**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 16 | STRAND: Number & Algebra | **SUB-STRAND:** Multiplication & Division 2 | **WORKING MATHEMATICALLY:** MA1-1WM |
| OUTCOMES:  | MA1-1WM describes mathematical situations and methods using everyday and some mathematical language, actions, materials, diagrams and symbolsMA1-2WM uses objects, diagrams and technology to explore mathematical problemsMA1-3WM supports conclusions by explaining or demonstrating how answers were obtainedMA1-6NA uses a range of mental strategies and concrete materials for multiplication and division |
| **CONTENT:**  | * Use empty number lines and number charts to record repeated addition, E.g. Communicating
* Explore the use of repeated addition to count in practical situations E.g. Counting stock on a farm. (Problem Solving)
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Children should be able to use a number line to solve addition and subtraction number stories.Children should understand the concept of ‘counting on’.Children should understand the concepts of equal groups, equal rows and equal jumps. |
| WARM UP / DRILL | * Recite skip counting patterns for 2, 5 & 10
* Use Tens Frames with equal rows of dot patterns. Quickly flash these to the children and have them tell what they can see. Egg. I saw 2 rows of 4, or I saw 8 because there were 4 on the top and 4 on the bottom row.
* 1 Minute Challenge-Give children numeral cards to sequence to show a given skip counting pattern. This activity could be done on a whiteboard or on a 100’s chart using counters to show the pattern.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Ask children to use an empty number line to show how they could solve the following problems:My four dogs were each given three dog biscuits each. How many dog biscuits is that altogether?The three hens at home laid five eggs this week. How many is that altogether?Note: Change the numbers in the problems to suit student’s ability. |
| 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 | Interactive 100s chart on the IWB, Class sets of number lines and 100s charts, counters, skip counting songs (YouTube) and poems, SKWIRK IWB support material.http://nswcurriculumsupport.wikispaces.com/Stage+1 |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
|  Revise what a number line is and how it can be used. (Students may link this to prior knowledge of use to solve addition and subtraction problems)* Teacher to model making equal jumps using a marker of some sort (counter, bear etc.) Explicitly articulate the number of jumps made and how big each jump is.)
* Teacher to display word cards e.g. 3 jumps of 2 and students to demonstrate how they would show this on a marked number line. Children should be confident in doing this before being introduced to the unmarked number line.
* Teacher to demonstrate how an unmarked number line can be used to communicate thinking – mental strategies such as skip counting.
* Ask students to make unmarked number lines to show the skip counting pattern from 0 -12 for 2, 3, 4 & 6
* Each day build upon student’s knowledge
* Model how an unmarked number line could be useful to help solve problems. (See Newman problems)
 | LEARNING SEQUENCERemediationES1  | * Students each have a number line marked with numbers (to 30) and one counter. Teacher shows student a number card e.g. 1 and models to students how to hop the counter along the number line. Students to demonstrate how they can do this.
* Teacher then poses a question, e.g. where would I land if I did 2 hops of 1. Teacher to model and students to tell where the counter lands.
* Teacher continues guiding the children through the activity moving the students to bigger hops. When students appear confident in using the number line to demonstrate equal jumps, begin to give students some simple investigations to explore.

Note: Make the link of repeated addition by writing the number story for children to see. E.g. 1+1+1+1+1=5 is the same as 5 equal jumps of 1 on the number line. |
| LEARNING SEQUENCES1 | * On a large ‘walk on’ number line, have students jump on numbers to represent skip counting patterns- E.g. Jump on2, 4, 6 etc.
* Revise using a marked number line to demonstrate how a multiplication story can be solved. Emphasis should be given to ensuring ‘equal jumps’ have been made.
* Teacher to model how an unmarked number line can be used to communicate repeated addition.
* Teacher to ask students to show how they could use an unmarked number line to communicate how they a variety of repeated addition or multiplication problems.

**Investigation*** Students use an unmarked number line to investigate which numbers can be shared equally by making equal jumps. E.g. How many equal jumps of 2 can you make to arrive at 8? To make it more challenging, give children a number e.g. 20 and ask them to discover all of the different equal jumps you could make to get to 20. (E.g. 2, 4, 5, 10, 20, 1.) Ask what are the biggest and smallest jumps possible? Students record their answers on mini whiteboards.
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| LEARNING SEQUENCEExtension Early S2 | * Students given more challenging problems and are encouraged to show how to solve the problem using an unmarked number line or a number chart.
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| **EVALUATION & REFLECTION** | Observation: Were students able to use number lines, marked and unmarked to communicate mathematical thinking and to solve problems? Do this through observation and by collecting work samples.**Student engagement Achievement of outcomes****Resources Follow up** |