**MATHEMATICS ES 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK:10 | 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**  Describe a repeating pattern made from shapes by referring to its distinguishing features, e.g. ‘I have made a pattern from squares. The colours repeat. They go red, blue, red, blue…’ | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Students given a set of counters containing two colours and are asked to put the counters in a row. Some children may create a repeating pattern, others may not. The intention of the activity is to distinguish between those arrangements that are repeating and those that are not. * Anecdotal notes. | | |
| WARM UP / DRILL | | * Maths: Sorting and classifying: *Monster Madness* : <http://www.e-learningforkids.org/math/> * Number Sense: Make 11 on an o/head projector. Then show 10 and 1, 9 and 2, 8 and 3, 7 and 4, predict patterns to follow. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Pointers for interview: <http://www.curriculumsupport.education.nsw.gov.au/primary/mathematics/assets/pdf/sqone.pdf> Where do we see patterns/Tell me how to make this pattern? What comes next in this pattern? Which part of the pattern is repeated?  Tell me how to make this 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 | | Shape pattern cards. 20 children x 3 cards. (Shapes square, triangle, circle, rectangle) Other attributes may be colour and size.  Monster madness: <http://www.e-learningforkids.org/math/>  Talking about P&A, NEALS, DEC | | |

**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’.  * Repeat, repeated, repeating. | LEARNING SEQUENCERemediationES1 | * *Printing shape patterns*   Children make a pattern using sponges and paint. Each child then reads his or her pattern to a friend.   * *Sound and action patterns*   Create repeating patterns with a sequence of different sounds or actions, such as clap, clap, stamp, stamp, stamp.  Ask the students to continue repeating patterns |
| LEARNING SEQUENCEES1 | * Have children sit in a large circle. Pass around the bucket of pattern blocks and ask the children to select three blocks. Start the pattern. Go one at a time, ask the children to complete the pattern. Discuss with the children, ‘Can you predict what comes next?’ Change the ‘core pattern’ now can we fix up blocks to make the new pattern. Some children will not have a shape to contribute as the turn goes around the circle. * Use shape cards to make pattern. * *Investigation:* What happens when a pattern uses the same card in the original pattern? * Use counters to make a three pattern. Ask what parts would repeat to continue the pattern?   *P8 Talking about P&A* |
| LEARNING SEQUENCEExtensionEarly S1 | * With the pattern make an array increasing in size.   \*\* \*\*\*………….\*\*\*\*  \*\*……….\*\*\*…………..\*\*\*\*  ……………\*\*\*…………..\*\*\*\*  ………………………………\*\*\*\* ?   * What is a pattern?   *P11 Talking about P&A* |
| **EVALUATION & REFLECTION** |  |

* 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.