**MATHEMATICS EARLY STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: 1 | WEEK: 10 | STRAND: NUMBER AND ALGEBRA | **SUB-STRAND:** WHOLE NUMBERS | **WORKING MATHEMATICALLY:**  MAe-1WM & MAe-2WM |
| **OUTCOMES:** | | MAe-1WM describes mathematical situations using everyday language, actions, materials and informal recordings  MAe-3WM uses concrete materials and/or pictorial representations to support conclusions  MAe-4NA counts to 30, and orders, reads and represents numbers in the range 0 to 20 | | |
| **CONTENT:** | | **Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)**   * count forwards to 30 from a given number * count backwards from a given number in the range 0 to 20   **Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)**   * recognise numbers in a variety of contexts, eg classroom charts, cash register, computer keyboard, telephone (Communicating) CT * communicate the use of numbers through everyday language, actions, materials and informal recordings (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png   **Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)**   * recognise that the last number name represents the total number in the collection when counting (Communicating) * compare and order numbers and groups of objects * determine whether two groups have the same number of objects and describe the equality, eg 'The number of objects here is the same as the number there' (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | Provide students with an A4 sheet of paper folded in half. Ask students to choose a number between 20-30. On one half students draw a picture about their chosen number. On the other half students write their number. | | |
| WARM UP / DRILL | | Select three students to stand in front of the class. Ask: how many legs? Have the class count as each leg is kicked forward. Ask: how many fingers? Have the class count as each finger is moved. Highlight to students that the last number name represents the total number in the collection when counting. Complete drill for counting forwards to 30 and then backwards from 20. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | |  | | |
| 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 cards 10-20, tens frames, counters, 100 chart, coat hangers, pegs, numeral sticks, paper strips (20 per pair), cards (numerals, pictures, dots), numeral cards, word cards, craft sticks, before and after chart. | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| **Counting Backwards**  Have 20 students stand in two lines of ten. As the class counts backwards aloud, students in line sit down, one at a time. Focus on starting at 20 while all students are standing, then 19 as the first student sits down.  **Class Counting**  Each child is given a numeral card in the range 0-20 at random. Child with number 1 says their number out loud followed by child with numeral card 2 and so on.  Children count out their numbers in correct order.  Children use their numeral cards to count backwards.  Children use their cards to go and stand in the right order forwards or backwards.  **100 Chart**  Introduce the 100 chart. Ask students to count to 30 as you point to numbers on the chart. Give students another starting number (for example, 15) and count on to 30. | LEARNING SEQUENCERemediation | **Numeral Cards**  Organise students into pairs. Show a numeral card in the range 10-20. Have partners make the number with their fingers. Select students to share the different ways they made a number. For example, one student show tens fingers and their partner shows five fingers.  **Tens Frame**  Invite students to use two tens frames to make different numbers. Have students make the number ten by placing a counter in each square of the ten frame.  **Coat Hangers**  Provide each student with a coat hanger and twenty clothes pegs. The students put the twenty pegs on the hanger counting as they put them on. They then take turns to roll a die displaying dot patterns and take off the corresponding number of pegs from the coat hanger. They continue until all twenty pegs have been removed from the hanger. The exact number needed to form zero must be rolled to finish.  **Grab The Puppet Race**  Children have 10 numeral sticks in a bundle (mixed up) eg 1-10, 10-20,20-30.One person says “Go” and children race to be the first child to order their numbers either forwards or backwards correctly and grab the puppet. Other children check to see if the winner has the correct sequence. |
| LEARNING SEQUENCEES1 | **Paper-Chain**  Provide students with strips of paper in two colours. Have students work together to create a paper-chain using 20 strips. Ask students to estimate how many links they have made with each colour. Ask students to check by counting.  **Numeral Chairs**  Attach numeral cards to the seats of chairs. Give each student in the group a card illustrating a group of objects. Students count the objects and, on a given signal, sit on the chair displaying a corresponding numeral card.  **Before and After**  Prepare “before and after” charts for each pair of students.  Numerals are written down the centre column of the chart. These numerals should be within an appropriate range for the students. Students are given numeral cards to sort and place on the chart in either the “number-before” or “number-after” spaces to form number sequences.  **Concentration**  Students are given a set of cards with numbers represented by  numerals, pictures, dots, or words  eg    Cards should be provided within an appropriate range eg 0 to  10, 10 to 20,20 to 30. In pairs or individually, students match the cards.  **Rabbits’ ears**  Ask students to put their hands above their head. Then ask them to show various numbers by raising the correct number of fingers. This is best done in random order, first in the range one to five and then six to ten. For example, “Show me the number four,… two,…five,…three.” The aim is for the students to raise their fingers simultaneously rather than sequentially. Students may verify their count by bringing their hands down and counting their fingers. |
| Make two groups of craft sticks with the amounts 14 and 20. Play the ‘Three Guesses’ game. In a circle, place the group of 14 craft sticks into the centre.  Ask: Can you guess how many sticks are in the pile? Record six estimations on the board and write the student’s initial next to each.  Then, ask the class to count aloud as one by one you remove about a third of the sticks from the pile. Label the sticks counted with a numeral and word card. Encourage students to review their original guesses. Write any changed estimations on the board.  Show the numeral card and count on from the number, removing another third of the sticks. Ask again for revised guesses and record on the board. Complete the counting. Discuss aspects that helped make students’ estimations more accurate. Repeat the activity with 20 craft sticks | LEARNING SEQUENCEExtension | **Counting on**  Prepare numeral cards in the range eleven to nineteen and place them face down on the floor. Provide the students with two collections of counters. One collection should consist of bundles of ten counters, all of the same colour. The second collection should consist of single counters of assorted colours. Students take turns to select a card. They then collect a corresponding number of counters, using the bundles of ten and single counters. Encourage students to count on from the bundle of ten. This activity may be varied by extending the range of numbers or by using ten strips (made of ten dots on strips of card) instead of counters.  **Hundreds Chart**  Count forwards and backwards by ones on a hundred chart e.g. start at different numbers rather than at 1 all the time.  **Order Me**  Place the numerals 1-30 in a “feely bag”. The children take it in turns to draw a number card from the bag and write it on the number line in sequence so that numbers are going up from 0-30.Return numbers to the bag after each turn. If a card cannot be placed in the correct position then the number card is returned to the bag. The winner is the child who fills their line in order first.  **Skip Counting**  Lead the students in oral counting in unison by tens, up to 100, and then backwards from 100. Support the oral counting by pointing to the location of these numbers on the one hundred chart. Cover the multiples of ten on the hundred chart and have a student point to the position of each number as the class counts forwards or backwards by ten. Vary the activity by using other counting patterns, such as counting by twos or counting by fives. |
| **EVALUATION & REFLECTION** | Student engagement: Achievement of outcomes:  Resources: Follow up: |

* 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.