Indicative progress descriptions

The Victorian Curriculum F–10 has been designed as a continuum of learning, with achievement standards provided at the end of a level or, more typically, at the end of a band of levels. As students progress along the curriculum, indicative progress descriptions can be used by teachers to describe what student progress looks like *between* achievement standards. Such a description of a student’s progression of learning may be useful to a teacher when they need to assess and report the student’s learning progress *when they are only partially through teaching the level* and hence the student is still working towards the level achievement standard.

To assist teachers to develop their own indicative progress descriptions, the VCAA has provided an annotated example of indicative progress, a curriculum-specific example of indicative progress and indicative progress templates prepopulated with the curriculum-specific achievement standards (see below).

Teachers are encouraged to look at both the annotated example below and the curriculum-specific example of indicative progress (see page 2), before filling in the indicative progress template from page 3 onward.

Annotated example of indicative progress

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| **Curriculum Area**  **Step 1:** *Identify the curriculum area and the levels the assessment will span.*  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Descriptions:**  **Step 5:** *Develop a description of what a student would be expected to do, make, say or write as they progress towards the next achievement standard.* | | |
| **Level X Achievement Standard** | **Example of indicative progress towards achievement standard** | **Level Y Achievement Standard** |
| By the end of Level X students can: … | When progressing towards Level Y students can: …  **Step 4:** *Highlight the specific elements of the achievement standard that are being targeted in this context.* | By the end of Level Y students can: … |

**Step 2:** *Draw the context from the learning plan and include an outline of the unit or topic.*

**Step 3:** *Choose which content descriptions will be taught and assessed in this unit.*

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| **CURRICULUM AREA: Mathematics (Number and Algebra) sequence towardLevel 9 achievement standard** | | |
| **Context:** Students cover related content and proficiencies when they engage in learning activities where they:   * use technology to plot points in the plane, construct corresponding right angled triangles, and calculate exact and approximate values for the length of the line segment joining the two points using Pythagoras theorem and the Cartesian distance formula * use data from measurement situations that involves very large and very small quantities and express this data in scientific notation and vice versa * use technology to plot families of related graphs derived from a basic graph using a single parameter, and indicate the corresponding transformation that relates these graphs. | | |
| **Content Descriptions:**  2  3   * Express numbers in scientific notation [(VCMNA303)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA303) * Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software [(VCMNA308)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA308) * Apply set structures to solve real-world problems (VCMNA307) | | |
| **Mathematics Level 8 Achievement Standard** | **Example of Indicative Progress toward Level 9 Achievement Standard** | **Mathematics Level 9 Achievement Standard** |
| By the end of Level 8:   * Students use efficient mental and written strategies to make estimates and carry out the four operations with integers, and apply the index laws to whole numbers. * They identify and describe rational and irrational numbers in context. | In **Mathematics**, indicative progression towards the Level 9 achievement standard may be when students:   * express very large and very small numbers from practical situations in scientific form and vice versa * plot a pair of points in the plane, construct a corresponding right-angled triangle and use Pythagoras’ theorem to calculate the distance between the two points   4 | By the end of Level 9:  5   * Students apply the index laws using integer indices to variables and numbers, express numbers in scientific notation, solve problems involving very small and very large numbers, and check the order of magnitude of calculations. * They find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment using a range of strategies including the use of digital technology |

Curriculum-specific example of indicative progress

Below is a curriculum-specific example with each step marked, to demonstrate how to complete an indicative progress template.

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 1 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context: [INSERT Context from the learning plan and include an outline of the unit or topic you are assessing]** | | |
| **Content Description(s): [INSERT Content description/s which will be taught and assessed in this unit]** | | |
| **Mathematics Foundation Level Achievement Standard** | **Example of Indicative Progress toward Level 1 Achievement Standard** | **Mathematics Level 1 Achievement Standard** |
| By the end of the Foundation Level:   * Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. * They match individual objects with counting sequences up to and back from 20. * Students order the first 10 elements of a set. * They represent, continue and create simple patterns. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 1 achievement standard may be when students: | By the end of Level 1:   * Students count to and from 100 and locate these numbers on a number line. * They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. * Students recognise Australian coins according to their value. * They identify representations of one half. * Students describe number sequences resulting from skip counting by 2s, 5s and 10s. * They continue simple patterns involving numbers and objects with and without the use of digital technology. |

