**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 6  | STRAND: Number and Algebra | **SUB-STRAND:** Multiplication and Division 1 | **WORKING MATHEMATICALLY:** WA2-1WM MA2-2WM MA2-3WM |
| OUTCOMES: | **Checks the accuracy of a statement and explains the reasoning used** |
| **CONTENT:**  | \* Explain why a rectangular array can be read as a division in two ways by forming vertical or horizontal groups, eg 12 ÷ 3 = 4, or 12 ÷ 4 = 3.\* Describe methods used in solving multiplication problems |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | WORKSHEET - DENS Stage 2 pg 260-261 |
| WARM UP / DRILL | * Multiplication and division memory games, snap, first person to make an array using counters
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | The teacher poses the problem: ‘Imagine you had the job of designing a chocolate box. There are to be 48 chocolates in the box. The box can be one or two layers high. How many ways could you arrange the chocolates in the box?’ Students draw or make models of their solutions and discuss these in terms of multiplication and division facts. |
| 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 | IWB materials on doubling, hundreds chart to show arrays and division problems, concrete materials such as counters, Mathletics, Studyladder |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicit Teaching* Model multiplication facts using rectangular arrays.
* Explicitly show how arrays can be interpreted vertically or horizontally, and how to record this. Show for multiplication and division facts.

**Define and Reinforce*** Discuss and define the metalanguage used in the unit: vertical, horizontal, down, across, rows, groups, columns

**IWB*** Using IWB resources, introduce and demonstrate activities on the board that relate to and involve rectangular arrays and how to read them as a division vertically or horizontally
 | LEARNING SEQUENCERemediationS1 or Early S2 | * Make rectangular arrays, match to multiplication and division labels
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| LEARNING SEQUENCES2 | * Have students make models of multiplication facts using rectangular arrays.

**Investigation*** Write division facts based on both vertical and horizontal reading of the arrays
* Students work in small groups. Give cards showing a division number sentence, ask to make an array to match.
* Have students move around room to form arrays. One student gives a division sentence, other students have to form the correct array.
* ASSESSMENT - Observation of students using making arrays, observation of how students complete worksheets and games.
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| LEARNING SEQUENCEExtension Late S2 or Early S3 | * EXT – Use higher numbers, discuss mental strategies used to solve more complex tasks.

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| **EVALUATION & REFLECTION** | **Student engagement Achievement of outcomes****Resources Follow up** |