Year 5 Programming Progression 2020 - 2021

Y5	Programming - **Variables**	Computational Thinking - **Abstraction**	What this looks like - **Example Projects**
GDS	• Experiment and debug a program using a **variable** and a **conditional** statement to improve the quality and simplicity. • I can create my own program to solve a problem, incorporating a **variable** and **conditional**.	Can use abstraction to tinker and debug their program to make it as simple and effective as possible.	In Y5 children should begin experimenting with **variables** and **conditionals.** With Swift children will transition from block-based language to text based. Children could compare the statements of block coding with similar statements in text-based languages. To develop their understanding of variables children in Y5 could program a video game using Scratch or Tynker with a score or use the Micro:bits to make a reaction game. Using selection the children can create interactive stories on Scratch like this example. BBC What are Variables? BBC What is Selection?
EXS	• Read, design, write and debug a program using a **variable** and a **conditional**. • I can work collaboratively to plan and run a program incorporating a **variable** and **conditional**.	Can use abstraction to remove unnecessary details to actively improve their program.	
WTS	• Read, design and write a simple program using a **variable** and a **conditional**. • I know what a **variable** and **conditional** is.	Can use abstraction to remove unnecessary detail.	

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Key Vocabulary		Apps	Breakdown
Variable	A variable is a simple way of storing one piece of information somewhere in the computer's memory whilst a program is running. A variable can be numerical, textual or perhaps an indicator of true/false.		In Y4 children will have developed a better understanding of Tynker. Building on that children can look at the Tynker blocks language and compare that to swift playgrounds. In Y5 children should be exposed to different programming languages. Swift is the perfect extension from Hopscotch as the children can learn how to code a basic game using the skills they have developed so far, only in a text-based language? Using scratch children could pick games already created by Scratch authors and 'look inside' and Tinker with the code to see what effect this has. Carrying on from the work building basic Circuits in Y4 children can continue this by exploring different types of input with programs for example: programming an 'electric guitar' or 'fruit piano'.
Selection	Selection is when programs that are interactive, responding to inputs and behaving differently each time they run. With burglar alarms, if motion is detected then a siren sounds, else it remains on standby.		
Abstraction	Abstraction is about simplifying things - identifying what's important without worrying too much about detail.		

NC KS2 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