**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 10 | 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.**   * Write fractions in their ‘simplest form’ by dividing the numerator and the denominator by a common factor. * Recognise that a fraction in its simplest form represents the same value as the original fraction. | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Give the students a copy of the simplifying worksheet and get results.   [**http://www.math-aids.com/cgi/pdf\_viewer\_3.cgi?script\_name=reduce\_fractions.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=145&y=22**](http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=reduce_fractions.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=145&y=22) | | |
| 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 | | Brad had 24/32 of a pie and Jenny had the remainder. In the simplest form, how much of the pie did Jenny 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 & INDEPENDENT ACTIVITIES | |
| * Work through the following webpage to aid in the explanation of simplifying fractions. <http://www.mathsisfun.com/simplifying-fractions.html> * Explain that the easiest way to simplify a fraction is to work out the factors of each of the numbers. For example   6 6 x 1  24 = 6 x 4 cross out the same number, that is 6 and you are left with ¼. Watch the you tube for further examples <http://www.youtube.com/watch?v=ApoOgWRsobw>   * The other way to teach students to simplify is to find a factor that is common to both the numerator and denominator, that is, what will divide equally into both numbers? For example   8  32 , to start easy both numbers are even, so 2 divides into both. Your brighter students may see that they are both divisible by 8. If you start by dividing by 2, there are just more steps to get to the final answer of ¼. <http://www.coolmath4kids.com/fractions/fractions-05-simplying-reducing-02.html> | LEARNING SEQUENCEEarly Stage 3 Late Stage 2 | * <http://www.sheppardsoftware.com/mathgames/fractions/mathman_reduce_fractions.htm> * <http://www.sheppardsoftware.com/mathgames/fractions/reduce_fractions_shoot.htm> * <http://www.iboard.co.uk/iwb/Simplifying-Fractions-Game-366> * <http://www.math-play.com/equivalent-fractions-game.html> * <http://www.enchantedlearning.com/math/fractions/reducing/> |
| LEARNING SEQUENCES3 | * <http://www.aaamath.com/fra66hx2.htm> * <http://www.mathplayground.com/fractions_reduce.html> * <http://www.math-play.com/simplifying-fractions-game/simplifying-fractions-game.html> * <http://www.math-play.com/baseball-math-simplifying-fractions/simplifying-fractions-baseball.html> * Investigation: in small groups give students 2 dice, 6 sided to 20 sided (depending on ability) and have students roll the 2 dice, make the fraction and then simplify that fraction to its simplest form. Can all fractions be simplified? Why or why not? * complete worksheet * <http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=reduce_fractions.pl&difficult=2&probs=30&language=0&memo=&answer=1&x=105&y=17> * <http://www.dadsworksheets.com/v1/Worksheets/Reducing%20Fractions.html> * <http://www.education.com/activity/article/simplest-form/> * <http://studyjams.scholastic.com/studyjams/jams/math/fractions/simplest-form.htm> * Investigation: in small groups give students 2 dice, 6 sided to 20 sided (depending on ability) and have students roll the 2 dice, DOUBLE each of the number, then make the fraction and simplify that fraction to its simplest form. Make it a race in the group to see who could simplify it quickest. Try and beat the best time each time. Discuss as a group the different methods each student uses to simplify the fraction. * ASSESSMENT – Work with students in small groups. Give them a number of fractions to simplify. Time them and watch the strategies that they are using to simplify. Take notes or keep answer sheets. |

* 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.

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * The following formula will confirm the simplification answer. * 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](http://www.helpwithfractions.com/wp-content/uploads/2012/06/equivalent-rule.png)   * Practice examples of the formula, eg      * Students have to be able to simplify fractions to their simplest form and know that they are in their simplest form. * A fraction is in its simplest form when it can no longer be divided by another number. | LEARNING SEQUENCELate Stage 3Early Stage 4 | * <https://www.khanacademy.org/math/arithmetic/fractions/Equivalent_fractions/e/simplifying_fractions> * Complete games 1 and 2 level 3 <http://www.sheppardsoftware.com/mathgames/fractions/reduce_fractions_shoot.htm> * <http://www.math-play.com/Fractions-Jeopardy/fractions-jeopardy.html> * Complete higher levels   <http://www.dadsworksheets.com/v1/Worksheets/Reducing%20Fractions.html> |
| **EVALUATION & REFLECTION** | **Student Engagement: Resources:**  **Achievement of Outcomes: Follow-up:** |