**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 6 | 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.**
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| **CONTENT:**  | **Compare fractions with related denominators and locate and represent them on a number line.*** Model, compare and represent fractions with denominator of 2,3,4,5,6,8,10,12 and 100 of a whole object, a whole shape and a collection of shapes.
* Compare and order simple fractions with related denominators using strategies such as denominators, the number line, or equivalent fractions.
* Compare the relative size of fractions drawn on the same diagram.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * [*www.primaryresources.co.uk/maths/.../****fraction****\_****wall****\_and\_questions.doc*](http://www.primaryresources.co.uk/maths/.../fraction_wall_and_questions.doc)
* Have student complete the questions attached to the wall.
* **Alternatively give students a blank wall to label.** [www.leicestershire.gov.uk/**fraction**\_**wall**\_blank.doc](http://www.leicestershire.gov.uk/fraction_wall_blank.doc)
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| WARM UP / DRILL | * Play an interactive game as a class on the board <http://www.fractionmonkeys.co.uk/activity/>
* Play an interactive game as a class on the board <http://pbskids.org/cyberchase/math-games/melvins-make-match/>
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | If John ate 3/12 of the pizza, Peter ate 2/12 and Michelle ate 4/12, how much of the pizza did they eat altogether?If Sam ate 1/3 of the cake, Jan ate 2/12 and Jenny ate ¼, how much of the cake did they eat? How much of the cake is still left? |
| 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 |  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * **Work through the short video –**

<https://learnzillion.com/lessons/1727-plot-a-unit-fraction-on-a-number-line>* **Establish definition of a fraction – dividing into equal parts.**
* Provide 2 circles to each child. Fold the first into 1/2 and 1/4 ( and 1/8).
* With 2nd circle try folding into 1/3 and 1/6. Discuss findings.
* Use terms Numerator and Denominator
* **Language**
* Students should be able to communicate using the following language: whole, equal parts, half, quarter, eighth, third, sixth, **twelfth**, fifth, tenth, hundredth, **thousandth**, **one-thousandth**, fraction, numerator, denominator, mixed numeral, whole number, number line, **proper fraction**, **improper fraction**.
* To look at how different fractions with different denominators can be the same look at this number line
* [**http://www.mathsisfun.com/numbers/fraction-number-line.html**](http://www.mathsisfun.com/numbers/fraction-number-line.html)
* Discuss the idea of sharing and what happens when there are more people to share with?
* Work through the beginning of the following page <http://www.mathgoodies.com/lessons/fractions/compare.html>
 | LEARNING SEQUENCELate Stage 2Early Stage 3 | * In pairs play the following game. Each stage of the game gets a little harder.

[www.numeracyhelper.com/**fractionwalls**](http://www.numeracyhelper.com/fractionwalls)* Play on online game where students have to place the arrow in the correct place on a labelled number line. <https://www.khanacademy.org/math/cc-third-grade-math/cc-3rd-fractions-topic/cc-3rd-fractions-meaning/e/fractions_on_the_number_line_1>
* <http://www.kidsolr.com/math/fractions.html>
* Studyladder – Green level – Modelling equivalent fractions
* Card Game

Each player turns over 2 cards. The smaller number is the numerator and the larger number is the denominator. Children must name the fraction and draw a picture to represent it.* Visualising fractions

<http://www.mathwarehouse.com/fractions/manipulatives/visual-fractions.php> |
| LEARNING SEQUENCES3 | * Students work in a small group and use the metre ruler to draw a number line. The number line needs to show each fraction. Challenge the students to add fractions to the top of the number line, for instance ½, ¼, etc.
* Students can work in pairs to play the following game

<http://www.k-5mathteachingresources.com/support-files/fractionwallgame.pdf>* Online game where students have to place the fraction on a blank number line <http://www.sheppardsoftware.com/mathgames/fractions/AnimalRescueAdvancedFractionsNumberLineGame.htm>
* Fun game where the fraction has to be placed in the correct bucket <http://www.mathwarehouse.com/games/our-games/fraction-games/fraction-balls-1/play-fraction-balls-1/>
* Comparing fractions <http://www.amblesideprimary.com/ambleweb/mentalmaths/fractotron.html>
* Equivalent fractions

<http://pbskids.org/cyberchase/math-games/melvins-make-match/><http://www.mathplayground.com/Triplets/Triplets.html>* Investigation - Students respond to a scenario and record a variety of responses. 1. The teacher poses the question: ‘The answer to a problem is one and a half, what might the question be?’ 2. Students record a variety of questions, including word problems, number sentences and questions that involve more than one operation. 3. They include the four operations in their questions.
* ASSESSMENT – collect the investigation activity and assess the student’s answers and understanding of fractions.
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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 |
| * As a class watch the you-tube video that explains how to compare fractions <https://www.khanacademy.org/math/cc-third-grade-math/cc-3rd-fractions-topic/cc-3rd-comparing-fractions/v/comparing-fractions-of-different-wholes>
 | LEARNING SEQUENCELate Stage 3Early Stage 4 | * Students have to be able to drag and drop fractions onto a blank number line. This activity has equivalent fractions. <http://www.bgfl.org/custom/resources_ftp/client_ftp/ks2/maths/fractions/level4.htm>
* Students have to be able to visualise the fraction as Granny hides in the bush. Fun activity <http://www.visualfractions.com/FindGrammy/findgrammy.html>

<http://www.visualfractions.com/FindGrampy/findgrampy.html>* Equivalent fractions

<http://mathematics.hellam.net/maths2000/fraction1.html><http://www.mathplayground.com/FractionGame/FractionGame.html>* This is a challenging activity where the fractions have to be placed in order from smallest to largest with different denominators

<http://downloads.bbc.co.uk/bitesize/ks2/maths/flash/fractions.swf> |
| EVALUATION & REFLECTION | **Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |