



## Progression in Computational Thinking at Pitmaston Primary School



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EYFS	Nursery Pupils will know how to:	Reception Pupils will know how to:
<b>Logic</b> <i>Anticipating and explaining is logical reasoning</i>	<ul style="list-style-type: none"><li>• Enjoy listening to longer stories and can remember much of what happens.</li><li>• Pay attention to more than one thing at a time, which can be difficult.</li><li>• Use longer sentences of four to six words.</li><li>• Increasingly follow rules, understanding why they are important.</li><li>• Remember rules without needing an adult to remind them.</li><li>• Solve real world mathematical problems with numbers up to 5</li><li>• Describe a familiar route.</li><li>• Discuss routes and locations, using words like ‘in front of’ and ‘behind’.</li><li>• Follow our Pitmaston Golden Rules</li><li>• Listen with increased attention to sounds.</li><li>• Respond to what they have heard, expressing their thoughts and feelings.</li></ul>	<ul style="list-style-type: none"><li>• Understand how to listen carefully and why listening is important</li><li>• Use new vocabulary through the day</li><li>• Articulate their ideas and thoughts in well-formed sentences.</li><li>• Connect one idea or action to another using a range of connectives</li><li>• Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary</li><li>• Follow our Pitmaston Golden Rules</li><li>• Explain the reasons for rules, know right from wrong and try to behave accordingly.</li></ul>
<b>Algorithms and Decomposition</b> <i>Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps</i>	<ul style="list-style-type: none"><li>• Understand a question or instruction that has two parts, such as “Get your coat and wait at the door”.</li><li>• Understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?”</li><li>• Know many rhymes, be able to talk about familiar books, and be able to tell a long story</li><li>• Use talk to organise themselves and their play: “Let’s go on a bus... you sit there... I’ll be the driver.”</li></ul>	<ul style="list-style-type: none"><li>• Retell the story, once they have developed a deep familiarity with the text, some as exact repetition and some in their own words.</li><li>• Draw information from a simple map.</li><li>• Invent, adapt and recount narratives and stories with peers and their teacher.</li><li>• Develop storylines in their pretend play.</li><li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li><li>• Create collaboratively, sharing ideas, resources and skills.</li></ul>
<b>Patterns and Extraction</b> <i>Grouping things, comparing, spotting similarities and differences, working out rules</i>	<ul style="list-style-type: none"><li>• Increasingly able to use and remember sequences and patterns of movements which are related to music and rhythm.</li><li>• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen, or one which is suggested to them.</li><li>• Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).<ul style="list-style-type: none"><li>• Say one number for each item in order: 1,2,3,4,5</li><li>• Show ‘finger numbers’ up to 5</li><li>• Compare quantities using language: ‘more than’, ‘fewer than’</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</li><li>• Continue, copy and create repeating patterns.</li><li>• Compare length, weight and capacity</li><li>• Explore the composition of numbers to 10.</li><li>• Understand the ‘one more than/one less than’ relationship between consecutive numbers</li><li>• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</li></ul>



