**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Number and Algebra | **SUB-STRAND:** Patterns and Algebra 1 | **WORKING MATHEMATICALLY: MA3-1WM, MA3-2WM, MA3-3WM** |
| **OUTCOMES:** **MA3-8NA** | **Analyses and creates geometric and number patterns, constructs and completes number sentences, and locates points on the Cartesian plane** |
| **CONTENT:**  | **Use equivalent number sentences involving multiplication and division to find unknown quantities (ACMNA121)*** Check solutions to number sentences by substituting the solution into the original question
* Write number sentences to match word problems that require finding a missing number, e.g. I am thinking of a number that when I double it and add 5, the answer is 13. What is the number?
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) |  |
| WARM UP / DRILL | * Play 20 questions – 20 questions is a selection of number sentences that children complete in a given time e.g. 3x6, 20-11,1/5 of 20. Points awarded for speed and accuracy.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Kathy is thinking of a number. The number is less than 12. When the number is divided by 2 the answer is an odd number. When it is divided by 3 the answer is an even number. What number is Kathy thinking of? |
| 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 | Get smart maths ‘On your mark’ maths |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Place the problem on the board. “I am thinking of a number. When I take 9 away from the number my answer is 19. What number am I thinking of?* Students discuss and write a number sentence that could solve this problem. Compare responses. Determine that the number sentence could be either addition or subtraction. Shown children that by working backwards that the answer can be determined. Talking about each step is important in order not to confused children and to point out the inverse operation that is been used

  | LEARNING SEQUENCERemediationS2 or Early S3 | **Investigating mulitplication and division facts*** **Complete simple number sentences by calculating the value of the missing number.**

Students look for patterns when determining the missing numbers. Investigate what strategies they used for this.Use other examples such as the following:Students create similar examples for others to solve. |
| LEARNING SEQUENCES3 | * Investigation: Children in pairs write a problem using the whole class activity.
* Activity sheet
* Game Guess the Number http://getsmarts.weebly.com/patterns--algebra2.html
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| LEARNING SEQUENCEExtension Early S4 | * Using the activities within the proforma, substitute the boxes with associating letters to introduce algebra concepts.
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| **EVALUATION & REFLECTION** | Can children understand inverse operations?Are children able to make and solve a problem? |

* 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.