**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 1 and 2 | STRAND: Number and Algebra | **SUB-STRAND:** Addition and Subtraction 2 | **WORKING MATHEMATICALLY:** |
| OUTCOMES: | | **›** describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM  › selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM  › gives a valid reason for supporting one possible solution over another MA3-3WM  › selects and applies appropriate strategies for addition and subtraction with counting numbers of any size MA3-5NA | | |
| **CONTENT:** | | * + - Solve addition and subtraction word problems involving whole numbers of any size, including problems that require more than one operation.     - Record the strategy used to solve addition and subtraction word problems. | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Students attempt to answer the following question.   * I have saved $40 000 to buy a new car. The basic model cost $36 118 and I add tinted windows for $860 and Bluetooth connectivity for $1376. How much money did I spend? How much money will I have left over? | | |
| WARM UP / DRILL | | Game: **501**  In pairs or small groups students take turns in rolling two-three dices. (You may use dices that have higher numbers on them depending on the ability of your students/ group) Each time they roll their dice they calculate their score and **add** it to their previous rolled score. The student to reach 501 first wins the game. Their last roll must add up to exactly 501. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | Circle Champion: Sit your students a circle. Choose to student from the circle and ask them to sit in the middle. Choose 2-3 appropriate number dices suitable for the ability of your students and roll the dice between the two students. The first student to answer the sum correctly wins. The losing student sits back in the circle and the next student enters to compete against the winner. If the winner wins five times in a row then they become a circle champion and then two new students are chosen to compete. | | |
| 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 | | Appendix 1, Appendix 2, (Appendix A, B, C, D, E-stencils for each group), (Appendix 3-Excel spread sheet budget, Appendix 4, [**http://www.smiggle.com.au/shop/en/smiggle/all-products**](http://www.smiggle.com.au/shop/en/smiggle/all-products) | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| 1)  Write the following problem on the board.  *Tom earned $7862 for the year and paid $16753 in tax. How much money did Tom receive after the tax was taken out?*  Break the students into small groups and ask them to think about the following questions before answering the problem.  What do you have to find out? What information do you have? Do you need all of the information in the problem? Have you highlighted the key information? What kind of sum will you make? Why do you think that? Will you set your sum in columns? Which numbers will be in the tens column? Which numbers will be in the ones column? Etc  Students complete the problem in their groups and then bring the groups back together and share their findings.  2)Write the following Problem on the board.  *Students at Lexington schools are participating in a coat drive. 9,466 coats have been collected so far. 6,116 coats were collected from the secondary schools, and the rest from the primary schools. How many coats were collected at the primary schools?*  Ask the students to identify the operation needed to solve the problem. Discuss how they would calculate the answer. Students form groups and discuss the problem and strategies they would use to solve the problem. Share each group’s findings with the class.  3) Write the following Problem on the board.  *Brian just transferred $854 out of his bank account. As a result, the account now has $4,870 left in it. How much money was in the account before the transfer?*What do you have to find out? What information do you have? Do you need all of the information in the problem? Have you highlighted the key information? What kind of sum will you make? Why do you think that? In groups students create a similar problem and report back to the class with the best method they used to solve it.  4) Divide the class into two and pose the problem.  *Last year, 71,075 passengers used the Lakewood airport. This year, only 56,168 passengers used the airport. How many fewer passengers used the airport this year?*  Half the class has to solve it using conventional methods while the other half use calculators. Once all students have completed the problem discuss each method solving the problem. Ask the question to explain how the answer was obtained and which method was more efficient and why? Discuss the efficiency of using calculators compared to pen and paper. | LEARNING SEQUENCERemediationS2 |  |
| LEARNING SEQUENCES3 | **Lesson 1.**  Give students a series of addition and subtraction problems. Appendix 1 Students can choose to work in pairs or individually. Students share their answers with the class and discuss how they obtained each answer.    **Lesson 2.**  Tell the students they have $1000 dollars to spend at Smiggles to buy stationary equipment etc, to suit their needs for school next year. As you flick through the Smiggles catalogue online and using the stencil provided students make a list of the items they wish to purchase and itemise the cost of each item. Students then calculate their total cost and what money they would have left from their budget. Get the students to check their answers using a calculator. In pairs students share their lists. Appendix 2 [**http://www.smiggle.com.au/shop/en/smiggle/all-products**](http://www.smiggle.com.au/shop/en/smiggle/all-products)  **Lesson 3.**  Split the class into five groups and tell them that have they will be given a budget to plan a birthday party. Group A’s budget is $500, Group B’S budget is $1000, Group C’s budget is $2500, Group D’s budget is $5000, and Group E’s budget is $10 000. Tell the class that each group will need to itemise each expense and calculate the amount left in their budget once they’re finished. Before they start brainstorm for ideas they could use for their party. Students will need to search the net for actual services and costs. Let the students know that they should shop around for the best price. Groups report back to the class and reveal their party plan. (Students may choose to present their information on cardboard or using PowerPoint.) Once all groups have presented, discuss the strategies each group used to calculate their budgets and how effective their methods were. Discus other methods they could of used in calculating their budgets. E.G Excel spread sheet. (Appendix A, B, C, D, E-stencils for each group)  **Lesson 4.** Using excel spread sheet show students how they can present budgets in a digital form. Show the students how to itemise each expenditure plus auto sum the total amount, and show the balance. Tell the students that will need to itemise each item purchased.(Don’t allow them to group items) They will need to show clearly the remainder of their budget. (Appendix 3-Excel spread sheet budget)In conclusion each group may present their spread sheets to the other groups.  Investigation: |
| LEARNING SEQUENCEExtensionS4 |  |
| **EVALUATION & REFLECTION** | Students samples, teacher observations, Students Excel Spread sheets, Party Plans, Appendix 4 |

* 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.