**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 3 | STRAND: Number and Algebra | **SUB-STRAND:** **Fractions and Decimals 1** | **WORKING MATHEMATICALLY:** **MA3-1WM, MA3-2WM, MA3-3WM** |
| OUTCOMES: MA3-7NA | **Compares, orders and calculates with fractions, decimals and percentages.** |
| **CONTENT:**  | **Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator*** Express mixed numerals as improper fractions and vice versa, through the use of diagrams and number lines, leading to a mental strategy
* Model and represent a whole number added to a proper fraction,
* Use diagrams, and mental and written strategies, to subtract a unit fraction from any whole number including 1
* Use estimation to verify that an answer is reasonable (Problem Solving, Reasoning)
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Give students these cards and see if they can represent different mixed fractions |
| WARM UP / DRILL | * Ipad app- “Quick Fractions”
* Fraction flash cards- students have to say which fraction is >, < or =
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | * *Jake decided to go for a run, He ran 8 3/12 Kilometres and walked 5 1/12 Kilometres. How much further did he run then walk?*
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| 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
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| RESOURCES | Ipad’s,, flash cards,  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Use a number line to demonstrate where several mixed numerals fall. Emphasise the whole number.
* **http://www.studyladder.com.au/learn/mathematics/activity/ 20560?retUrl=%2Flearn%2Fmathematics%2Ftopic%2Ffractions-and-decimals-444**
* Discuss when would you need to use a mixed fraction. Then demonstrate how to convert improper fractions into proper fractions.
* **http://www.studyladder.com.au/learn/mathematics/activity/ 4512?retUrl=%2Flearn%2Fmathematics%2Ftopic%2Ffractions-and-decimals-444**
* Complete the fraction challenge as a class
* http://www.mathplayground.com/wpdatabase/wpindex.html
 | LEARNING SEQUENCERemediationS2 or Early S3 | * Students identify flash cards and sort the fractions into piles of: Proper, Improper and mixed fractions.
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| LEARNING SEQUENCES3 | * Students create their own word problems using a whole number added to a mixed fraction.
* Mixed Fraction card game: students (In pairs) get three cards and have to make a mixed fraction e.g. 2 2/3, students then turn over their fraction to see who has the largest fraction.
* Students run on a running track, the track is a square with 4 equal sides (each side around 20 metres) students then track how far they can run in 5 minutes counting each side in their total. Their total will be /4 because there are 4 sides. If they run 24 sides then their score will be 24/4. When you get back to class students write how many sides they ran and then write it as a mixed fraction e.g. 24/4 or I ran 6 whole laps
* Investigation: How many laps can you run in two minutes? Create a short course and students record how many laps they can complete in two minutes i.e 2 ¾ laps
* Discuss where they think a ¼ lap, 1/3 lap, 2/3 lap is.
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| LEARNING SEQUENCEExtension Early S4 | * Students begin to add improper fractions with the same denominator, and adding mixed fractions with the same denominator. Encourage students to use the mixed fraction diagrams used in the pre assessment.
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| **EVALUATION & REFLECTION** |  |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.