**This Learning Progression begins at Level 2 of the Victorian Curriculum and concludes at Level 6. Five progressions are provided in this span. Please see Quantifying Numbers (Part A) for seven previous progressions.**

*Description:* This Learning Progression describes how a student becomes increasingly able to count, recognise, read and interpret numbers expressed in different ways. Although number is an abstract concept which can be represented by a word, a symbol (numeral) or an image, it is central to quantitative thinking. This Learning Progression outlines key understandings needed to process, communicate and interpret numerical information in a variety of contexts.

Within this Learning Progression, place value is taken to mean more than being able to read, write and state the positional value of a digit. Place value relies on understanding the relationship between digits in a numeral, which then enables the numeral to be renamed in multiple ways. In addition to the base-ten positional value property, the place value system has both additive and multiplicative properties. That is, the quantity represented by a numeral is the sum of the values represented by its individual digits (326 = 300 + 20 + 6) and the value of a digit is determined by multiplying its face value by the value assigned to its position in the numeral (326 = 3 x 100 + 2 x 10 + 6 x 1).

*Details of progression provide nuanced and detailed descriptions of student learning – what students can say, do, make or write. Examples of student learning in each step are not hierarchical, nor are they to be used as a checklist.*

| **Victorian Curriculum Level 2** | **Victorian Curriculum Level 6** |
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| **Producing number names to at least 1000** The student: * counts forwards and backwards by 100s to 1000 (100, 200 … 1000)
* counts forwards and backwards by tens off the decade to 100 (2, 12, 22, …).
 | **Producing number names of any size** The student:* counts forwards and backwards from any number
* produces and reads numbers to at least 1000.
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| **Numeral recognition and identification of place value** The student:* recognises and describes teen numbers as 1 ten and some more (16 is 1 ten and 6 more)
* represents and renames two-digit numbers as separate tens and ones (68 is 6 tens and 8 ones, 68 ones, or 60 + 8)
* applies an understanding of zero in place value notation when reading numerals that include internal zeros (correctly recognise 101 as one hundred and one, not 1001).
 | **Numeral recognition and identification of place value** The student:* recognises and identifies numerals from a given range up to 1000 (is shown the numerals 170, 318, 576 and 276 and when asked which is 276, points to the 276).
 | **Numeral recognition and identification of place value** The student * identifies numerals in the range 0–10 000 (is shown the numeral 2001 and responds *two thousand and one*)
* recognises a numeral from a given range of numerals up to 10 000 (when presented with the numerals 1701, 9318, 2050 and 2500 and when asked which is 2050, indicates the correct numeral).
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|  | **Understanding place value** The student:* represents and flexibly renames three-digit numbers as counts of hundreds, tens and ones (247 is 2 hundreds, 4 tens and 7 ones, or 2 hundreds and 47 ones, or 24 tens and 7 ones).
 | **Understanding place value** The student:* reads and writes numbers beyond 1000 applying knowledge of the place value periods of ones and thousands
* partitions numbers by their place value into thousands, hundreds, tens and ones.
 | **Understanding place value** The student:* reads and writes numbers applying knowledge of the place value periods of ones, thousands, millions (how numbers are written with the digits organised in groups of three – 10 000 is read as ten thousand, where thousand is the place value period)
* partitions numbers by their place value into tens of thousands, thousands, hundreds, tens and ones and beyond
* recognises the relationship between adjacent positions in place value (200 is 10 times as large as 20, which is 10 times as large as 2)
* estimates whole numbers to the nearest hundred thousand, ten thousand, etc. (crowd numbers at a football match).
 | **Understanding place value (directed numbers)** The student:* orders negative numbers (recognises that −10 °C is colder than −2.5 °C).
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| **Victorian Curriculum Level 2**  | **Victorian Curriculum Level 6** |
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|  | **Understanding decimal place value** The student:* recognises that the place value system can be extended to tenths and hundredths
* uses an understanding of the magnitude of decimals to compare them to two decimal places (0.20 is smaller than 0.4)
* orders decimals to one decimal place by placing them on an interval between 0 and 1.
 | **Understanding decimal place value** The student:* locates and orders decimals between 0 and 1 up to two decimal places
* recognises that the place value system can be extended to thousandths
* compares the size of decimals (including ragged decimals such as 0.5, 0.25, 0.125)
* read, compare and rename decimal numbers (0.4 is greater than 0.355 because 0.4 has 4 tenths and 0.355 only has 3 tenths).
 | **Understanding decimal place value** The student * compares and orders decimals beyond 1 including ragged decimals (those expressed with unequal numbers of places)
* recognises the relationship between adjacent positions in place value for decimals (0.20 is 10 times larger than 0.02).
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|  |  |  |  | **Representing place value** The student:* recognises, reads and interprets very large and very small numbers
* expresses numbers as powers of 10 in scientific notation and determines the order of magnitude of quantities (a nanometre has an order of magnitude of −9)
* relates place value parts to indices (1000 is 100 times larger than 10, and that is why 101 x 102 = 103 and why 103 divided by 101 is equal to 102).
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Student learning in numeracy has links beyond Mathematics in the Victorian Curriculum F–10. Teachers are encouraged to identify links within their teaching and learning plans.