**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 5 | STRAND: Number and Algebra | **SUB-STRAND:** Patterns and Algebra 1 | **WORKING MATHEMATICALLY:**  MA1-1WM, MA1-2WM |
| OUTCOMES: MA1-8NA | | **Creates, represents and continues a variety of numbers and objects.** | | |
| **CONTENT:** | | **Investigate and describe patterns formed by skip counting and patterns with objects. (ACMNA018)**   * Create, record and describe patterns with objects or symbols. * Describe a repeating pattern of objects or symbols in terms of a ‘number’ pattern, e.g.   \*, #, \*, #, \*, # ..... is a ‘two’ pattern  @, #, $, @, #, $, @, #, $ ..... is a ‘three’ pattern  #, ^, \*, +, #, ^, \*, +, #, ^, \*, +, ...... is a ‘four’ pattern | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Clap a pattern, are the children able to copy the pattern, singly or in groups. Use a variety of percussion instruments to play a rhythm pattern. Students copy the pattern. | | |
| WARM UP / DRILL | | Using playing cards, flash different numbers at children and get them to tell you what number they need to make 10. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | |  | | |
| QUALITY TEACHING ELEMENTS | | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge * Deep understanding * Problematic knowledge * Higher-order thinking * Metalanguage * Substantive communication | * Explicit quality criteria * Engagement * High expectations * Social support * Students’ self-regulation * Student direction | * Background knowledge * Cultural knowledge * Knowledge integration * Inclusivity * Connectedness * Narrative |
| RESOURCES | | Websites: Count Me in Too; http://www.cheekymonkeyresources.co.uk/Sequencenew/SEQUENCE.htm <http://www.topmarks.co.uk/Flash.aspx?f=SnowflakeSequencesv2> [www.harcourtschool.com/activity/paul\_pattern](http://www.harcourtschool.com/activity/paul_pattern); [www.wnet.org.uk/resources/gordan/counting](http://www.wnet.org.uk/resources/gordan/counting); Talking about Patterns and Algebra, Dept of Ed book. | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * Show the children how you can make patterns using different objects e.g. counters, teddy counters and other animal counters. Attribute blocks. Can the children pick the pattern? Can they continue the pattern? * Website Paul Pattern. | LEARNING SEQUENCERemediationES1 | * **Investigating Pattern Labels**   Give each pair of students a pile of variously coloured counters and set the task of making repeating patterns that could be called four patterns.  Ask students questions such as these:  Can some four patterns also be called two patterns? Why? Students realise that the second pattern above could be called both a two pattern and a four pattern.  Can some four patterns also be called eight patterns? Why? Students realise that the first pattern above could be called both a four pattern and an eight pattern. |
| LEARNINGSEQUENCES1 | * Make a linear repeating pattern with objects or shapes such as the following     Students describe the pattern and give it a name. If they label it as *a square-circle pattern*, ask: *Can you give it a number name?* If they suggest *six pattern*, extend the pattern so it can be no longer called a *six pattern* as below.    Ask students if they can think of a number name that doesn’t have to change when the pattern is extended. Ask them to explain why they choose the labels they do. A possible label for this pattern is *two pattern* because the part of the pattern that repeats has two shapes.  Consider the following pattern:    If a student calls it a *one-two pattern*, ask if there could be any other name for it. Calling it a *three pattern* leads to concepts of number combinations Provide numeral cards with collections of objects or shapes. Students use them as labels for their patterns, as in the following examples |
| LEARNING SEQUENCEExtensionEarly S2 | * Continuing the patterns   Start a pattern on the floor with concrete materials. Explain the rule used in the pattern and ask them to continue it. After a thorough understanding of the given rule, allow some students to tell you what the rule is and apply it to a new situation. |
| **EVALUATION & REFLECTION** |  |