**MATHEMATICS STAGE 3 TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 12 | STRAND: Number and Algebra | **SUB-STRAND:** Fractions and Decimals | **WORKING MATHEMATICALLY:**  MA3-1WM, MA3-2WM & MA3-3WM |
| OUTCOMES: | | **Compares, orders and calculates with fractions, decimals and percentages.** | | |
| **CONTENT:** | | **Solve problems involving addition and subtraction of fractions with the same or related denominators.**   * Convert an answer that is an improper to a mixed numeral. * Recognise that improper fractions may sometimes make calculations involving mixed numerals easier. | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Work through the interactive activity together or individually.   http://www.sheppardsoftware.com/mathgames/fractions/memory\_fractions3.htm | | |
| WARM UP / DRILL | |  | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | If Joe received 5 cakes that were cut into quarters, he received 20/4 pieces. What is this fraction as a proper fraction? If her ate 13 pieces of the cake, what fraction did Joe 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 | | Make your own worksheets  http://www.math-aids.com/Fractions/Fractions\_Improper.html | | |

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| Whole classHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Begin the lesson by explaining what an improper fraction is, that is, a fraction where the Numerator is larger than the Denominator.  * Watch the you tube video of improper fractions –   <http://www.youtube.com/watch?v=-imFslMIN1g>   * Put some improper fractions on the board and ask students in small groups to discuss the question and solve. * Work through the web page using the examples and explaining the information. After working through the page as a class work through the quiz together at the end of the page. * Give students pieces of paper (square, rectangle or circle). Have students fold the pages into however many they choose, however they have to do the same to all pages. Have them work out what they have folded the pages into, eg quarters, thirds, tenths, etc. Ask students to count how many pieces that have. Have them write the number of pieces as an improper fraction and then as a mixed numeral. Give some examples, such as if 2 pieces were removed how many would be left as an improper fraction and mixed number. * As a revision to the previous weeks lessons write some addition questions on the board that will lead to an improper fraction. Ask them to write the answer as a mixed numeral. | LEARNING SEQUENCEEarly Stage 3 Late Stage 2 | * Worksheet   <http://www.homeschoolmath.net/worksheets/table-fractions-b.php?op=fr2mi&col=3&row=8&nmi=1&nma=30&dmi=2&dma=12&wmi=1&wma=20&font=Default&FontSize=14pt&pad=25&ptitle=%3Cstrong%3EOnline+Reading+%26+Math%3A+www.k5learning.com%3C%2Fstrong%3E&Submit=Submit>   * Read the pages and complete the quiz   <http://www.coolmath4kids.com/fractions/fractions-07-improper-01.html>   * Make and play   <http://tec.theeducationcenter.com/TextFiles/Email/te_newsletter_int_071212.html> |
| LEARNING SEQUENCES3 | * Interactive game   <http://www.sheppardsoftware.com/mathgames/fractions/mathman_improper_fractions.htm>  <http://www.mathplayground.com/fractions_improper.html>  <http://www.ixl.com/math/grade-4/convert-between-improper-fractions-and-mixed-numbers>  <http://www.quia.com/cb/186132.html> (jeopardy)   * Worksheets   <http://www.greatschools.org/worksheets-activities/5897-changing-improper-fractions-to-mixed-numbers.gs>  <http://www.homeschoolmath.net/worksheets/table-fractions-b.php?op=fr2mi&col=3&row=8&nmi=1&nma=60&dmi=2&dma=25&wmi=1&wma=20&font=Default&FontSize=14pt&pad=25&ptitle=%3Cstrong%3EOnline+Reading+%26+Math%3A+www.k5learning.com%3C%2Fstrong%3E&Submit=Submit>   * Print and play   <http://www.teacherspayteachers.com/Product/Mitten-Mash-445174>   * ASSESSMENT – make a pile of card with different improper fractions on them. Put a pile on each groups table. Set the timer and see how many cards from their own table they can simplify to the simplest form. When the timer stops, move to the next table and repeat activity. Repeat until all tables have been covered. The winner is the student with the most correct answers. To differentiate make harder and easier questions. |
| LEARNING SEQUENCELate Stage 3Early stage 4 | * Interactive game   <http://www.aaamath.com/fra57cx2.htm>   * Print and play   <http://www.teacherspayteachers.com/Product/Mitten-Mash-445174>   * Roll a 12 or 20 sided dice and get the denominator. Roll the 12 sided dice 5 times to write 5 simple fractions. Add these fractions and then convert to mixed numbers. To make it more challenging change the denominator. |
| **EVALUATION & REFLECTION** | **Student Engagement: Resources:**  **Achievement of Outcomes: 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.