**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 14 | STRAND: Number and Algebra | **SUB-STRAND:** Fractions and Decimals 2 | **WORKING MATHEMATICALLY:**  MA3-1WM MA3-2WM MA3-3WM |
| OUTCOMES: MA3-7NA | | **Compares, orders and calculates with fractions, decimals and percentages.** | | |
| **CONTENT:** | | **Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without the use of digital technologies. (ACMNA129)**   * Use mental strategies to multiply simple decimals by single-digit numbers, eg: 3.5 x 2. * Multiply decimals of up to three decimal places by whole numbers of up to two digits, with and without the use of digital technologies, eg: “I measured three desks. Each desk was 1.25 m in length, so the total length is 3 x 1.25 = 3.75 m * Divide decimals by a one-digit whole number where the result is a terminating decimal, eg: 5.25 ÷ 5 = 1.05 * Solve word problems involving the multiplication and division of decimals, including those involving money, eg: determining the “best buy” for different sized cartons of cans of soft drink. | | |
| **ASSESSMENT FOR LEARNING**  **(PRE-ASSESSMENT)** | | * Bullseye:   Working in pairs, students are given a number between 1 – 25.  The goal is to get an answer between 100 and 101.  Students will estimate what number they need to multiply it by to get an answer between 100 and 101. They will then check their estimation using a calculator.  eg: the starting number is 24  P1 – estimates – 3.8 so 24 x 3.8 = 912.  P2 – estimates 4.35 so 24 x 4.35 – 104.4  P1 – estimates 4.1 so 24 x 4.1 – 98.4  P2 – estimates 4.2 so 24 x 4.2 = 100.8 (winner)  Students repeat the activity using a variety of numbers less than 100 | | |
| **WARM UP/ DRILL** | |  | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | |  | | |
| 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 | | Whiteboards, calculators, paper, pencils.  Mathletics workbooks – fractions and Decimals  Studyladder  <http://www.mathsisfun.com/decimals.html>  <https://www.youtube.com/watch?v=0GL87_AEVUg>  <http://www.themathpage.com/arith/decimals.htm>  <http://www.bbc.co.uk/bitesize/ks2/maths/number/decimals/read/1/> | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Multiplying decimalsTeach and ReviewMathletics workbook pg 39-40Model how to multiply decimal numbers, making sure the columns and decimals line up.Explain that this is exactly the same as with whole numbers BUT the decimal point has to stay in the same place.Define and reinforce metalanguage used in this unit: Students should be able to communicate using the following language: decimal, decimal point, digit, place value, decimal place, tenth, hundredth. | LEARNING SEQUENCERemediationS2 | * Consolidate multiplication of whole numbers and provide opportunities for students to explore the concept of decimal multiplication |
| LEARNING SEQUENCES3 | * **Decimal multiplication:**   In pairs, students are provided with a pack of playing cards with tens and picture cards removed. The aces are worth 1 and the jokers are worth 0. Student A flips up to five cards, making a decimal number up to three decimal places, and reads them aloud. Student B flips one card. Student A writes down the numbers and writes an algorithm to multiply the numbers. Student B checks the answer using a calculator. The students swap roles and repeat.   * **Multiplying decimals on a calculator:**   Students enter a decimal number between 0 and 1, with up to three decimal places into a calculator. Students predict what will happen when the number is multiplied by ten. Students record their prediction and the test it. Students repeat the activity using other decimal numbers between 0 and 1. Students are asked to write a strategy for multiplying a decimal number by 100 and 1000. Students are encouraged to multiply decimals by multiples of ten without calculators.   * **Calculating – multiplying decimals by 10, 100, 1000**   Mathletics Worksheet pg 37   * **Calculating – Solving word problems:**   Matheltics worksheet pg 41.   * **Interactive resources:**   Studyladder  http://www.mathsisfun.com/decimals.html  http://www.bbc.co.uk/bitesize/ks2/maths/number/decimals/read/1/   * Assessment task: Mathletics Booklet pg 56-57 (can be done at the end of the 2 week block) |
| LEARNING SEQUENCEExtensionS4 | * **Operations with Decimals:**   Targeting Maths Year 6 pg: 171 |
| **EVALUATION & REFLECTION** | Students should be encouraged to talk about what they are doing, how they are working out the problems and what they need to work on to consolidate their own learning  **Student Engagement: Resources:**  **Achievement of Outcomes: Follow-up:** |

* 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.