**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 7 | 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:**  | **Compare fractions with related denominators and locate and represent them on a number line*** Find equivalent fractions be re-dividing the whole, using diagrams and number lines, eg.
* Record equivalent fractions using diagrams and numerals.
* Develop mental strategies for generating equivalent fractions such as multiplying or dividing the numerator and the denominator by the same number.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Drawa diagram to show how ¾ is equivalent to 12/16.
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| WARM UP / DRILL | * Play an interactive multiplication game as a class on the board.

<http://www.ideal-resources.com.au/gallery/images/iRMwipeout2_eval.swf> |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| 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 & INDEPENDENT ACTIVITIES |
| * Begin the lesson by discussing with the class what they understand an equivalent fraction to be. Record the answers to review again later.
* Watch the YouTube video to help the students make more sense of equivalence <http://www.youtube.com/watch?v=wL4hICyMLKU>

The best way to think about equivalent fractions is that they are fractions that have the **same overall value**. Equivalent fractions represent the same part of **a whole**.  For example, if we cut a pie exactly down the middle, into two equally sized pieces, one piece is the same as one half of the pie.And if another pie (the same size) is cut into 4 equal pieces, then two pieces of that pie represent the same amount of pie that 1/2 did. So we can say that 1/2 is equivalent (or equal) to 2/4.* Introduce the formula for equivalent

fractions http://www.helpwithfractions.com/wp-content/themes/website/data/php/timthumb.php?src=wp-content/uploads/2012/06/equivalent-rule.png&q=90&w=135 | LEARNING SEQUENCELate Stage 2Early Stage 3 | * Equivalent Fractions interactive game (matching fractions)

<http://www.sheppardsoftware.com/mathgames/fractions/memory_equivalent1.htm><http://www.abcya.com/equivalent_fractions_bingo.htm>* <http://www.helpingwithmath.com/resources/games/fraction_game4/equivalent01.html>
* Print out equivalent fraction dominoes

<http://www.helpingwithmath.com/printables/others/4nf1Fraction-Dominoes03.htm><http://www.helpingwithmath.com/resources/games/fraction_game3/matching.html> |
| LEARNING SEQUENCES3 | * Give students a list of fractions to use the equivalent formula with and have them check if the rule works. If they are not equal, then they are not equivalent.
* Complete the quiz at the bottom of the page

<http://www.mathsisfun.com/equivalent_fractions.html><http://www.bbc.co.uk/bitesize/ks2/maths/number/equivalent_fractions/play/><http://mrnussbaum.com/fractiondolphins/><http://www.aaamath.com/fra42ax2.htm>* <http://www.sheppardsoftware.com/mathgames/fractions/equivalent_fractions_shoot.htm>
* Print out equivalent fraction dominoes

<http://www.helpingwithmath.com/printables/others/4nf1Fraction-Dominoes02.htm>* Play an equivalent fraction game in pairs where 2 dice are rolled to make the fraction and the students have 2 minutes (or whatever time is chosen) to write as many equivalent fractions for the fraction as possible. Person with the most equivalents wins.
* INVESTIGATION - students given a pack of cards and wok in pairs. Each pair turns over 2 cards and makes it into a proper fraction. The task is then to find as many equivalent fractions for that fraction as they can (the number is infinite).
* ASSESSMENT – observation of the Investigation. Take anecdotal notes.
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* 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.

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Practice examples of the formula, eg

* To be able to convert one fraction to another fraction you need to change the numerator and the denominator. **The rule is – whatever you do to the Numerator, you MUST do to the Denominator. It is always MULTIPLYING or dividing (never adding)**
* Watch the you tube video to help explain this rule <http://www.youtube.com/watch?v=Bfl4ukVLyoc>

Put some examples on the board and as a class work out the equivalent fraction. Then use the formula to check that they are equivalent | LEARNING SEQUENCES4 | * ASSESSMENT - <http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=equivalent_fractions.pl&difficult=2&shuffle=1&language=0&memo=&answer=1&x=125&y=23>
* Game 1 – Levels 4 and 5

<http://www.sheppardsoftware.com/mathgames/fractions/equivalent_fractions_shoot.htm>* <https://www.mangahigh.com/en/maths_games/number/fractions_percentages_and_ratio/equivalent_fractions_>
* Complete worksheets 3, 4 and 5

<http://www.dr-mikes-math-games-for-kids.com/simplifying-fractions-worksheets.html> |
| **EVALUATION & REFLECTION** | **Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |

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* Assessment rubrics or marking scale should be considered.