**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 3 | STRAND: Number and Algebra | **SUB-STRAND:** Patterns and Algebra 1 | WORKING MATHEMATICALLY: MA2-1WM, MA2-2WM, MA2-3WM, MA2-8NA |
| OUTCOMES: MA2-8NA | **Generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values** |
| **CONTENT:**  | **Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9. (ACMNA074)*** - generate number patterns using multiples of 3, 4, 6, 7, 8 and 9, e.g. 3, 6, 9, 12…
* - investigate visual number patterns on a number chart (Problem solving) CCT
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Provide students with a hundreds chart. Ask them to colour the multiples of 6 and 9 on there. Using the same chart (and a new coloured pencil) give students a starting number and ask them to go backwards by 7’s. Using another colour provide a different starting number and ask the students to go forward by 6’s.
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| WARM UP / DRILL | * **Skip counting**

Daily practice of counting forwards and backwards by 3, 4, 6, 7, 8, and 9 from any starting point.<http://www.toytheater.com/number-pattern.php> fill in the missing number of patterns<http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.PATT&ID2=AB.MATH.JR.PATT.PATT&lesson=html/video_interactives/patterns/patternsInteractive.html> Next three terms in a given pattern |
| 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
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| RESOURCES | hundred chart, counters, blutak, blank cards |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Lesson 1<http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true> The movie link revises the different ways you can assist you to find patterns. **Generating Sequences by Counting**Students generate multiples sequences in different ways. For example, to list the multiples of three, they could silently count two numbers and count out loud every third number as far as 30. After doing this two or three times, ask students to recall the numbers they said out aloud.Record the numbers on the board as the multiples of three. Discuss: Why do you think these numbers are called multiples of three? Students work in pairs to continue the sequence and look for patterns. A hundreds chart and transparent counters are used to highlight patterns for multiples of three. Display the multiples of three sequence. Return to it later and ask questions such as: What did we call this sequence of numbers? Why? Cover it up and ask questions such as: What is the eighth multiple of three? How did you work it out? What are some different ways you could work it out?* **Lesson 2**

Construct a wall chart of key phrases used in number patterns. Discuss the meaning of the phrases using a number chart and write examples next to the phrases.nn_paal_01_05* **Lesson 3**

Continue concepts from Lesson 2 but apply to patterns 6, 7, 8, 9. | LEARNING SEQUENCERemediationS2  | * All lessons are to be done as per S2 however only looking at 2’s, 5s and 10’s.

<http://www.bbc.co.uk/bitesize/ks1/maths/number_sequences/play/> next number in the sequence game |
| LEARNING SEQUENCES2  | * Repeat this sequence (from Lesson 1) for other multiples.
* Provide pairs of students with a set of directions for making patterns (using phrases listed on the wall chart) and a number chart. One student reads the direction for making a pattern from the number chart while the other student follows the direction and makes the pattern using counters or writing numbers. **Directions for making patterns:**

http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2010/numeracy/nn_paal/images/nn_paal_01_06.jpg* Continue concepts from Lesson 2 but apply to patterns 6, 7, 8, 9.
* Investigation: Students work in pairs to construct a pattern on a number chart using blank cards and Blu-Tack to cover the numbers. Students refer to the wall chart of key phrases to assist them in writing the directions for their pattern.
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| LEARNING SEQUENCEExtension Late S2 | * Use patterns where the starting number is less than one e.g. fractions and decimals to determine if students receive similar results.

<http://www.k5learning.com/sites/all/files/sample_lessons/Algebra_Functions_L2_V1_T4a/Algebra_Functions_L2_V1_T1a.swf> Find the rule |
| **EVALUATION & REFLECTION** |  |