

The Victorian Curriculum Mathematics Level 3

Number & Algebra:	Measurement & Geometry:	Statistics & Probability:
<p>Number & place value:</p> <p>Investigate the conditions required for a number to be odd or even and identify odd and even numbers (VCMNA129)</p> <ul style="list-style-type: none"> identifying even numbers using skip counting by twos or by grouping even collections of objects in twos explaining why all numbers that end in the digits 0, 2, 4, 6 and 8 are even and that numbers ending in 1, 3, 5, 7 and 9 are odd <p>Recognise, model, represent and order numbers to at least 10 000 (VCMNA130)</p> <ul style="list-style-type: none"> placing four-digit numbers on a number line using an appropriate scale reproducing numbers in words using their numerical representations and vice versa <p>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (VCMNA131)</p> <ul style="list-style-type: none"> recognising that 10 000 equals 10 thousands, 100 hundreds, 1000 tens and 10 000 ones justifying choices about partitioning and regrouping numbers in terms of their usefulness for particular calculations <p>Recognise and explain the connection between addition and subtraction (VCMNA132)</p> <ul style="list-style-type: none"> demonstrating the connection between addition and subtraction using partitioning or by writing equivalent number sentences solving simple word problems involving addition or subtraction <p>Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation (VCMNA133)</p> <ul style="list-style-type: none"> recognising that certain single-digit number combinations always result in the same answer for addition and subtraction, and using this knowledge for addition and subtraction of larger numbers extending strategies for addition and subtraction such as $14 + 8 + 6 = 14 + 6 + 8 = 28$ and $54 - 28 = 2 + 20 + 4$ combining knowledge of addition and subtraction facts and partitioning to aid computation (for example $57 + 19 = 57 + 20 - 1$) <p>Recall multiplication facts of two, three, five and ten and related division facts (VCMNA134)</p> <ul style="list-style-type: none"> establishing multiplication facts using number sequences using strategies to recall the multiplication and related division facts for the twos, threes, fives and tens <p>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (VCMNA135)</p> <ul style="list-style-type: none"> writing simple word problems in numerical form and vice versa using technology to check the solution and reasonableness of the answer <p>Fractions & Decimals:</p> <p>Model and represent unit fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ and their multiples to a complete whole (VCMNA136)</p> <ul style="list-style-type: none"> partitioning areas, lengths and collections to create halves, thirds, quarters and fifths, such as folding the same sized sheets of paper to illustrate different unit fractions and comparing the number of parts with their sizes locating unit fractions on a number line recognising that in English the term 'one third' is used (order: numerator, denominator) but that in other languages this concept may be expressed as 'three parts, one of them' (order: denominator, numerator) for example Japanese 	<p>Using units of measurement:</p> <p>Measure, order and compare objects using familiar metric units of length, area, mass and capacity (VCMMG140)</p> <ul style="list-style-type: none"> recognising and using centimetres and metres, square centimetres, grams and kilograms and millilitres and litres recognising the importance of using common units of measurement measuring the area of rectangles (including squares) by counting the number of square centimetres <p>Tell time to the minute and investigate the relationship between units of time (VCMMG141)</p> <ul style="list-style-type: none"> recognising there are 60 minutes in an hour and 60 seconds in a minute <p>Shape:</p> <p>Make models of three-dimensional objects and describe key features (VCMMG142)</p> <ul style="list-style-type: none"> exploring the creation of three-dimensional objects using origami, including prisms and pyramids <p>Location & transformation:</p> <p>Create and interpret simple grid maps to show position and pathways (VCMMG143)</p> <ul style="list-style-type: none"> creating a map of the classroom or playground <p>Identify symmetry in the environment (VCMMG144)</p> <ul style="list-style-type: none"> identifying symmetry in Aboriginal rock carvings or art identifying symmetry in the natural and built environment <p>Identify and describe slides and turns found in the natural and built environment (VCMMG145)</p> <ul style="list-style-type: none"> recognising and representing slides and turns used in brickwork around the school recognising and representing slides and turn used in sporting activities <p>Geometric reasoning:</p> <p>Identify angles as measures of turn and compare angle sizes in everyday situations (VCMMG146)</p> <ul style="list-style-type: none"> opening doors partially and fully and comparing the size of the angles created recognising that analogue clocks use the turning of arms to indicate time, and comparing the size of angles between the arms for familiar times 	<p>Chance:</p> <p>Conduct chance experiments, identify and describe possible outcomes and recognise variation in results (VCMSP147)</p> <ul style="list-style-type: none"> conducting repeated trials of chance experiments such as tossing a coin or drawing a ball from a bag and identifying the variations between trials <p>Data representation & interpretation:</p> <p>Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (VCMSP148)</p> <ul style="list-style-type: none"> refining questions and planning investigations that involve collecting data, and carrying out the investigation (for example narrowing the focus of a question such as 'which is the most popular breakfast cereal?' to 'which is the most popular breakfast cereal among Level 3 students in our class?') <p>Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (VCMSP149)</p> <ul style="list-style-type: none"> exploring meaningful and increasingly efficient ways to record data, and representing and reporting the results of investigations collecting data to investigate features in the natural environment <p>Interpret and compare data displays (VCMSP150)</p> <ul style="list-style-type: none"> comparing various student-generated data representations and describing their similarities and differences

