**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 22 | 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:**  | **Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without the use of digital technologies (ACMNA132)*** Equate 10% to one tenth, 25% to one quarter and 50% to one half
* calculate common percentages (10%, 25%, 50%) of quantities, with and without the use of digital technologies
* choose the most appropriate equivalent form of a percentage to aid calculation
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * How much would you save if a shirt was $70 but 50% off?
* If I paid $27.50 for a shirt that was 50% off, how much was it at full price?
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| WARM UP / DRILL | * ‘Around the World’ using questions such as ¼ of 12 etc
* Play ‘Bang’ using the above questions (separate the different maths groups to differentiate the questions and to make it fair) Bang is a game where there is two teams and a player from each team stands back to back and after a question is read, they turn, say the correct answer followed by bang to shoot the other person.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | If John bought a cake for 25% off and it originally cost $60, how much did he pay for it?* If Claire paid $33 for a t-shirt during a 25% off sale, how much would it have cost at full price?
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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 | See links below |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Build context for learning <http://www.bbc.co.uk/skillswise/topic/percentages> (video)* Use this site to introduce how percentages and fractions are similar. Show percentages of a pizza and discuss what fractions would be similar. E.g. 33 and 1/3% = 1/3 <http://www.bbc.co.uk/skillswise/game/ma16perc-game-percentages-of-something>
* Introduce that to find the percentage of an amount first you must convert to fraction <http://www.bbc.co.uk/skillswise/topic/comparing-fractions> (video)
* Explain link between percentages and fractions. E.g. 20% = 20/100
* TABLE: Create a table for each group to complete with the following percentages – 5, 10, 20, 25, 50, 75, 100 where they write the fraction equivalent fraction
* Explain link to decimals by adding a separate column onto the side of the table. Children add an extra column to their table too. Do provided sheet (see over)
* Using the table from last lesson as a guide on the IWB, answer some questions like 75% of $44 by converting the question to ¾ x $44 = $33. Answer questions as a class and do provided sheets (see over) and play interactive games: <http://www.australiancurriculumlessons.com.au/2013/04/04/fractions-decimals-and-percentages-lesson-plan-a-park/>
* <http://www.bbc.co.uk/bitesize/ks2/maths/number/percentages/play/>
 | LEARNING SEQUENCERemediationS2 or Early S3 | * TABLE: Write all answers over /100. Work in pairs and with teacher discuss how to write each fraction in its simplest form
* <http://www.superteacherworksheets.com/percents/converting-fractions-decimals-percents_EASIE.pdf> (Complete as mixed ability)
* <http://teachingimage.com/percentages-worksheets/percentages-circle-the-dots.pdf>
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| LEARNING SEQUENCES3 | * TABLE: In pairs, children complete the table and work together to simplify each fraction to its simplest form
* <http://www.superteacherworksheets.com/percents/converting-fractions-decimals-percents_EASIE.pdf> (Complete as mixed ability)
* <http://www.worksheetplace.com/index.php?function=DisplayCategory&showCategory=Y&links=4&id=218&link1=40&link2=46&link3=215&link4=218>
* Investigation: Find a recipe for 8 people on the internet find the amount of each ingredients required for 50% of the people, repeat for 12 person recipe and 25% and a 10 person recipe for 40% of people
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| LEARNING SEQUENCEExtension Early S4 | * TABLE: In pairs, do CORE work and also do the percentages 33 and 1/3, 40, 66 and 2/3 and 90. If time allows, get them to find the decimal equivalents.
* <http://www.superteacherworksheets.com/percents/converting-fractions-decimals-percents_EASIE.pdf> (Complete as mixed ability)
* <http://www.tlsbooks.com/percentagepractice1.pdf> Complete in pairs
* Extension - <http://www.tlsbooks.com/percentagepractice2.pdf>
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| **EVALUATION & REFLECTION** | **Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |