**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 14 | 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:**  | Uses mental strategies and informal recording methods for division with remainders.* model division, including when the answer involves a remainder, using concrete materials
* explains why a remainder is obtained in answers to some division problems.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Assessment**IWB Tumbling Dice Game**Using your Smartboard, go into the notebook and, from the gallery, paste on two tumbling dice (10 sided). Students can play a challenge where 1 student tumbles the dice and another has to give the answer to the product of the numbers…OR…play Tables Baseball (Note progress of individual students). |
| WARM UP / DRILL | **Multiplication Grid Race** Students race to finish a 10X10 grid of multiplication  |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Mary bought 33 balloons and needed to share them equally with 3 friends and herself. How many balloons will each person receive? How many balloons are left over? |
| 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 | Lucky Leftovers stencils, Base 10 blocks, calculators, numeral cards, blank cards, small whiteboards, whiteboard markers, Signpost Maths 4, Teacher and Student books, multiplication grids. |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| 🞏 Explicitly teach: IWB Calculation Balance<http://www.topmarks.co.uk/Flash.aspx?f=CalcBalancev5>* **WC Remainders**

Students explore division problems involving remainders, using counters eg ‘We have to put the class into four even teams but we have 29 students. What can we do?’ Students make an array to model the solution and record their answer to show the connection with multiplication eg 29 = 4 × 7 + 1. Students could interpret the remainder in the context of a word problem eg ‘Each team would have 7 students and one student could umpire.’ Students could record the answer showing the remainder eg 29 ÷ 4 = 7 remainder 1. The teacher could model recording the students’ solutions, using both forms of recording division number sentences. The teacher sets further problems that involve remainders eg ‘A school wins 125 computers. If there are seven classes, how many computers would each class receive?’ Since only whole objects are involved, students discuss possible alternatives for sharing remainders.* **WC Play Lucky Leftovers**
* **WC Checking Division answers with Multiplication.**

Demonstrate how to check division answers by multiplying one share by the number of shares, and then adding what’s left over.* **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, share, remainder, left over, trade, fair share. | LEARNING SEQUENCERemediationS1 or Early S2 | * Students complete sharing activities (no remainders/left overs )with concrete materials (Base 10, counters).
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| LEARNING SEQUENCES2 | * **Whole class instruction and modelled activities**

**Worksheet:** Students complete activities that ask them to apply the inverse relationship of multiplication and division.* GW Students make a **memory game** where inverse relationships are a match ie 4 x 5 = 20 is a match with 20 ÷ 5 = 4

GW Using base 10 blocks have students model simple **sharing questions**, first with no remainders, then with remainders. Eg Share 20 counters among 5 boys, Share 67 counters among 6 girls, 45 pencils shared by 4. (See Signpost Maths 4, Teacher’s Resource p 57)**Investigation*** **GW Division as sharing.**

Students are given a division word problem (on smartboard, whiteboard etc). Begin with 2 digits divided by 1 digit. Students model the problem using Base 10 blocks and use numeral cards to form the horizontal equation. . * **GW Lucky leftovers**

Students play the game Lucky Leftovers. Students use their knowledge of multiples to try to select a divisor that will leave them with a remainder (or Lucky Leftovers). The remainder equals the number of points awarded. The teacher should determine the starting number for the game (this can be differentiated for groups, based on ability). Once the points are awarded, the student then subtracts the remainder from the starting number to get a NEW starting number for the next player. Play continues until they can no longer divide the number to get leftovers. (see appendix for stencil)* **GW or I** Students write their own division problems, with answers involving remainders. They can model their problem using base 10 blocks to find the answer. Write the problem on one side of a card and the answer on the back. Swap problems with other students.
* Assessment: Students complete worksheets which include written division problems (including no remainders and remainders). Students are asked to draw a picture to show their strategies and an algorithm to match.
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| LEARNING SEQUENCEExtensionLate S2 or Early S3 | * **Remainders Count**

Students have 3 numeral dice and paper to record on. In turns, students roll the dice and using the three numbers make a division number sentence, eg. if a 6, 4 & 5 were rolled then a student could make 46÷5. The student determines the answer and keeps a tally of any remainders. In this case it would be one. However if the student makes 45 ÷ 6, the remainder would be 3. The remainders become the student’s score. The winner is the first to reach a score of 20  |
| **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..