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|  **Lent 1: Programming A****Subject Computers Year 4 Medium Term Planning**  |
| **National Curriculum Objectives*** 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
* Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
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|  | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 |
| **Learning intention for each lesson:** | I know how to identify that accuracy in programming is important | I know how to create a program in a text-based language | I know how to explain what ‘repeat’ means | I know how to modify a count-controlled loop to produce a given outcome | I know how to decompose a task into small steps | I know how to create a program that uses count-controlled loops to produce a given outcome |
| **Recall and retrieval** |  |  What will happen… Changing command? |  What will the outcome be of an algorithm? | What is the repetition in the task? |  What will the outcome be of a program containing a count controlled loop? | How does the computer repeatedly call a procedure? |
| **Sequence of knowledge throughout the lesson** | I know how to program a computer by typing commands.I know how to explain the effect of changing a value of a command.I know how to create a code snippet for a given purpose. | I know how to use a template to draw what I want my program to do.I know how to write an algorithm to produce a given outcome.I know how to test their algorithm in a text-based language. | I know how to identify repetition in everyday tasks.I know how to identify patterns in a sequence.I know how to use a count-controlled loop to produce a given outcome. | I know how to identify the effect of changing the number of times a task is repeated.I know how to predict the outcome of a program containing a count-controlled loop.I know how to choose which values to change in a loop. | I know how to identify ‘chunks’ of actions in the real world.I know how to use a procedure in a program.I know how to exlain that a computer can repeatedly call a procedure. | I know how to design a program that includes count-controlled loops.I know how to make use of their design to write a program.I know how to develop their program by debugging. |
| **Scaffolding** | simple program commands | Supported to draw template. | Simple patterns and sequences. | Multiple choice of effects. | Supported to use a simple procedure. | Supported to write a simple program that includes count controlled loops. |
| **Challenge** | Change values of more than one command. | More complex algorithm. | More complex patterns and sequences. | More complex program. | To explain why a computer would repeatedly call a procedure. | More counter controlled loops in a program. |
|  | **Key Vocabulary**ProgramTurtle — an arrow or turtle image on screen that draws a line as it is programmed CommandsCode snippet — this could be the same as a program; it can have several sets of commands in one program | **Key Vocabulary** Algorithm — the part of the design of the program that is precise instructions to be implemented as code Design Debug — the process of finding and correcting errors in your codeLogo commands as detailed in the ‘Glossary’ handout | **Key Vocabulary**Pattern, repeat, repetition, count-controlled loop, algorithm, value | **Key Vocabulary**Repeat, repetition, count-controlled loop, trace, value | **Key Vocabulary** RepeatCount-controlled loopDecompose — break something down into smaller partsProcedure — a named code snippet that can be run multiple times | **Key Vocabulary** Count-controlled loop Procedure — a named code snippet that can be run multiple times Debug — the process of finding and correcting errors in your code Program — the entire solution to the task, and an implementation of the algorithm as code |