Money & Financial mathematics:

Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (VCMNA137)

- recognising the relationship between dollars and cents, and that not all countries use these denominations and divisions (for example Japanese Yen)

Patterns & algebra:

Describe, continue, and create number patterns resulting from performing addition or subtraction (VCMNA138)

- identifying and writing the rules for number patterns
- describing a rule for a number pattern, then creating the pattern

Use a function machine and the inverse machine as a model to apply mathematical rules to numbers or shapes (VCMNA139)

- finding and describing simple rules in words to solve problems
- using simple function machines to represent and apply a process or the inverse process, such as increase or decrease the value of a number by a specified amount

Level 3 Achievement Standard

Number and Algebra

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.

Measurement and Geometry

Students use metric units for length, area, mass and capacity. They tell time to the nearest minute. Students identify symmetry in natural and constructed environments. They use angle size as a measure of turn in real situations and make models of three dimensional objects. Students match positions on maps with given information and create simple maps.

Statistics and Probability

Students carry out simple data investigations for categorical variables. They interpret and compare data displays. Students conduct chance experiments, list possible outcomes and recognise variations in results.

The proficiencies of **Understanding, Fluency, Problem Solving** and **Reasoning** are fundamental to learning mathematics and working mathematically, and are applied across all three strands Number and Algebra, Measurement and Geometry and Statistics and Probability.

In Level 3, students increasingly **use mathematical terms and symbols to describe computations, measurements and characteristics of objects.**

Students **recognise, model and order numbers to at least 10 000** and place four digit numbers on a number line with regard for scale. They **partition and re-arrange to facilitate calculations involving addition and subtraction.** Students have facility with single digit addition and related subtraction facts, and **recall multiplication and related division facts for twos, threes, fives and tens. They formulate and solve simple multiplication and division problems, estimate answers and use technology to check calculations.**

Students group money to a specified value in several ways, and **calculate change required in simple transactions.** They **model and represent multiples of unit fractions up to a whole,** using arrays on a number line. They **write simple rules for number patterns and generate those patterns.**

Students use **metric units of length, mass and capacity to measure, order and compare objects.** They **associate angle with measure of turn and compare angles in everyday situations.** They tell the time in minutes and convert between units of time. **They use simple grids in maps and identify symmetry.**

Students carry out investigations, **collect and organise data into categories and use different methods with and without technology to display the data.** They conduct experiments **involving chance, describe possible outcomes and recognise variability in results.**