**MATHEMATICS EARLY STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | STRAND: Number and Algebra | **SUB-STRAND:** Whole Number | **WORKING MATHEMATICALLY:** MAe-1WM, MAe-2WM &MAe-3WM |
| OUTCOMES: Mae-4NA |  **Counts to 30, and orders, reads and represents numbers in the range 0 to 20** |
| **CONTENT:**  | **Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond*** Read numbers at least to 20, including zero, and represent these using objects (such as fingers), pictures, words and numerals
* Estimate the number of objects in a group of up to 20 objects, and count to check
* Use 10 as a reference in forming numbers from 11 to 120, e.g. ‘13 is 1 group of ten and 3 ones’
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Oral counting from 1 to 20 forwards and backwards.
* Best Start Assessment Q1, 3-9, 27-28
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| WARM UP / DRILL | * Buzz – counting forwards to 20 buzz on 10 and 20, the next student sits dawn. Then count back from 20. Winner is the last student standing.
* Have a container with numeral cards 0 to 20. Pick a numeral card and place it on a number line in the correct sequence. Discuss with each student how they knew where to put the number.
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| 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
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| RESOURCES | flash cards with numbers 1-20, IWB visual hundreds square, ten frames, dot pattern cards, dice, worksheets on numerals, ipads or computers for CMIT games, pegs, counters, egg cartons, fence boards and paddle pop sticks |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| **Celebrity Head**Display a number line showing numbers 1 to 20. Place movable marker tabs at either end of the strip. One student wears a headpiece to which a numeral card is attached. Ask the student to have the class help to identify the “secret number”. The class can respond only with a yes or no reply. In response to the answers, the selected student then moves the tabs along the number line to indicate the range within which the “secret number” lies. Continue the process until the student is able to identify the number.**Counting into Cups**In small groups, students are given containers such as paper cups, each labelled with a number 0 to 10, (then 0 to 20, 0 to 30). Students are asked to identify the number on the cup and count the corresponding number of pop-sticks in the cup, and place them in order.**Teen Numbers**Write 1\_\_ on the board; ask what is the smallest two-digit number that starts with a 1? Ask students to write a zero in the appropriate space and have each student join ten connecting cubes to make ten and ask each student to write 10 . Ask what comes after 10, how may cues do we need. Instruct students to place one loose cube beside the ten linked cubes to make 11. Repeat for number 12 through to 20.**Numbers 10 to 19**Ask if anyone can represent 12 with their fingers. Once students realise 2 students are needed, ask why? Have 2 students show 12. Ask how do you know this is 12? Encourage children to count on from 10. Repeat for numbers 13 to 19. Form pairs of students, get each pair to represent numbers that you call out.  | LEARNING SEQUENCERemediationES1  | **Beehive**Construct base boards displaying beehives with numerals written on them (see DENS pp.64,65). Create a supply of cut-out bees. Students state the numeral written on the hive and collect the correct corresponding number of bees. They then attach the bees to the hive, using paperclips or fold back clips. Other students in the group should count the bees to confirm that the number of bees matches the numeral on the hive.**Candle Holders**Place candle holders upright in six containers. Each container should hold a different number of candle holders within the range of one to six. Students take turns to roll a standard die. After counting the dots on the uppermost face, students count out a corresponding number of candles. Students then find a container with the same number of candle holders and place the correct number of candles in the candle holders. Students continue until candles have been placed in all the holders.**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. |
| LEARNING SEQUENCES1 | **Using 10 as a Reference**Students are given two egg cartons. Ten counters are placed in the top row and the students use this as a reference for counting numbers up to 20. Students are asked to count numbers up to 20 by placing some counters in the first egg carton. Students compare their arrangements of chicks.Possible questions include:* What is the number you have now?
* What is the next number?
* How did you count it?

**Rabbits’ ears - teens**Have one student stand in front of the class, with their hands held next to their head, holding 10 fingers up. Ask another student to stand next to them with their hands raise also and make a teen number by raising the correct number of fingers. The aim is for the students to display a teen number using 10 as a reference eg 14 is 10 and 4 more, so the second student only needs to raise 4 fingers. (variation of Rabbits’ ears DENS 1 p 105)• How did you work out how many fingers you needed?• Instead of counting from 1, is there another way we could count?• Could we start counting from another number? (10)**Hidden Number** Students order numeral cards from 0 to 30. The numbers 1 to 29 are turned face down and the numbers 0 and 30 are left face up for students to see. One student is selected to stand on 0 and step forward to a card of their choice.Possible questions include:❚ which card is the student standing on?❚ how do you know?If I turned over the number before/after this number, what number should that be? (The student turns over the selected card for other students to check.)Variation: The student stands on 20 and steps backwards to select a card. (Adapted from CMIT)**Fences**Construct sets of fence base boards using DENS p.56 and paddle pop sticks displaying numerals in the range 1 to 10, 10-20 and 20-30 for each student or pair of students. Students match the numerals on the paddle pop sticks with the numerals written on the base boards. Extend this activity by constructing base boards displaying blank fences. The students sequence the numbered paddle pop sticks along the fence.**Worksheets:** Students complete activities which require them to correctly identify numbers and represents the numbers with drawings.**Assessment –** Can students read and represent numbers up to 20?Can students count forwards to 20 and backwards from 20 accurately? |
| LEARNING SEQUENCEExtension Early S1 | * Number cards are ordered from 0 to 30 across the floor. *Extension:* Students are asked to select two of the numbers from the floor and count from the smallest to the largest, or the largest to the smallest.
* In pairs, students use simple computer graphics to represent the numbers 0 to 30. Students are encouraged to discuss how best to arrange the graphics so that each number can be identified quickly.
* Computer Learning Objects: [Numeral Track](http://www.curriculumsupport.education.nsw.gov.au/countmein/children.htm%22%20%5Ct%20%22_blank)

Identifying the number before and after a given number. The game includes 11 number sets: 1-10, 4-13, 15-24, 26-35, 30-39, 37-46, 43-52, 51-60, 58-67, 72-81, 89-98.<http://www.curriculumsupport.education.nsw.gov.au/countmein/children.htm> |
| **EVALUATION & REFLECTION** | REFLECTIONAsk students how they remember the order of the numbers and how many each one represents. Share everyone’s ideas. Ask students to share, in their words, what they have learnt. Discuss new words and their meanings. Discuss how students worked out where missing numbers went, did they count from 1, or did they use another way to help them? Eg using counting on from 5.  |

* 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.