**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 9 | STRAND: Number and Algebra | **SUB-STRAND:** Fractions and Decimals | **WORKING MATHEMATICALLY:** MA3-1WM, MA3-2WM & MA3-3WM |
| OUTCOMES: MA3-7NA | | **Compares, orders and calculates with fractions, decimals and percentages.** | | |
| **CONTENT:** | | **Solve problems involving addition and subtraction of fractions with the same or related denominators.**   * Add and subtract fractions, including mixed numerals, where one denominator is the same as, or a multiple of, the other. * Solve word problems involving the addition and subtraction of fractions where one denominator is the same as, or a multiple of, the other. * Multiply simple fractions by whole numbers using repeated addition, leading to a rule | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * If I had 2/6 of the cake at morning tea and then I ate another 2/6 for afternoon tea, how much of the cake did I eat? * If James at 3/8 of the pizza for dinner and then ate 4/8 for breakfast, how much of the pizza is left? * If Brad took ¼ of the packet of lollies to school and then gave 5/8 of the packet to his sister, how much of the packet is left? | | |
| WARM UP / DRILL | | * Practice counting out load by halves. Practice counting by thirds and quarters. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | * If Sam got half a chocolate bar to take to school and when he got home another quarter was eaten, how much is left for Sam to eat? | | |
| 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 | |  | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED AND INDEPENDENT ACTIVITIES | |
| * Begin by explaining that to be able to add and subtract fractions the denominator MUST be the SAME. If they are not the same then you cannot do the equation. * As a follow on from the assessment for learning put the questions on the IWB. In small groups have students discuss the answers they got and how they got to the answer. Bring the class back together and work through the problem with the class. * Write some more examples on the board and have students work with individual whiteboards to answer the questions. * Pose the question ‘What can we do if the denominators are not the same’? Make them into equivalent fractions. Demonstrate a couple of examples, for instance 1/8 + ¾, or 2/6 + 2/3 * Provide the students with some further examples to complete on their own whiteboards. * An activity to work through together-   <http://www.kidsolr.com/math/fractions.html>   * After completing some of the guided activities come back to explaining MULTIPLICATION of fractions as repeated addition. Remind the students that the denominator MUST be the same and they just have to add the Numerators. | LEARNING SEQUENCES2 | * Print the game and then play   <http://www.teacherspayteachers.com/Product/Adding-fractions-with-like-denominators-with-pictures-1023677>  <http://www.teacherspayteachers.com/Product/Adding-and-Subtracting-Fractions-with-Like-Denominators-251862>   * Using unicubes add fractions   <http://donsteward.blogspot.com.au/2013/04/adding-fractions-using-rods.html> |
| LEARNING SEQUENCES3 | * <http://www.e-learningforkids.org/math/lesson/husky-sled-operations-with-fractions/> * Questions a little harder   <http://www.e-learningforkids.org/math/lesson/carnival-parade-in-rio-fractions/>   * The Fraction Connection: A small group activity.... Students choose 2 dominoes and they must use those numbers as their fractions. Then they add the fractions, or subtract the fractions. Can also use more than 2 dominoes for repeated addition. * Print the pages and then play the addition game   <https://docs.google.com/file/d/0B_wlnPzXZBUZMHhFUWs3S1paSTA/edit?pli=1>   * Print the pages and then play the addition game   <http://www.learn-with-math-games.com/printable-fraction-games.html>   * <http://www.smartboardgames.com/3rd-grade/3-math/adding-fractions-game/> * <http://www.teachersnotebook.com/product/promotingsuccess/free-adding-fractions-with-like-denominators-math-common-core-task-cards> * <http://www.arcademics.com/games/speedway/speedway.html> * Print out fraction spinner and play an addition and or subtraction game   [https://melissatabor.wikispaces.com/file/view/**FractionSpinners**.pdf](https://melissatabor.wikispaces.com/file/view/FractionSpinners.pdf)  <http://www.teacherspayteachers.com/Product/Fraction-Spinners-Use-with-any-Fraction-Game-or-Activity-1026654>   * ASSESSMENT – Print one of the following worksheets out and test students.   <http://www.math-aids.com/Fractions/> |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED AND INDEPENDENT ACTIVITIES | |
|  | LEARNING SEQUENCEExtensionS4 | * <http://www.e-learningforkids.org/math/lesson/carnival-parade-in-rio-fractions/> * Print the pages and then use   <http://www.teacherspayteachers.com/Product/FreebieMODELING-Add-Sub-Fractions-w-Unlike-Denominators-5NFA1-5NFA2-974095>   * Print out more difficult fraction spinners and play an addition and or subtraction game   [https://melissatabor.wikispaces.com/file/view/**FractionSpinners**.pdf](https://melissatabor.wikispaces.com/file/view/FractionSpinners.pdf) |
| **EVALUATION & REFLECTION** | **Student Engagement: Resources:**  **Achievement of Outcomes: Follow-up:** |