**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM:  | WEEK: 2 | 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.*** Investigate and solve problems based on number patterns.
* Represent number patterns on number lines and number charts.
* Recognise, copy and continue number patterns that increase or decrease, eg 1, 2, 3, 4, ......; 20, 18, 16, 14, .......
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Can the children recognise odd and even numbers?
 |
| WARM UP / DRILL | * **Body counting**; Children in circle, count around class, every second person for even numbers to a hundred and then the odd numbers to one hundred.
 |
| 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 | Counters, number cards and ten grids.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**

|  |  |
| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * **Re-exploring Odd and Even**

In pairs, students are given twenty counters and a 10 x 2 grid.The teacher chooses a number [in the range 1 to 20] and asks the students to collect that number of counters and place them on a grid, paired in two rows, e.g. ‘Collect 12 counters and pair them in two rows on the grid.’

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # | # | # | # | # | # |  |  |  |  |
| # | # | # | # | # | # |  |  |  |  |

Students are asked to keep a record of which numbers of cannot, and which numbers can, be paired. The teacher continues to choose other numbers for students and uses the terms ‘odd’ and ‘even’ to describe the two groups of numbers.* **Is It True?**

Record statements such as the following, some true and some not true, and ask students if they are true, and to justify their answers. For example: 14 + 2 = 2 + 14 18 + 3 = 2 + 18 56 + 79 = 79 + 56Do students realise that they do not have to do the addition in any of these examples, but they simply have to compare the two expressions?Do they baulk at the large numbers in the third example, not realising that no calculations need to be done?This activity gives students the opportunity to generalise about patterns of addition.  | LEARNING SEQUENCERemediationES1  | * **What is a pattern?**

Show students a sheet of paper with a random arrangement of three coloured circles.Ask: Is this a pattern?Allow the students to discuss their ideas, and lead them to understand that this, by itself, is not a pattern.Next, line up five photocopies of the sheet.Ask: Is this a pattern?Allow discussion, and lead students to understand that this is a pattern because there is something that repeats. |
| LEARNING SEQUENCES1 | * **Frog Jump**: Set of number cards are placed face down in order. Teacher turns over cards e.g. 3, 6 and 9 and places the frog counter on number 9. Teacher explains that Freddie the Frog has jumped on some of the cards to make a number pattern. Ask questions; what numbers can you see? How many numbers is Freddie jumping over each time? What number will Freddie jump on next? How do you know? Etc.
* Repeat for other numbers; place numbers in descending order; remove the first few number cards to create a pattern that begins from a number other than 1.
* Using the concepts from Frog Jump – do the same activity but rather than cards, use a number line.
* Using the concepts from Frog Jump – do the same activity but rather than cards, use a hundred chart. (work samples)
 |
| LEARNING SEQUENCEExtension Early S2 | * Using the hundred chart and various colours, students are to apply skills for multiples of 4’s, 6’s, 7’s, 8’s and 9’s. Use various colours to assist with counting forwards and backwards by multiples.
* Investigation: Using a blank hundreds chart, have students identify patterns of 4, 6,7,8,9 using different starting numbers. (Provide the starting numbers to assist with marking and accuracy)
 |
| **EVALUATION & REFLECTION** |  |