**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM: 2 | WEEK: 3 | STRAND: Number and Algebra | **SUB-STRAND:** Patterns and Algebra 2 | **WORKING MATHEMATICALLY:** MA2-1WM, MA2-2WM, MA2-3WM |
| OUTCOMES: MA2-8NA | **Generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values.** |
| **CONTENT:**  | Investigate and use the properties of even and odd numbers.* investigate and generalise the result of adding, subtracting and multiplying pairs of even numbers, pairs of odd numbers, or one even and one odd number, eg even + odd = odd, odd × odd = odd
* explain why the result of a calculation is even or odd with reference to the properties of the numbers used in the calculation (Communicating, Reasoning)
* predict whether the answer to a calculation will be even or odd by using the properties of the numbers in the calculation (Reasoning)
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Odd or Even |
| WARM UP / DRILL | * IWB – Study Ladder (Log into Study Ladder, copy and paste in address)- Even or Odd <http://www.studyladder.com.au/resources/teacher/mathematics?grade=5&tag=448>
* Skip counting – by even number (2,4), by odd number (3,5).
 |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | An apple tree has 62 apples on it, 7 apples fell off.Are there an odd or even number of apples on the tree? |
| 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 | IWB – Study Ladder, Even Numbers Maze, Odd numbers maze, odd and even pairs, odd and even investigation |

**TEACHING AND LEARNING EXPERIENCES**

|  |  |
| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and work quality.* **Teach and review** what odd and even numbers are.
* **Define and reinforce metalanguage** used in the lessons eg: odd, even, add, plus, subtract, take away, minus, times, multiply, equals, predict, prediction, investigate, investigation, test, theory, patterns, reason
 | LEARNING SEQUENCERemediationS1 or Early S2 | * Exploring Odd and Even

In pairs, students are given twenty counters and a 10 × 2 grid. The teacher chooses a number (in the range 1 to 20) and asks the students to collect that number of counters and place them on the grid, paired in two rows. eg ‘Collect 12 counters and pair them in two rows on the grid.’Students are asked to keep a record of which numbers of counters cannot, and which numbers can, be paired.  |
| LEARNING SEQUENCES2 | * Worksheet: Even maze, students complete maze representing even numbers.
* Worksheet: Odd maze, students complete maze representing odd numbers.
* Exploring odd and even: students working in pairs, complete worksheet on odd and even numbers.
* Odd and even investigation: students choose a statement to investigate.
* Odd and even pairs: in pairs children are given a set of numbers and explore what numbers add to get an even or odd number.
* More odd and even puzzles: In maths groups or pairs, ask children to investigate whether some of these statements involving odd and even numbers are true or false. Encourage them to compare answers with another group or pair to see if they agree.
* The sum of three even numbers and one odd number is always an even number.
* The sum of three odd numbers and one even number is always an even number.
* The sum of six odd numbers is always an even number.
* The difference between two even numbers is always an even number.
* The difference between an even number and an odd number is always an odd number.
* The difference between two odd numbers is always an even number.
* Divide class into 3 groups, each group is given a rule to predict and investigate.

Group 1: even+even= , even-even=, evenxeven=Group 2: odd+odd=, odd-odd=, oddxodd=Group3: even+odd=, even-odd=, odd-even=, evenxodd=* Assessment - Oral report – result of investigation of odd & even rules
* Each group returns to class and report on what the group discovered. As a class write up rules.
 |
| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Explore odd and even using all activities however incorporate fractions, mixed numerals and decimals.
 |
| **EVALUATION & REFLECTION** |  |

* 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.