**MATHEMATICS ES 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 7 | STRAND: Number and Algebra | **SUB-STRAND:** Patterns and Algebra | **WORKING MATHEMATICALLY:** MAe-1WM, MAe-2WM, MAe-3WM, Mae-8NA |
| OUTCOMES: Mae-8NA | | **Recognises, describes and continues repeating patterns** | | |
| **CONTENT:** | | **Copy, continue and create patterns with objects and drawing**  \* Create or continue a repeating pattern using computer graphics (Problem solving) | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Use Echidnas *pp 131 DENs*   Make patterns with toothpicks placed into echidnas.  Draw a toothpick pattern. L..ll..lll…llll…lllll Predict what is next?   * Problem Posing *p31 Talking about P&A*. | | |
| WARM UP / DRILL | | * Have students watch you as you draw the following pattern. * \* \* \* \* \* \* \* * \* \* \* \* Describe the pattern. Read the pattern using numbers3, 1, 3, 1, 3, 1, 3,….Now try with 4 and 2. * \* \* \* \* | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | \* Pointers for interview: http://www.curriculumsupport.education.nsw.gov.au/primary/mathematics/assets/pdf/sqone.pdf What pattern is created by these ‘core items?’  Can you change the core items and make a new pattern? | | |
| 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 | | Ipads, Targeting Maths-Launch Pad Talking about. P&A <http://www.linkslearning.k12.wa.us/kids/1_math/2_illustrated_lessons/5_Patterns/index.html>  <http://resources.hwb.wales.gov.uk/VTC/simple_patterns/eng/Introduction/default.htm>  ………….http://www.topmarks.co.uk/ordering-and-sequencing/caterpillar-ordering | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Explicitly communicate lesson outcomesTeach and review the language for patterns.Demonstrate placing items ‘in-a-row’Metalanguage of: design, pattern, repeating pattern, missing element, same, different, next, in-a-row, beside, again, copy, ‘read’-the pattern.  * Also ‘Core of pattern’. | LEARNING SEQUENCERemediationES1 | * Play ‘Mad Monkeys’ from *Targeting Maths Launch Pad.*   Discuss patterns.  Alternatively use ‘Links Learning’ *Video sessions on Patterns.*   1. Examples 2. Patterns 3. ‘Core of pattern’ 4. Extending patterns 5. Same patterns different images |
| LEARNING SEQUENCEES1 | * Use *Simple\_Patterns* program   Introduction: Viewing of the making colour, shape or picture patterns. Demonstration of these patterns.  Development:   1. Recognise and recreate simple patterns 2. Creating patterns using computers  * **Investigation**: Making patterns using colour, shape or picture using ‘*simple\_patterns’*. |
| LEARNING SEQUENCEExtensionEarly S1 | * Use ‘Top Marks’   <http://www.topmarks.co.uk/ordering-and-sequencing/caterpillar-ordering>  Order and sequence numbers. |
| **EVALUATION & REFLECTION** | * Play: ‘The Sequence Game.’ Anecdotal notes   Search:‘Topmarks’  http://www.literactive.com/Download/live.asp?swf=story\_files/sequence\_game\_US.swf |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.