**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: 1 | WEEK: 9 | STRAND: Number and Algebra | **SUB-STRAND:** Addition and Subtraction 2 | **WORKING MATHEMATICALLY:** MA1-1WM and MA1-3WM |
| OUTCOMES: |  **MA1-5NA** uses a range of strategies and informal recording methods for addition and subtraction involving one- and two- digit numbers. |
| **CONTENT:**  | **Explore the connection between addition and subtraction (ACMNA029)*** + Use concrete materials to model how addition and subtraction are inverse operations
	+ Use related addition and subtraction number facts to at least 20, eg 15 + 3 = 18, so 18 – 3 = 15 and 18 – 15 = 3
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Write 3 numbers on the board and ask students to identify the connection the 3 numbers havee.g. 4, 5, 9 (4 + 5 = 9, 5 + 4 = 9, 9 – 5 = 4, 9 – 4 = 5) |
| WARM UP / DRILL | Flash card tens frames. 2 at a time. Explicitly model how to visualise and count on or back from the largest. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Sarah has 6 bananas and Ann has 5, how many bananas do they have altogether? |
| 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 | Dotted tens frames, blank tens frames, MAB materials, operations cards, whiteboards, red and blue cubes.  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| **Explicit Teaching**Review the related addition facts. Write 2 + 3 = 5 and 3 + 2 = 5 on the board. Ask students what they can tell you about these two addition facts. Elicit that the addends are 2 and 3 in both facts, but they are reversed. Also, the two facts have the same three numbers. **Fact Family**Explain that it is not a real family, but that the facts are related like people are related, therefore they have been given the name *family*. Point to the two addition facts that you wrote on the board and say, "Now I am going to write two related facts." Write 5 – 2 = 3 and 5 – 3 = 2 on the chalkboard. Ask, "Do you see anything the same about these two facts and the two addition facts?" Elicit that they use the same numbers. "Do you see anything different about these two facts and the two addition facts?" Students should respond that the new facts are subtraction facts and the largest number comes first in both facts. Tell children that these four facts make up a fact family. Repeat with other fact families using concrete materials to model.  | LEARNING SEQUENCERemediationES1  | * Static addition problems:Describe a static addition problem, such as: *There are five big fish and three little fish swimming in the pool. How can we show the fish? How can we work out the number of fish altogether?* Invite two volunteers to hold connecting cubes to show the situation and encourage individuals to describe how they could work out the total. Say/draw on the board ‘5 fish plus 3 fish equals 8 fish’, 5 + 3 = 8’. Repeat with a variety of questions. Students can also write/draw the number sentences in their books.
* This time draw 8 fish on the board and circle/cross out 3 fish. Ask students to think of a number sentence/story to match the picture. Encourage students to think of 8 – 3 = 5. Write the number sentence under the previous sentence.
* Next, cross out an additional 2 fish out. Ask students to think of a number sentence/story to match the picture. Encourage students to think of 8 – 5 = 3. Write the number sentence under the previous sentence.
* Ask students if they can see a pattern with the three number sentences. What is the same/different.
* Write 26 + 12 = 38 on the board. Then write 26 - \_\_\_ = \_\_\_ and 26 - \_\_\_ = \_\_\_\_ (may need to prompt student answers). Continue with a variety of number sentences until students see the pattern.
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| LEARNING SEQUENCES1 | **Number Trains**Students pick up 4 red cubes and join them together and then pick up 2 blue cubes and join them together. Students place the blue cubes on top of the red cubes to make a train. Ask: What fact can you make from this train? (4 + 2 = 6). Write each of the facts on the board as it is introduced. Turn the train end to end and ask: What fact can you make now? What is the same about the two facts? (2 + 4 = 6, they use the same 3 numbers).Ask: Can we show a subtraction fact using this train? How? Model to students that you can break one of the colours of cubes off the train. Break the blue cubes off the train and ask: What subtraction have I made? (6 – 2 = 4). Put the train back together and this time break off the red cubes. Ask: What subtraction fact have I made this time? (6 – 4 = 2). Then ask: What do you notice about the four facts that we have just made? Continue this activity using number facts up to at least 20. Assessment: Provide students with a piece of paper divided into four sections. Write 3 numbers on the board and ask students to write down 4 addition and subtraction number facts. |
| LEARNING SEQUENCEExtension Early S2 | Provide students with MAB materials and operations cards and ask them to make 26 + 5 = 31. Ask them to swap the positions of 26 and 5 to see if the statement is still true. Ask students to write the related addition facts. Next, ask them to use the groups of MAB materials to make a subtraction fact (for example, 31 – 26 = 5 or 31 – 5 = 26), and record the facts.In pairs, ask students to add 2-digit numbers using MAB materials and find the related addition and subtraction facts, recording their number sentences on a mini whiteboard.  |
| **EVALUATION & REFLECTION** | Student engagement: Achievement of outcomes:Resources: Follow up: |

* 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.