

**Ramshaw Primary School**  
**Coding- Overview**

At Ramshaw Primary, we follow the Spark Tees Valley computing curriculum to ensure that our children are able to code and understand algorithms. Our approach is designed to equip pupils with the skills that they will need as they move through life. It is designed with progression in mind whilst being embedded in

**KS1**

<b>Getting started</b>	<ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>Blocks each have a specific function/command</li> <li>Blocks act in the order they are arranged</li> <li>An algorithm needs a starting trigger (input) at the beginning</li> <li>Actions onscreen are controlled by commands</li> <li>Actions need to be timed</li> </ul>	<p>How else could I start the program?</p> <p>How 'far' is the width of the screen?</p> <p>Can you change what he says?</p>
<b>Add a sprite</b>	<ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>Additional content, such as a sprite, can be added to a program</li> </ul>	<p>How do I find a new sprite?</p> <p>How can I take a background away from my uploaded sprite?</p> <p>How can I change my sprite size?</p> <p>How can I put my sprite in a different starting place?</p> <p>Can I use two sprites?</p>
<b>Add a backdrop</b>	<ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>A program can be run with different backgrounds</li> <li>A program can be tested by running it</li> </ul>	<p>How can I add a new backdrop?</p> <p>How can I add text to the backdrop?</p> <p>How can I change the appearance of the backdrop?</p>

**LKS2**

<b>Record a sound</b>	<ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>Programs can be used to play sounds</li> <li>Sounds can be inputted into some programs</li> </ul>	<p>How can I make my character say...?</p>
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<b>Animate a name</b>	<ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>• create and debug simple programs</li> <li>• use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>• Sprites can be changed in their appearance (e.g., size, rotation, colour)</li> <li>• A simple sequence can be repeated using a repeat function block</li> <li>• Negative numbers in code do the opposite of positive numbers</li> </ul>	<p>Can I make my letters all grow at the same time?</p> <p>Can I make my letters grow one at a time?</p> <p>Can I make each letter make a sound, one after the other?</p>
<b>Animate a sprite</b>	<ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>• create and debug simple programs</li> <li>• use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>• Changing between different poses of a sprite can create animation</li> <li>• Algorithms can include time commands to make them run effectively</li> </ul>	<p>How can I show my character is animated?</p> <p>Can I control the speed and duration of the animation to fit a story?</p>
<b>Add effects</b>	<ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>• create and debug simple programs</li> <li>• use logical reasoning to predict the behaviour of simple programs</li> </ul>	<ul style="list-style-type: none"> <li>• Variables affect how a sprite appears</li> </ul>	<p>Can I control my effects to fit the story timeline?</p>
<b>Animate a character</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Different inputs can have different outcomes</li> <li>• Multiple inputs can be used within a program</li> <li>• x and y are used to locate sprites on a screen</li> <li>• Effects can be reset by subsequent commands</li> </ul>	<p>What can I do to change my sprite?</p> <p>How can I make my sprite speak?</p>
<b>Create a story</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• A program can control multiple sprites</li> <li>• Timings need to be written into a program for it to run effectively</li> <li>• Multiple time lines can be run concurrently for different sprites</li> <li>• Sprites can 'act' within different scenes (backdrops)</li> </ul>	<p>Can I adapt my code to include different sprites, backdrops and speech to show a different story?</p>

## UKS2

<b>Use arrow keys</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Multi directional controls can be programmed for a sprite</li> </ul>	How can I make my movement smoother?
<b>Make a clicker game</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Algorithms need a reset function programmed in if it is designed to start from the same place each 'play'</li> <li>• Variables can be created to control information</li> </ul>	<p>How can I end the game?</p> <p>Can I add sprites that reduce my score if clicked?</p>
<b>Make a chase game</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Conditional commands can result in different outcomes depending on multiple factors e.g., if, then</li> </ul>	<p>How can I make the game harder? Faster? Easier?</p>

<b>Animate an adventure game</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Use variables to trigger actions (such as moving from one level to the next when a score is reached)</li> </ul>	Can you make the game harder? Easier?
<b>Code a cartoon</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple sprites have multiple 'timelines' and actions</li> <li>• Sprites can trigger change of scene</li> </ul>	Can you add variables so that the story is audience led?
<b>Pong Game</b>	<ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• Program for a mouse or a finger (on a tablet) to control a sprite</li> <li>• Program an end condition to a game</li> </ul>	Can you add multiple elements, some that have to be missed and some that you have to stop?