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	<ul style="list-style-type: none"><li>• Make comparisons between objects relating to size, length, weight and capacity.</li><li>• Extend and create ABAB patterns – stick, leaf, stick, leaf.</li><li>• Notice and correct an error in a repeating pattern.</li><li>• • Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</li></ul>	<ul style="list-style-type: none"><li>• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li><li>• Compare and contrast characters from stories, including figures from the past.</li></ul>
<b>Abstraction</b> <i>Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary</i>	<ul style="list-style-type: none"><li>• Pay attention to more than one thing at a time, which can be difficult.</li><li>• Engage in extended conversations about stories, learning new vocabulary.</li><li>• Write some or all of their name.</li><li>• Write some letters accurately.</li><li>• Know that there are different countries in the world and talk about the differences they have experienced or seen in photos.</li></ul>	<ul style="list-style-type: none"><li>• Learn new vocabulary</li><li>• Ask questions to find out more and to check they understand what has been said to them.</li><li>• Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</li></ul>
<b>Tinkering</b> <i>Playing and exploring</i>	<ul style="list-style-type: none"><li>• Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks.</li><li>• Match their developing physical skills to tasks and activities in the setting. For example, they decide whether to crawl, walk or run across a plank, depending on its length and width.</li><li>• Use all their senses in hands-on exploration of natural materials.</li><li>• Explore collections of materials with similar and/or different properties.</li><li>• Talk about what they see, using a wide vocabulary.</li><li>• Explore how things work.</li><li>• Take part in simple pretend play, using an object to represent something else even though they are not similar.</li><li>• Explore colour and colour-mixing.</li><li>• Play instruments with increasing control to express their feelings and ideas.</li></ul>	<ul style="list-style-type: none"><li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons</li><li>• Explore the natural world around them.</li><li>• Describe what they see, hear and feel whilst outside.</li><li>• Understand the effect of changing seasons on the natural world around them.</li></ul>
<b>Creating</b> <i>Creating, checking and fixing things</i>	<ul style="list-style-type: none"><li>• Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel.</li><li>• Experiment with their own symbols and marks as well as numerals</li><li>• Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park</li><li>• Develop their own ideas and then decide which materials to use to express them.</li><li>• Join different materials and explore different textures</li></ul>	<ul style="list-style-type: none"><li>• Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li><li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li><li>• Create collaboratively, sharing ideas, resources and skills.</li><li>• Listen attentively, move to and talk about music, expressing their feelings and responses.</li><li>• Watch and talk about dance and performance art, expressing their feelings and responses.</li></ul>



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	<ul style="list-style-type: none"><li>• Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</li><li>• Create their own songs, or improvise a song around one they know</li><li>• Be able to fix a model they have created when it breaks e.g. rebuilding a tower</li></ul>	<ul style="list-style-type: none"><li>• Sing in a group or on their own, increasingly matching the pitch and following the melody.</li><li>• Develop storylines in their pretend play.</li><li>• Explore and engage in music making and dance, performing solo or in groups.</li><li>• Begin to notice simple mistakes in their own work</li></ul>
<b>Persevering</b> <i>Not giving up</i>	<ul style="list-style-type: none"><li>• Understand gradually how others might be feeling</li></ul>	<ul style="list-style-type: none"><li>• Show resilience and perseverance in the face of challenge.</li><li>• Think about the perspectives of others</li><li>• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge</li></ul>
<b>Collaborating</b> <i>Playing and working collaboratively</i>	<ul style="list-style-type: none"><li>• Be able to express a point of view and to debate when they disagree with an adult or a friend, using words as well as actions.</li><li>• Start a conversation with an adult or a friend and continue it for many turns.</li><li>• Develop their sense of responsibility and membership of a community.</li><li>• Play with one or more other children, extending and elaborating play ideas.</li><li>• Talk with others to solve conflicts.</li><li>• Start taking part in some group activities which they make up for themselves, or in teams.</li><li>• Continue developing positive attitudes about the differences between people.</li><li>• Play a simple turn taking game in a small group</li></ul>	<ul style="list-style-type: none"><li>• Build constructive and respectful relationships.</li><li>• Express their feelings and consider the feelings of others</li><li>• Identify and moderate their own feelings socially and emotionally.</li><li>• Work and play cooperatively and take turns with others.</li><li>• Form positive attachments to adults and friendships with peers.</li><li>• Show sensitivity to their own and to others’ needs.</li><li>• Be able to wait to take their turn to speak</li><li>• Work collaboratively with a partner</li></ul>



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## Cross-reference of the EYFS Computational Thinking concepts to the Prime Areas of Learning

	Communication and Language		Personal, Social and Emotional Development			Physical Development	
	Listening, Attention and Understanding	Speaking	Self-Regulation	Managing Self	Building relationships	Gross Motor Skills	Fine Motor Skills
Tinkering						✓	✓
Creating						✓	✓
Collaboration	✓		✓	✓	✓		
Persevering	✓			✓			
Logic	✓	✓					
Pattern	✓	✓					
Abstraction	✓	✓					
Algorithms and decomposition	✓	✓					



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