**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/out the use of  technologies (ACMNA132)*** calculate the sale price of an item after a discount of 10%, 25% and 50%, with and without the use of digital technologies, recording the strategy and result
* use mental strategies to estimate discounts of 10%, 25% and 50
* choose the most appropriate equivalent form of a percentage to aid calculation
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * How much would a computer worth $300 cost if it were 50% off?
* How much would a computer worth $300 cost if it were 25% off?
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| WARM UP / DRILL | * Bingo – Percentages to fractions and vice versa. Create a class table of common percentages and their fraction equivalents. Children choose for percentages and read out fractions and children convert. Move away from using table.
* Recite percentages, fraction and decimal conversions
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | If a t-shirt was $30 and it was 20% off, how much would the shirt cost?* During a 40% off sale, a pair of jeans were $45, how much were they before the sale?
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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 | \* <http://www.nzmaths.co.nz/sites/default/files/Activities/FractionDecimalPercentageMatchUpsM.pdf>\* Percentage Sales Sheet (First page)\* Shopping Spree (Mathletics Wookbook) \* Bargain Superstore |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Revise equivalent fractions, percentages and decimals. Create a table on the board as a class if required.
* Find a catalogue on the internet and demonstrate on the IWB how to find 50%, 25% and 10% off some items. Complete questions as a whole class and show the following steps:
	+ Convert % to fraction
	+ Find fraction of amount
	+ Subtract the fraction of the amount from the starting price
* Place worded problems on the board that show what sale price items cost after a discount. Discuss as a class on how to find what the item would cost before it is discounted.
* Students should be explicitly taught 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**, decimal, decimal point, digit, place value, decimal places.
 | LEARNING SEQUENCERemediationS2 or Early S3 | * <http://www.nzmaths.co.nz/sites/default/files/Activities/FractionDecimalPercentageMatchUpsM.pdf> Matching percentages, decimals and fractions. Print the cards on cardboard and play a game of snap in groups of 4 (Modify tiles if needed for differentiation)
* **CATALOGUES -** Students can look through a catalogue and choose items and take off an amount decided by the class teacher that is appropriate for their level.
* Percentage Sales Sheet (First page)
* Shopping Spree ( Mathletics Wookbook )
* Bargain Superstore
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| LEARNING SEQUENCES3 | * <http://www.nzmaths.co.nz/sites/default/files/Activities/FractionDecimalPercentageMatchUpsM.pdf> Matching percentages, decimals and fractions. Print the cards on cardboard and play a game of snap in groups of 4
* Advance strategies should be demonstrated to group IF YOU BELIEVE THEY ARE CAPABLE. Rather than finding 1/5 of an amount for 20% off, children could find 80% or 4/5 of the amount to skip the subtraction step. Explain process and reasons behind this process.
* CATALOGUES - Students can look through a catalogue and choose items and take off an amount decided by the class teacher that is appropriate for their level.
* Percentage Sales Sheet (First 2 sheets and top half of third)
* Shopping Spree ( Mathletics Wookbook ) – Alter by including 40%, 60%, 70% and 75%
* Bargain Superstore
* Investigation: If prices increased 5% (or 10% to make it easier) each year on goods, how much would items in a catalogue cost after 5 years? How would you work this out? Explain reasons and working out.
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| LEARNING SEQUENCEExtension Early S4 | * <http://www.nzmaths.co.nz/sites/default/files/Activities/FractionDecimalPercentageMatchUpsM.pdf> Matching percentages, decimals and fractions. Print the cards on cardboard and play a game of snap in groups of 4
* Advance strategies should be demonstrated to group. Rather than finding 1/5 of an amount for 20% off, children could find 80% or 4/5 of the amount to skip the subtraction step. Explain process and reasons behind this process.
* CATALOGUES - Students can look through a catalogue and choose items and take off an amount decided by the class teacher that is appropriate for their level. To extend children could change the amount by increasing it with percentages over 100%.
* Percentage Sales Sheet
* Shopping Spree (Mathletics Wookbook) – Alter by including 15%, 30%, 40%, 60%, 70%, 80%, 66 2/3%, 75%
* Bargain Superstore
* <http://www.nzmaths.co.nz/sites/default/files/MoneyandPercentagecm4.pdf> (Extra extension)
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| **EVALUATION & REFLECTION** | **Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |