**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 16 | STRAND: Number and Algebra | **SUB-STRAND:** Multiplication and Division 2 | **WORKING MATHEMATICALLY:** MA2-1WM, MA2-2WM & MA2-3WM  selects and uses appropriate mental or written strategies, or technology, to solve problems |
| OUTCOMES: MA2-6NA | | Uses mental strategies and informal written strategies for multiplication and division. | | |
| **CONTENT:** | | **Develop efficient mental and written strategies, and use appropriate digital technologies, for multiplication and for division where there is no** [**remainder**](http://syllabus.bos.nsw.edu.au/glossary/mat/remainder/?ajax)   * Use mental strategies to build multiplication facts to at least 10 × 10   **Recall the multiplication facts up to 10 x 10 and related division facts**   * Using the cumulative property of multiplication, e.g. 7 x 9 = 9 x 7 * Using doubling and repeated doubling as a strategy to multiply by 2,4 and 8 | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Worksheet for Tables and multiplication word problems, either made, found at: http://www.helpingwithmath.com/printables/tables\_charts/3oa7-multiplication-wheel01.htm or from other sources such as:  *Learning Times Tables* by Greg Porich, Burrabooks, 2007 | | |
| WARM UP / DRILL | | CD with times tables songs.  Multiplication grids and 100 chart: http://splash.abc.net.au/res/i/L83/index.html  Algorithms using the vertical form. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | If there are 8 chairs in one row , how many chairs in 3 rows? Encourage students to make the number sentence with x sign and write out the solution in words: \_\_ x \_\_ = \_\_\_ There are \_\_ chairs in 3 rows. | | |
| 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 | | Numeral and symbol cards, 100 charts, array cards, dice, counters, clear counters, cotton balls, straws, grid paper, multiplication grids, Base 10 materials,  Excel or Numbers for making times table grids on computer, boundary cards, and calculators. | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * **Explicitly communicate lesson outcomes and work quality.** * **Teach and review**   ◾ List known facts and facts learnt  ◾ 100s chart to highlight products of tables;  ◾ Sets of word problems for the 4x, 6x, 7x, 8x, & 9x tables. Children can make up own.   * **Define and Reinforce metalanguage used in the unit:**  Multiply, multiplied by product, multiplication, multiplication facts, tens, ones, double, multiple, (factor, shared between, divide, divided by, division, halve, remainder, equals, is the same as, strategy, digit). | LEARNING SEQUENCERemediationS1 or Early S2 | * Use mental strategies to multiply a one-digit number by a [multiple](http://syllabus.bos.nsw.edu.au/glossary/mat/multiple/?ajax) of 10, including: * Repeated addition, e.g. 3 × 20: 20 + 20 + 20 = 60 * Using [place value](http://syllabus.bos.nsw.edu.au/glossary/mat/place-value/?ajax) concepts, e.g. 3 × 20: 3 × 2 tens = 6 tens = 60 * Factorising the multiple of 10, e.g. 3 × 20: 3 × 2 × 10 = 6 × 10 = 60 * Apply the inverse relationship of multiplication and division to justify answers, e.g. 12 ÷ 3 is 4 because 4 × 3 = 12 (Reasoning) |
| LEARNING SEQUENCES2 | **Whole Class Instruction and Modelled Activities**   * Using the [commutative](http://syllabus.bos.nsw.edu.au/glossary/mat/commutative/?ajax) property of multiplication, e.g. 7 × 9 = 9 × 7 * Using known facts to work out unknown facts, e.g. 5 × 7 is 35, so 6 × 7 is 7 more, which is 42 * Using doubling and repeated doubling as a strategy to multiply by 2, 4 and 8, e.g. 7 × 8 is double 7, double again and then double again * Using the relationship between multiplication facts, e.g. the multiplication facts for 6 are double the multiplication facts for 3 * Investigation: factorising one number, e.g. 5 × 8 is the same as 5 × 2 × 4, which becomes 10 × 4. Use concrete material for this, or grid paper. * Mystery numbers: My factors are 2, 3, 4 and 6. What number could I be? |
| LEARNING SEQUENCEExtensionLate S2 or Early S3 | * Apply appropriate mental and written strategies, and digital technologies, to solve multiplication word problems * Use the appropriate [operation](http://syllabus.bos.nsw.edu.au/glossary/mat/operation/?ajax) when solving problems in real-life situations (Problem Solving) * Use inverse operations to justify solutions (Problem Solving, Reasoning) * Use mental and written strategies to multiply three- and four-digit numbers by one-digit numbers, e.g. multiplying the thousands, then the hundreds, then the tens and then the ones |
| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:**  **Resources:** **Follow up:** |