Indicative progress template

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 2 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 1 Achievement Standard** | **Example of Indicative Progress toward Level 2 Achievement Standard** | **Mathematics Level 2 Achievement Standard** |
| By the end of Level 1:   * Students count to and from 100 and locate these numbers on a number line. * They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. * Students recognise Australian coins according to their value. * They identify representations of one half. * Students describe number sequences resulting from skip counting by 2s, 5s and 10s. * They continue simple patterns involving numbers and objects with and without the use of digital technology. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 2 achievement standard may be when students: | By the end of Level 2:   * Students count to and from, and order numbers up to 1000. * They perform simple addition and subtraction calculations, using a range of strategies. * They find the total value of simple collections of Australian notes and coins. * Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. * They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 3 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 2 Achievement Standard** | **Example of Indicative Progress toward Level 3 Achievement Standard** | **Mathematics Level 3 Achievement Standard** |
| By the end of Level 2:   * Students count to and from, and order numbers up to 1000. * They perform simple addition and subtraction calculations, using a range of strategies. * They find the total value of simple collections of Australian notes and coins. * Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. * They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 3 achievement standard may be when students: | By the end of Level 3:   * Students count and order numbers to and from 10 000. * They recognise the connection between addition and subtraction, and solve problems using efficient strategies for multiplication with and without the use of digital technology. * Students recall addition and multiplication facts for single-digit numbers. * They represent money values in various ways and correctly count out change from financial transactions. * Students model and represent unit fractions for halves, thirds, quarters, fifths and eighths, and multiples of these up to one. * They classify numbers as either odd or even, continue number patterns involving addition or subtraction, and explore simple number sequences based on multiples. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 4 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 3 Achievement Standard** | **Example of Indicative Progress toward Level 4 Achievement Standard** | **Mathematics Level 4 Achievement Standard** |
| By the end of Level 3:   * Students count and order numbers to and from 10 000. * They recognise the connection between addition and subtraction, and solve problems using efficient strategies for multiplication with and without the use of digital technology. * Students recall addition and multiplication facts for single-digit numbers. * They represent money values in various ways and correctly count out change from financial transactions. * Students model and represent unit fractions for halves, thirds, quarters, fifths and eighths, and multiples of these up to one. * They classify numbers as either odd or even, continue number patterns involving addition or subtraction, and explore simple number sequences based on multiples. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 4 achievement standard may be when students: | By the end of Level 4:   * Students recall multiplication facts to 10 x 10 and related division facts. * They choose appropriate strategies for calculations involving multiplication and division, with and without the use of digital technology, and estimate answers accurately enough for the context. * Students solve simple purchasing problems with and without the use of digital technology. * They locate familiar fractions on a number line, recognise common equivalent fractions in familiar contexts and make connections between fractions and decimal notations up to two decimal places. * Students identify unknown quantities in number sentences. * They use the properties of odd and even numbers and describe number patterns resulting from multiplication. * Students continue number sequences involving multiples of single-digit numbers and unit fractions, and locate them on a number line. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 5 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics 4 Achievement Standard** | **Example of Indicative Progress toward Level 5 Achievement Standard** | **Mathematics Level 5 Achievement Standard** |
| By the end of Level 4:   * Students recall multiplication facts to 10 x 10 and related division facts. * They choose appropriate strategies for calculations involving multiplication and division, with and without the use of digital technology, and estimate answers accurately enough for the context. * Students solve simple purchasing problems with and without the use of digital technology. * They locate familiar fractions on a number line, recognise common equivalent fractions in familiar contexts and make connections between fractions and decimal notations up to two decimal places. * Students identify unknown quantities in number sentences. * They use the properties of odd and even numbers and describe number patterns resulting from multiplication. * Students continue number sequences involving multiples of single-digit numbers and unit fractions, and locate them on a number line. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 5 achievement standard may be when students: | By the end of Level 5:   * Students solve simple problems involving the four operations using a range of strategies including digital technology. * They estimate to check the reasonableness of answers and approximate answers by rounding. * Students identify and describe factors and multiples. * They explain plans for simple budgets. * Students order decimals and unit fractions and locate them on a number line. * Students add and subtract fractions with the same denominator. * They find unknown quantities in number sentences and continue patterns by adding or subtracting fractions and decimals. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 6 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 5 Achievement Standard** | **Example of Indicative Progress toward Level 6 Achievement Standard** | **Mathematics Level 6 Achievement Standard** |
| By the end of Level 5:   * Students solve simple problems involving the four operations using a range of strategies including digital technology. * They estimate to check the reasonableness of answers and approximate answers by rounding. * Students identify and describe factors and multiples. * They explain plans for simple budgets. * Students order decimals and unit fractions and locate them on a number line. * Students add and subtract fractions with the same denominator. * They find unknown quantities in number sentences and continue patterns by adding or subtracting fractions and decimals. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 6 achievement standard may be when students: | By the end of Level 6:   * Students recognise the properties of prime, composite, square and triangular numbers and determine sets of these numbers. * They solve problems that involve all four operations with whole numbers and describe the use of integers in everyday contexts. * Students locate fractions and integers on a number line and connect fractions, decimals and percentages as different representations of the same number. * They solve problems involving the addition and subtraction of related fractions. * Students calculate a simple fraction of a quantity and calculate common percentage discounts on sale items, with and without the use of digital technology. * They make connections between the powers of 10 and the multiplication and division of decimals. * Students add, subtract and multiply decimals and divide decimals where the result is rational. * Students write number sentences using brackets and order of operations, and specify rules used to generate sequences involving whole numbers, fractions and decimals. * They use ordered pairs of integers to represent coordinates of points and locate a point in any one of the four quadrants on the Cartesian plane. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 7 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 6 Achievement Standard** | **Example of Indicative Progress toward Level 7 Achievement Standard** | **Mathematics Level 7 Achievement Standard** |
| By the end of Level 6:   * Students recognise the properties of prime, composite, square and triangular numbers and determine sets of these numbers. * They solve problems that involve all four operations with whole numbers and describe the use of integers in everyday contexts. * Students locate fractions and integers on a number line and connect fractions, decimals and percentages as different representations of the same number. * They solve problems involving the addition and subtraction of related fractions. * Students calculate a simple fraction of a quantity and calculate common percentage discounts on sale items, with and without the use of digital technology. * They make connections between the powers of 10 and the multiplication and division of decimals. * Students add, subtract and multiply decimals and divide decimals where the result is rational. * Students write number sentences using brackets and order of operations, and specify rules used to generate sequences involving whole numbers, fractions and decimals. * They use ordered pairs of integers to represent coordinates of points and locate a point in any one of the four quadrants on the Cartesian plane. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 7 achievement standard may be when students: | By the end of Level 7:   * Students use efficient mental and written strategies to make estimates and carry out the four operations with integers, and apply the index laws to whole numbers. * They identify and describe rational and irrational numbers in context. * Students estimate answers and solve everyday problems involving profit and loss rates, ratios and percentages, with and without the use of digital technology. * They simplify a variety of algebraic expressions and connect expansion and factorisation of linear expressions. * Students solve linear equations and graph linear relationships on the Cartesian plane. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 8 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 7 Achievement Standard** | **Example of Indicative Progress toward Level 8 Achievement Standard** | **Mathematics Level 8 Achievement Standard** |
| By the end of Level 7:   * Students use efficient mental and written strategies to make estimates and carry out the four operations with integers, and apply the index laws to whole numbers. * They identify and describe rational and irrational numbers in context. * Students estimate answers and solve everyday problems involving profit and loss rates, ratios and percentages, with and without the use of digital technology. * They simplify a variety of algebraic expressions and connect expansion and factorisation of linear expressions. * Students solve linear equations and graph linear relationships on the Cartesian plane. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 8 achievement standard may be when students: | By the end of Level 8:   * Students use efficient mental and written strategies to make estimates and carry out the four operations with integers, and apply the index laws to whole numbers. * They identify and describe rational and irrational numbers in context. * Students estimate answers and solve everyday problems involving profit and loss rates, ratios and percentages, with and without the use of digital technology. * They simplify a variety of algebraic expressions and connect expansion and factorisation of linear expressions. * Students solve linear equations and graph linear relationships on the Cartesian plane. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 9 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 8 Achievement Standard** | **Example of Indicative Progress toward Level 9 Achievement Standard** | **Mathematics Level 9 Achievement Standard** |
| By the end of Level 8:   * Students use efficient mental and written strategies to make estimates and carry out the four operations with integers, and apply the index laws to whole numbers. * They identify and describe rational and irrational numbers in context. * Students estimate answers and solve everyday problems involving profit and loss rates, ratios and percentages, with and without the use of digital technology. * They simplify a variety of algebraic expressions and connect expansion and factorisation of linear expressions. * Students solve linear equations and graph linear relationships on the Cartesian plane. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 9 achievement standard may be when students: | By the end of Level 9:  Students apply the index laws using integer indices to variables and numbers, express numbers in scientific notation, solve problems involving very small and very large numbers, and check the order of magnitude of calculations.   * They solve problems involving simple interest. * Students use the distributive law to expand algebraic expressions, including binomial expressions, and simplify a range of algebraic expressions. * They find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment using a range of strategies including the use of digital technology. * Students sketch and draw linear and non-linear relations, solve simple related equations and explain the relationship between the graphical and symbolic forms, with and without the use of digital technology. |

