

Y5	Programming - Variables	Computational Thinking – Abstraction	What this looks like – Example Projects
GDS	<ul style="list-style-type: none"> <li>Experiment and debug a program using a <b>variable</b> and a <b>conditional</b> statement to improve the quality and simplicity.</li> <li>I can create my own program to solve a problem, incorporating a <b>variable</b> and <b>conditional</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Can use <u>abstraction</u> to tinker and debug their program to make it as simple and effective as possible.</li> </ul>	<p>In Y5 children should begin experimenting with <b>variables</b> and <b>conditionals</b>. 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.</p>
EXS	<ul style="list-style-type: none"> <li>Read, design, write and debug a program using a <b>variable</b> and a <b>conditional</b>.</li> <li>I can work collaboratively to plan and run a program incorporating a <b>variable</b> and <b>conditional</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Can use <u>abstraction</u> to remove unnecessary details to actively improve their program.</li> </ul>	<p>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.</p> <p>Using selection the children can create interactive stories on Scratch like this <a href="#">example</a>.</p>
WTS	<ul style="list-style-type: none"> <li>Read, design and write a simple program using a <b>variable</b> and a <b>conditional</b>.</li> <li>I know what a <b>variable</b> and <b>conditional</b> is.</li> </ul>	<ul style="list-style-type: none"> <li>Can use <u>abstraction</u> to remove unnecessary detail.</li> </ul>	<p><a href="#">BBC What are Variables?</a>  <a href="#">BBC What is Selection?</a></p>

Key Vocabulary		Apps	Breakdown
 <p>Variable</p>	<p>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.</p>	   	<p>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.</p>
 <p>Selection</p>	<p>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.</p>		<p>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?</p> <p>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.</p>
 <p>Abstraction</p>	<p>Abstraction is about simplifying things – identifying what’s important without worrying too much about detail.</p>		<p>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’.</p>

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

