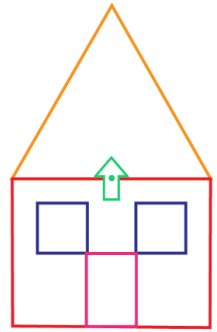
To use and modify count controlled loops to produce a certain outcome eg. Drawing a certain shape.

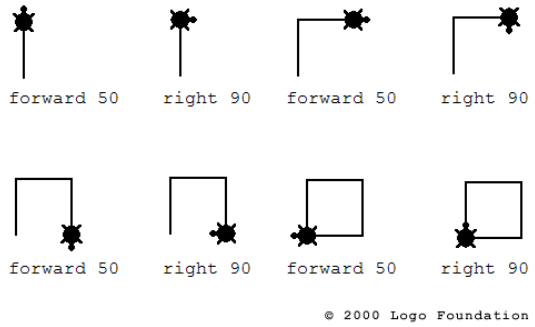
To decompose a problem and learn to create, call and name procedures in Logo that are code snippets. They recognise that these can be reused in programming.

To design , create and debug a program that uses count controlled loops.

To work collaboratively with a partner on their tasks.







Work in this unit can be linked to other aspects of the curriculum, such as art or angles work in Maths.

When unit A and B are both taught, they must be done in that order.

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