



Reception: Understanding Pattern

Unit 13: Exploring patterns Unit 16: Numerical Patterns	
Importance of this topic	<p>It introduces the skills of noticing, exploring and understanding pattern. These provide the foundations that underpin mathematical thinking later on.</p> <p>The topic prompts children to investigate, copy and create visual patterns in both 2D and 3D, and then to apply this practice to spot numerical patterns.</p>
How this topic develops	<p>Unit 13: Children will learn to recognise, explore and create simple visual patterns, continue a given pattern and then create their own. They will begin with patterns of two elements, and progress to more-complex sequences.</p> <p>Unit 16: Here they will explore number patterns, looking at halving and sharing, doubling, and then recognising odd and even numbers.</p>
Structures and representations	<p>3D and 2D shapes 2D and 3D shapes are used in Unit 12 to show patterns.</p> <p>Objects for arranging These sequences are also created using differently coloured multilink cubes and counters, and real-life objects such as small toys.</p> <p>Sorting circles and part-whole models Sorting circles and part-whole models are used in Unit 15 to assist with splitting a quantity into two.</p> <p>Ten frames Ten frames are also used in Unit 15, to structure and show doubles.</p>
Key vocabulary	<p>In the 'Pattern' units, children will learn vocabulary for discussing patterns of shapes, for recognising the way numbers are doubled and halved, and for identifying odd and even numbers.</p> <p>next; repeat; pattern; core; double; half; share; divide; split; odd; even</p>

<p>Misconceptions and interventions</p>	<p>Misunderstanding linear patterns</p> <p>Children may believe that patterns can be continued in only one direction: forwards, not backwards.</p> <p>To intervene, provide a pattern of beads in the middle of a string, and ask them to complete a necklace from this central point. The practicality of this task should embed understanding.</p> <p>Difficulty translating patterns</p> <p>Children may not be secure in their understanding of translating patterns from one form to another.</p> <p>To assist them, suggest that they use the same type of object, changing only one attribute, such as colour.</p> <p>Incorrectly dividing odd numbers</p> <p>When asked to halve an odd number of objects, children may create unequal groups.</p> <p>To structure their divisions, provide concrete resources and ask children to ensure the objects are split equally, moving one to each new position at a time. Assure children that grouping equally means they will often have one item 'left over'.</p>
<p>Assessing for mastery</p>	<p>Children who have mastered this topic will be able to recognise patterns with repetitions of two, three or four items. They will identify what part is repeated to make it a pattern, and be able to continue the sequence.</p> <p>They will also be able to create these patterns themselves, using a variety of resources.</p> <p>Children will be able to use concrete resources to double and halve numbers.</p> <p>They will understand that even numbers can be divided into pairs or equal groups, and odd numbers will have one 'left over'.</p>