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| **CURRICULUM AREA – Mathematics (Number and Algebra) toward Level 10 achievement standard**  Previous level’s achievement standard as a starting point of comparison  Previous level’s achievement standard as a starting point of comparison | | |
| **Context:** | | |
| **Content Description(s):** | | |
| **Mathematics Level 9 Achievement Standard** | **Example of Indicative Progress toward Level 10 Achievement Standard** | **Mathematics Level 10 Achievement Standard** |
| By the end of Level 9:   * Students apply the index laws using integer indices to variables and numbers, express numbers in scientific notation, solve problems involving very small and very large numbers, and check the order of magnitude of calculations. * They solve problems involving simple interest. * Students use the distributive law to expand algebraic expressions, including binomial expressions, and simplify a range of algebraic expressions. * They find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment using a range of strategies including the use of digital technology. * Students sketch and draw linear and non-linear relations, solve simple related equations and explain the relationship between the graphical and symbolic forms, with and without the use of digital technology. | In **Mathematics (Number and Algebra)**, indicative progression towards the Level 10 achievement standard may be when students: | By the end of Level 10:   * Students recognise the connection between simple and compound interest. * They solve problems involving linear equations and inequalities, quadratic equations and pairs of simultaneous linear equations and related graphs, with and without the use of digital technology. * Students substitute into formulas, find unknown values, manipulate linear algebraic expressions, expand binomial expressions and factorise monic and simple non-monic quadratic expressions, with and without the use of digital technology. * They represent linear, quadratic and exponential functions numerically, graphically and algebraically, and use them to model situations and solve practical problems. |