YuMi Deadly Maths

Year 1 Teacher Resource:
NA – Big steps in growing

Prepared by the YuMi Deadly Centre
Faculty of Education, QUT

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*Growing community
through education*

ACKNOWLEDGEMENT

We acknowledge the traditional owners and custodians of the lands
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Year 1   Number and Algebra

Big steps in growing

Learning goal	Students will: • skip count in tens and identify the numbers in the counting pattern. • use skip counting by tens to count a collection.
Content description	Number and Algebra – Number and place value • Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012) Number and Algebra – Patterns and algebra • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)
Big idea	Number – counting in tens; Algebra – patterns
Resources	Maths Mat, manipulatives (e.g. play money, cubes, beads, some numeral and number name cards)

Reality

Local knowledge	Finding 10 sticks, shells, coconuts in the local environment. Counting money, 10 cent pieces and $10 notes, to buy or get change at the shop, playing games that involve money.
Prior experience	Check that students can skip count by twos and fives starting from zero.
Kinaesthetic	Maths Mat or outside 99 board that includes 100. A selected student starts at zero and skips horizontally to 10, class counts 10; another student comes to zero, taps first student on the shoulder and both move vertically ten forward while class counts 10, 20. Repeat to 100. At each stop, the teacher asks questions such as: *What number is ten more/ten less? 40 is between which tens?* Repeat so that all students have a turn. Discuss *twoty* (20), and *threety* (30). Count forwards and backwards in tens. Discuss the vertical pattern formed by skip counting in tens and the similarities and differences to the pattern of the twos and fives. When students have a sound grasp of the even tens pattern, skip count forwards/backwards in tens starting from any number. Select students to move from one space to the next ten up/down. Check that there are actually ten spaces in between the ten skip count, e.g. 17 and 27. Choose other examples. Establish the skip counting pattern, i.e. counting every tenth number.

Abstraction

Body	1. Maths Mat: Teacher chooses two students to stand at selected numbers on the Maths Mat, e.g. 23 and 65. Another student (walks) to skip count in tens 23, 33, 43, 53, 63 and then across in ones, 63, 64, 65 to the second number. All students count out loud throughout the process. Find another way to do this [23, 24, 25, 35, 45, 55, 65]. Give other examples, some going forwards, others going backwards. 2. Hand-clap activity: Teacher shows two-digit numeral or name card, e.g. 54. Teacher and students give five loud hand claps for the number of tens, counting out the tens as they go (10, 20, 30, 40, 50) then give four feather claps with one finger on their arm, again saying the number they are making (51, 52, 53, 54). Repeat with other numbers/names. Reversal: Teacher claps for tens and feather claps for ones. Students have to silently count as teacher is clapping and find the correct answer.

Hand	Using cubes, students make given numbers and then make them grow, firstly in ones, then with different numbers make them grow in tens. Record the patterns as they go, e.g. 24, 25, 26, 27; 43, 53, 63, 73. Patterns may be extended past three more numbers.
Mind	Students visualise a bookcase with three shelves filled with ten books on each shelf. Teacher and students make other stories for students to see in their minds.
Creativity	Students make their own pattern/s showing how to grow big ten steps.

Mathematics

Language/ symbols	counting, skip counting, sequence, collection, object, numeral, name, zero, one hundred, missing number, number pattern, forwards, backwards, next, number names up to 100
Practice	1. Groups of three to four students count boxes of play money, cubes, beads, and so on, each taking turns to count out a ten to determine how many were in the collection to 100. Observe how students record each ten to find the total number. Students share their process and results with the class.
	2. Worksheet: 99 board diagram; students colour the pattern for skip counting in even tens. Use different colours for the other tens' pattern chosen by the teacher, e.g. 8, 18, 28 etc.
	3. Calculator: Enter a number, e.g. 27, then press + 10 repeatedly, calling out "equals: 37, 47, 57, 67, 77, 87, 97". (This could extend into the hundreds: 107, 117, 127 …) Repeat for other starting numbers, e.g. 13, 39.
	4. Students draw the Giant's footsteps going up the beanstalk starting from the ground at zero and going up in tens. Write the numeral and name on the steps.
	5. Mapping: 99 board diagram. Always start at zero. Give directions, e.g. *What number is 3 tens down and 7 ones across?*; skip count from zero, 3 big steps down and 7 small steps across. Reverse: *Find 54;* students plot (5 down and 4 across).

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

In the first teaching direction, three down and seven across is given and students find they reach 37. In the second teaching direction, 54 is given and students find the movements (five down and four across) that reach this number.

This is an example of the generic strategy of **reversing** – teaching in both directions.

These activities practise finding and placing numbers.

	6. Mapping: 99 board diagram. Map the path from 24 to 67 (*How many big steps and how many little steps to get from 24 to 67? How many more than 24 is 67?*). Choose other examples and include going backwards, e.g. from 79 to 34 (*How many big steps and how many little steps to get from 79 to 34? What's the difference between 79 and 34?*).
Connections	Relate to counting, place value, and measurement (cm – metres, ml – litres).

Reflection

Validation	Students check to find things in their world that go up in tens, e.g. changing 10 cent pieces for a 50 cent coin; NRL football fields in 10 m lines.
Application/	Provide applications and problems for students to apply to different contexts

problems	independently; e.g. shopkeepers counting their money, counting blocks/sets of books and setting them aside in groups of ten to make it easy to count the total collection.
Extension	**Flexibility**. Students explore many ways to grow in tens, e.g. skip count in single tens, count in double tens (0, 20, 40, 60).
	Reversing. Students are able to skip count in tens to a given multiple and reverse by saying how many skips were taken.
	Students are able to find a two-digit number from directions and, given a two-digit number, trace it back to zero demonstrating knowledge that the number contains x tens and y ones.
	Generalising. *Counting in tens means we count every tenth number. The tens counting pattern makes a straight line on the 99/hundred board*.
	Changing parameters. Skip count in hundreds and thousands. Use unfamiliar contexts to show the tens number sequence. Use calculators to repeatedly add 100 or repeatedly add 1000.

Teacher's notes

- Explore the patterns and relationships embedded within the tens counting sequence.

- Skip count to develop an understanding that the last number said will always determine "how many" in a collection.

- Students need to be taught the skill of visualising: closing their eyes and seeing pictures in their minds, making mental images; e.g. show a picture of a kookaburra, students look at it, remove the picture, students then close their eyes and see the picture in their mind; then make a mental picture of a different bird.

- Suggestions in Local Knowledge are only a guide. It is very important that examples in Reality are taken from the local environment that have significance to the local culture and come from the students' experience of their local environment.

- Useful websites for resources: www.rrr.edu.au; https://www.qcaa.qld.edu.au/3035.html

- Explicit teaching that **aligns with students' understanding** is part of every section of the RAMR cycle and has particular emphasis in the Mathematics section. The RAMR cycle is not always linear but may necessitate revisiting the previous stage/s at any given point.

- Reflection on the concept may happen at any stage of the RAMR cycle to reinforce the concept being taught. Validation, Application, and the last two parts of Extension should not be undertaken until students have mastered the mathematical concept as students need the foundation in order to be able to validate, apply, generalise and change parameters.