**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 13 | STRAND: Number and Algebra | **SUB-STRAND:** Multiplication and Division 2 | **WORKING MATHEMATICALLY:** MA2-1WM, MA2-2WM, MA2-3WM |
| OUTCOMES: MA2-6NA | **Uses mental 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" \t "_blank" \o "Click for more information about 'remainder')*** Use mental and informal written strategies to multiply a two-digit number by a one digit number, including:
* using known facts
* multiplying by tens then units
* using an area model
* using doubling and repeated doubling
* using the relationship between multiplication facts
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Worksheet:Division circles – Provide students with division circles (webs). Students complete the circles for specified numbers. E.g ÷4, ÷3 |
| WARM UP / DRILL | **Tables Races** Students make up cards for particular multiplication facts for particular numbers, shuffle them and put them into an envelope eg In groups, students are given an envelope of cards. Students race each other to put the cards into order, skip counting aloud. Students state which number has the multiplication facts their cards represent. *Variation:* Students write numbers in descending order.  |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | 12 apples were shared by 4 people. How many apples each? |
| 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 | Envelopes, paper cards, Trio Triangles, counters, calculators |

**TEACHING AND LEARNING EXPERIENCES**

|  |  |
| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| 🞏 Explicitly teach Use mental strategies to divide a 2-digit number by a 1-digit number where there is no remainder**IWB** Sum Sense - Division* **WC** Play the game in teams or groups. Give each team a piece of paper and pencil to use as working out paper

 <http://www.oswego.org/ocsd-web/games/SumSense/sumdiv.html>**IWB*** **WC** **Funbrain – Tic Tac Toe Squares (Division)**

<http://www.funbrain.com/cgi-bin/ttt.cgi>* **WC** Write 3 related numbers on the board. Eg 20, 2 10. The students write x and ÷ facts using these numbers., eg 2 x 10 = 20, 20 ÷ 2 = 10, 20 ÷ 10 = 2, 10 x 2 = 20. there are 10 2s in 20, 20 shared 10 ways = 2 etc

WC Halving and Repeated HalvingDemonstrate **Metalanguage:**groups of, rows of, lots of, totals, equals, makes, is the same as, factor, multiple, width, product, times, multiply, multiplied by, multiplication, multiplication facts, tens, ones, double | LEARNING SEQUENCERemediationS1 or Early S2 | Students link division and multiplication facts using groups or arrays |
| LEARNING SEQUENCES2 | **Whole class instruction and modelled activities*** **GW Trio Triangles**

Students are to use the triangles in order to make generalisations about numbers and number relationships. Eg doesn’t matter what order you multiple two numbers in because the answer is always the same. Students can create the triangles with pop sticks, toothpicks, glue onto paper and present trio triangles as a disply.* **Worksheet:**

Students complete activities that ask them to apply the inverse relationship of multiplication and division.* **Models of the Multiplication Facts**

Students model the multiplication facts using rectangular arrays and record the associated inverse relationships eg • • 3 × 2 = 6 6 ÷3 = 2 and 2 × 3 = 6 6 ÷ 2 = 3 • •  • • *Variation:* Students are given a number (eg 12) and asked to represent all its factors using arrays. * **GW** -Jelly–Fish Fruit Snack Factory

In pairs, students play a grouping game based on division strategies.<http://www.learnalberta.ca/content/me3us/flash/lessonLauncher.html?lesson=lessons/09/m3_09_00_x.swf>* **Investigation**

**GW or I - Division Problems**.Students create horizontal division questions (consult multiplication grid), write as a word problem and write the correct answer. *Variation:* Students can write onto cards to swap with other students.* **GW - Halving**

Students work in small groups. A student chooses a large whole even number and the next student halves it. They take turns to keep halving the number. A student checks the results with a calculator (each answer is ÷ 2). In the next round they start with a different number. Possible questions include: ❚ what did you notice?❚ did the pattern help you with your calculations?  |
| LEARNING SEQUENCEExtensionLate S2 or Early S3 | * **Extension**

Students match horizontal division number sentences (no remainders) with the correct algorithm.E.g. 12 ÷ 3 = 4  4  3)12 |
| **EVALUATION & REFLECTION** | Were the students engaged in learning?Were resources appropriate/easily available? | Did group work allow for differentiation?Were students able to reflect on their learning? |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task..