**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 18 | STRAND: Number and Algebra  | **SUB-STRAND:** Multiplication and division 2 | **WORKING MATHATICALLY:** MA2-1WM, MA2-2WM & MA2-3WM**EMATICALLY:**  |
| OUTCOMES: MA2-6NA | Uses mental strategies and informal written strategies for multiplication and division [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) (ACMNA076)] |
| **CONTENT:**  | **Recall the multiplication facts up to 10 x 10 and related division facts*** Use the equals sign to record equivalent number relationships involving multiplication, and to mean 'is the same as', rather than to mean to perform an [operation](http://syllabus.bos.nsw.edu.au/glossary/mat/operation/?ajax), eg 4 × 3 = 6 × 2.

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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Fact sheet with true and false statements that students verify. Drill can also be done – found at:

<http://donnayoung.org/math/drills.htm>  |
| WARM UP / DRILL | * Games: <http://mathsframe.co.uk/en/resources/category/90/year_4_block_a_derive_and_recall_multiplication_facts_up_to_1010_the_corresponding_division_facts_and_multiples_of_numbers_to_10_up_to_the_tenth_multiple>
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Two girls are holding nine balloons each. How many balloons are there altogether? Ask students to rewrite this question to show nine girls are holding two balloons each and find the answer, then write a number sentence showing that the equals sign records equivalent number relationships: 2 x 9 = 9 x 2. Ask for alternative grouping: 3 x 6 = 2 x 9. |
| 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 | [https://interactivemaths.wikispaces.com/Multiplication+%26+Division](https://interactivemaths.wikispaces.com/Multiplication%2B%26%2BDivision) Dominoes, numeral cards, 100s charts, counters, colouring pencils, number line templates, card for students to make up flashcards with factors on them, IWB, computers or laptops and ipads. Triangle cards found at: <http://donnayoung.org/math/tricards.htm>  |

**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**◾ The equals sign = means the same as. This sign means the number or numbers on the left must match the number on the right of the sign. 5x4 = 4x5 and 2x10 = 4x5. Show how to indicate the number on the left does not match the number on the right: ≠. E.g. 5x4 ≠ 4x3.□ Division can also be shown in the same way: 20 ÷ 5 = 8 ÷ 2. □ **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 | □ Apply the inverse relationship of multiplication and division to justify answers, eg 12 ÷ 3 is 4 because 4 × 3 = 12 (Reasoning)□ Explain how an answer was obtained and compare their own method of solution with the methods of other students (Communicating, Reasoning) |
| LEARNING SEQUENCES2 | □ Students can use arrays, number lines, triangle cards, rectangle cards with factors on them: <http://donnayoung.org/math/squcard.htm> to show that two sets of factors can make the same product.**Investigation**□ Students use Trio cards for the factors to show the relationship e.g. 36=12x3; 9x4; etc. These cards can also to be made by the students (blank ones at tricard site). □ Students Investigate and list the division sentences up to 100 that can be made using the = sign.e.g. 100 ÷ 5 = 40 ÷ 2. |
| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Recognise and use different notations to indicate division, eg 25 ÷ 4,    , 25/4
* Record remainders as [fractions](http://syllabus.bos.nsw.edu.au/glossary/mat/fraction/?ajax) and [decimals](http://syllabus.bos.nsw.edu.au/glossary/mat/decimal/?ajax), eg 25÷4=6 1 /4    or 6.25
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| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:****Resources:** **Follow up:** |