**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 1 | STRAND:Numbers and Algebra | **SUB-STRAND:**  **Patterns and Algebra 2** | **WORKING MATHEMATICALLY:**  MA1-1WM, MA1-2WM, MA1-3WM |
| OUTCOMES: MA1-8NA | | **Creates, represents and continues a variety of patterns with number objects** | | |
| **CONTENT:** | | **Describe patterns with numbers and identify missing elements** (ACMNA035)   * Describes a number pattern in words, eg. “It goes up by threes.” | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Questioning: How do we find patterns in numbers? What do we look for? | | |
| WARM UP / DRILL | | Display 100s chart on the board.  Counting forwards and backwards by 2s, 5s and 10s as a whole class.  [www.primarygames.co.uk/pg2/splat/splatsq100.html](http://www.primarygames.co.uk/pg2/splat/splatsq100.html) | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | TENS Activity- Using the hundreds chart look at different patterns using multiples and factors (DENS1 Page 273) | | |
| 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 | | Hundreds chart, ruler, interlocking cubes, counters, number cards | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Play a game of ‘Lily on the Pond’. Have students sit in a circle. Place in the middle of the circle a variety of A4 size number cards (40-56) that are not in any order. Ask a student to find a card that has the number that you say. Then ask them to hop onto a card that is one more, or the next number after that (e.g. Lucy, hop onto the number 65, now hop onto the number that is one more than that; now hop onto a number that comes two numbers after that’, etc). Give the other students the opportunity to tell Lucy where she is to hop to next. Ask children to give instructions that involve the language of maths such as ‘one more’, ‘one less’, ‘five more’, ‘five less’, ‘the number after’, etc.Provide each child with a ruler. Discuss what number a ruler starts at (0). If we were to count on two places from 0 what number would we land on? If we count on two more places what would the number be? (4). Continue this up to the number 12. As the students if they know what number we would land on after 12 if we continued this pattern. Encourage students not to do this on the ruler but work it out from the pattern. Begin this process but this time count on by 5s.  * Draw a number line on the whiteboard and show students how this works the same as a ruler. Demonstrate making jumps on a number line. Show that a number line does not always start at the number 0 but can start at other points. | LEARNING SEQUENCERemediationES1 | * Students investigate using interlocking cubes and counters.   Ask students two place 2 cubes/counters in front of them, then 4 counters, etc.  Can students see a pattern? What are the numbers jumping up by?   * Change the number to go up by 3s, 5s and 10s.   Friends to 30 |
| LEARNING SEQUENCES1 | * Begin a number sequence and ask students to work in pairs to continue it.   For example:  3, 6, 9, 12, 15, …. 30, 27, 24, 21, 18, ….  1, 3, 6, 10, 15, …. 1, 4, 7, 10, 13, ….  1, 2, 4, 8, 16, …. 1, 3, 7, 13, 21, ….  1, 4, 9, 16, 25, …. 100, 90, 81, 73, 66, ….   * Students describe the patterns and how they have continued them. This will involve them in describing and labelling the patterns. * Friends to 100 |
| LEARNING SEQUENCEExtensionEarly S2 | * As an extension to S1 activity, numbers are arranged randomly on cards. Ask: What other numbers can you put on these cards?   31 19 7  37 1  13 25  18 6  3 15 9  21 12  Do the students arrange the numbers in order to work out what numbers can be included on the card? Suggest this strategy if your students see the numbers on the first card as simple odd numbers.   * As a variation to this activity, arrange the numbers randomly on a card or board.   66 36  56 16  26 6  Ask: What number is missing?  Do the students arrange the numbers in order to work out the missing numbers?  **Investigation:** Students create their own number sequence problems.  Friends to 100+ |
| **EVALUATION & REFLECTION** | * Observation and questioning: * Where students able to skip jump by 2s, 5s and 10s? * Where students able to start their skip counting from a different number other than zero? |